3.
Conducting SEIA

3. Conducting SEIA

3.1 Early SEIA Roles and Responsibilities

Good SEIA begins prior to development applications during initial developer analysis.

1. Preliminary screener

- Advises the developer on relevant guidance documents and possible information requirements for the initial development application[1]

2. Developer

- Determines which communities and other groups the proposed development might affect
- Makes reasonable efforts to consult potentially affected groups during initial developer analysis
- Scopes the SEIA to identify valued socio-economic components the proposed development may impact
- Uses the *SEIA Guidelines* to assist in determining an acceptable level of SEIA for the preliminary screening process
- Conducts a level of SEIA appropriate for the proposed development

3. Communities and other potentially affected groups

- Communicates with the developer
- Provides local expertise and contextual information when the developer is determining potential impacts
- Identifies key concerns and issues about the proposed development
- Identifies potentially affected parties, the level of public concern, and valued socio-economic components

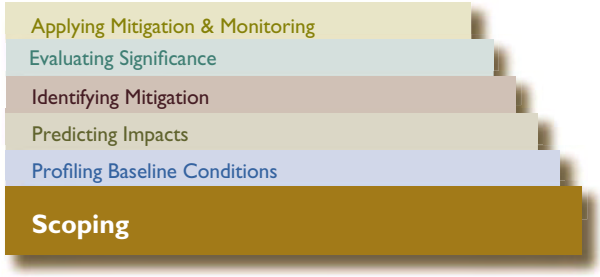
4. Government agencies

- Informs the developer of potential legislated or procedural requirements the developer must abide by
- Advises the developer on relevant resource materials and information

5. The Mackenzie Valley Environmental Impact Review Board

- Informs the developer about guidance documents, and what information may be required for the EIA process

3.2 Scoping the SEIA



Scoping the SEIA helps the developer determine the following:

- How much SEIA is warranted for preliminary screening
- Potential impacts of the proposed development on the socio-economic environment

Scoping is a critical process that establishes the geographical, temporal, and issue boundaries of SEIA. The main function of scoping is to determine which SEIA issues should be considered during the initial developer analysis. The developer may use various sources to identify key scoping elements, some of which are illustrated in Figure 3.

1. Preliminary screeners conduct this phase of the EIA process. In the Mackenzie Valley, regional land and water boards screen 80–85 percent of development applications. Other preliminary screeners may include territorial and/or federal departments, and the National Energy Board.

FIGURE 3 Typical Scoping Inputs

Although additional scoping will happen if the proposed development is referred to EA, the developer is expected to do the bulk of SEIA scoping before preliminary screening.

The developer must decide the following about SEIA during scoping:

1. The scope of development

This includes the physical works and supplementary developments for each stage of the proposed development. Scoping the development should address the following SEIA issues:

- The **human resources** required for each stage of the proposed development – this includes the developer's employees, contractors and sub-contractors
- The **skills** required for the proposed development and whether workers with these skills are available, and/or whether workers can acquire these skills locally, territorially or nationally
- The **goods and services** for each stage of development, and likely providers
- Whether new or upgraded **physical infrastructure** is needed for accessing or operating the proposed development

The scope of development should relate directly to the physical nature and work requirements of the proposed development. Cumulative effects assessment also requires consideration of future developments, but only if they can reasonably be expected to happen. For example, a grass-roots mineral exploration drilling program should not be assessed on the assumption that the drilling program will result in the development of a large mine. Most mineral exploration programs do not result in mines; therefore, a mine is not considered an expected outcome of grassroots exploration.[2]

2. The scope of issues

The developer must identify the perspectives of communities, government agencies and other parties on SEIA issues and concerns, and the potential impacts the proposed development may cause. The developer must consider what community members *believe* are the potential impacts (perceived impacts) of the proposed development because socio-economic impacts are generally linked to people's perceptions of their environment.

Initial issues scoping is open-ended and inclusive. The developers should make providing and distributing information about the proposed development a priority during scoping. Making potentially affected people and communities aware of the proposed development can help the developer identify key concerns. Public awareness about the proposed project can curtail unrealistic and inflated expectations of the proposed development's benefits, including undue public concern about potential adverse impacts.

The developer should narrow identified issues and concerns about potential impacts using an "issues-

2. The *EIA Guidelines* have more information about scoping the development and Appendix G6 "Cumulative Impacts and SEIA" discusses how to include consideration of cumulative impacts.

oriented approach." *An issues-oriented approach identifies issues that are important and possibly related to the proposed development.* Working with SEIA experts and potentially affected communities can help a developer identify important issues. Researching previous similar developments and/or doing impact-prediction exercises can assist the developer predict how individual components of the proposed development may affect or cause impacts.

3. The scope of assessment

a. Spatial boundaries

Spatial boundaries are the potential geographical limits of possible impacts identified during issues scoping, including the socio-economic footprint of the proposed development. A socio-economic footprint is the geographical area beyond which it is unlikely a proposed development will impact valued socio-economic components. Examining previous similar developments, developing an understanding of local and regional socio-economic dynamics, and consulting informants and experts can help the developer estimate the socio-economic footprint.

The developer should consider which of the following five spatial boundaries are relevant to its SEIA: ▸ individuals ▸ families ▸ communities ▸ regions and ▸ the Mackenzie Valley.

In certain circumstances, such as the SEIA of a large development with broad socio-economic implications, the developer should also consider national and international spatial boundaries.

The developer should not assume information about potential impacts within one spatial boundary applies to another. The developer should determine the following about the spatial boundaries when scoping the assessment:

- Likely human resources, and goods and services providers for the proposed development
- Impacts of the proposed development on valued socio-economic components including traditional, heritage and cultural resources
- Potential access corridors for the proposed development

Boundaries should not be overly restrictive because impacts and potentially affected groups and communities may not be apparent at this early EIA stage. Conversely, boundaries should not be overly flexible because SEIA should assess the spatial boundaries of the various potentially affected groups and communities independently. The developer should establish the spatial boundaries regardless of whether the boundaries traverse jurisdictions.

Spatial boundaries may be discontinuous: communities that may provide labour, transportation and other services for the proposed development should be considered in SEIA regardless of their physical distance from the location of the proposed development (e.g. Fort Smith as a source of labourers for a development in the Sahtu).

b. Temporal boundaries

Different stages of a proposed development can cause impacts with different temporal boundaries. Temporal boundaries include the following:

- The **planning stage** when expectations of and speculation about a proposed development can impact the socio-economic environment
- The **construction stage** which is generally a short-term, capital- and workforce-intense phase of development when large infusions of capital and labour may have adverse and beneficial impacts on the socio-economic environment
- The **operational stage** is usually longer in length – impacts on the socio-economic environment during this stage may include the effects of new long-term employment, changing patterns of consumption, increased infrastructure, etc.
- The **closure/decommissioning stage** happens when communities adapt to the removal of the development from the socio-economic environment – this can cause a loss of employment and business, and economic uncertainty
- The **post-development stage** is important because long-range post-closure timelines must be considered when examining the inter-generational impact distribution of larger developments

Answering the following questions can help the developer define the temporal boundaries of the SEIA:

- When will the impacts happen?
- How long will the impacts last?
- How could the impacts change over time, and during the different development stages?
- Could the impacts contribute to the cumulative impacts of previous, present, or potential future developments?

3.2.1 Early Community Engagement

Early community engagement is required before the developer submits an application for preliminary screening.

A preliminary screener may conclude a development application is incomplete if it lacks evidence of early community engagement.

TABLE 3 Checklist of Recommended Activities Before Early Community Engagement

✓	Task
☐	Identify what information is required for preliminary screening.
☐	Identify land-ownership issues that may require access agreements such as the location of the proposed development or an access route to the proposed development that traverses aboriginal lands in settled land claim areas.
☐	Identify relevant community plans, regional land use plans, and other planning documents. Identify whether the proposed development conforms to these plans.
☐	Use community engagement handbooks (see References and Suggested Further Readings) and talk to community-liaison specialist before developing an ethical consultation strategy. Consider whether a consultant is required.
☐	Be aware that if primary social science research is required, the Aurora Research Institute (nwtresearch.com) needs to be contacted about research licensing.
☐	Identify which communities should be consulted initially, and explain the rationale for including these communities.
☐	Identify whether each identified community, or the region as a whole, has a specific policy or protocol that dictates how developers should conduct early community engagement.
☐	Research the socio-economic environment and context of the proposed development.
☐	Identify important community contacts.
☐	Produce a preliminary "in-house" list of potential impacts and public concerns. (Use information about the proposed development, research on past developments in the potentially affected region, case studies of similar developments, and existing developments in the region as source material for this list.)
☐	Distribute a plain-language description of the proposed development to involved communities and other parties before hosting any detailed discussions.
☐	Be familiar with SEIA issues commonly brought up by community members; be ready to explain whether these concerns relate to the proposed development.
☐	Establish a mechanism for follow-up communications with communities, but be flexible.

During early community engagement, the developer has the opportunity to familiarize the potentially affected communities with the scale, complexity, and location of proposed development. This can assist the communities identify potentially adverse and beneficial impacts. Early community engagement also provides a forum for the developer to learn of community concerns regarding the proposed development.

Preparing for early community engagement

Each community will have unique experiences of past developments that influence the community's attitude towards future developments. Before consulting with a community, the developer should be aware of the following:

- The historic background of the community
- The relationship between community members and the environment
- Demographic characteristics of the community
- Internal and external political structures
- The community's relationship with the regional, territorial and federal governments
- Existing community goals and aspirations for economic development and social/cultural well-being
- Existing vulnerabilities and strengths of the community e.g. strong locally delivered social services and healthcare, level of economic dependence on social services, etc.
- The cultural values that shape the perspectives of community members
- Members of the community who are particularly vulnerable to adverse socio-economic impacts and/or under-represented e.g. youth, traditional harvesters, women, and elders

Tools to better understand residents and communities include: demographic profiles from government reports and statistics agencies; media coverage, directories, maps, and books on local/regional culture; analysis of comparable case studies; and initial discussions with government, key contacts in communities, and other developers experienced in the area. See Appendix C for example contact organizations.

Identifying potentially affected communities and groups

The developer is ultimately responsible for identifying and consulting potentially affected communities and groups during the initial EIA stages. Sometimes identifying potentially affected communities, levels of government and other groups is straightforward, such as when a development is directly adjacent to the community. In other cases, a proposed development may affect the cultures and lifestyles of people from a number of communities in a larger region.

The developer may identify potentially affected communities and other parties through the following suggested activities:

- Talking to various parties in the region about the proposed development
- Engaging initially with any groups that have expressed an interest in the proposed development
- Determining employment requirements, goods and services providers, and transportation routes required for the proposed development; identify likely geographic locations/sources of these resources, recognizing that each community has different levels of skill and business capacities
- Estimating which socio-economic and cultural areas the surrounding communities and land users use, then comparing the spatial boundaries of these areas with the physical footprint of the proposed development
- Using socio-economic data from the GNWT Bureau of Statistics to determine the vulnerability of communities to externally imposed change (e.g. the impacts of increasing participation in a wage economy in a community that relies mainly on a traditional economy)

It may be important for the developer to identify particularly vulnerable groups or sub-populations – such as women, youth and the elderly – who may lack the capacity – financial, political and/or educational – to participate in early community engagement. Identification of directly affected vulnerable groups is not solely so the developer can make these groups the *subjects* of SEIA. The developer should make an extra effort to include vulnerable groups as *participants* in SEIA. Communities

and groups likely to be *more* impacted by a potential development, adversely or beneficially, merit a larger emphasis in impact analysis.

In general, the developer should consult widely during early community engagement. If the developer chooses not to consult with a community that has expressed a concern about the proposed development, the developer should explain why.

Considerations for Developer-Government Consultation

- Developers should consult with potentially affected levels of government during initial developer analysis. Local, regional, aboriginal, territorial and federal governments have valuable expertise. Many levels of government have socio-economic mandates. In addition, the potential impacts of a proposed development may affect a government's ability to provide services.
- The GNWT is a main source of information for developers. While getting background baseline information about NWT regions and communities from the territorial Bureau of Statistics is encouraged, the GNWT has a "one window" approach to consulting with prospective developers. The territorial Department of Environment and Natural Resources (ENR) should be a developer's first point of contact with the GNWT. ENR represents the interests of the GNWT during EIA. ENR can help developers identify other GNWT departments that have useful information for conducting SEIA.
- Local service providers working for the GNWT such as renewable resource officers, economic development officers and social workers are sources of information about a specific community or region. These service providers can be helpful during SEIA. Please note, however, that local service providers may not be privy to or aware of their department's long-term policy direction, projected budgets and fiscal constraints, and socio-economic indicators and trends.

Conducting early community engagement for SEIA

No set model exists for community engagement in the Mackenzie Valley. Developers should be aware of any community-specific policies or protocols that define and govern community engagement. Tools for early community engagement include plain-language discussions, individual and group interviews, focus groups, community meetings, open houses, and surveys and polling.

The developer should identify community-capacity issues and tailor consultation efforts accordingly. Sometimes communities are overburdened and lack capacity to participate fully and effectively in consultation. The developer may need to be flexible with meeting dates and tailor meeting content for the audience.

If the developer anticipates that communities will raise socio-economic issues and concerns, the developer should contact a wide range of organizations. See Appendix C "Organizations with SEIA Expertise" for a comprehensive list of potential contacts.

Despite a developer's best efforts, some communities may decide not to participate in the consultation. The developer should make *reasonable efforts* to provide communities with opportunities to become engaged early in the process. If the community decides not to participate, the developer should document and report its communication efforts, and focus on identifying potential impacts on the community using other means.

The developer should include a record of meetings and public comments in the initial development application. (The developer should inform early community engagement participants that such a record is being kept.) This record should document the following information:

- Dates and locations of every meeting
- Names of people and organizations involved
- Topics discussed and views stated
- Any suggestions about potential impacts from communities and/or community members
- Information requests and responses
- Suggested mitigation for potential impacts; identify who made the suggestion

- Every commitment and agreement made in response to public issues
- Any unresolved issues, and suggestions for resolving these issues at a later date

3.2.2 Determining the Appropriate Level of SEIA

Basic SEIA is generally for proposed small developments unlikely to cause significant adverse impacts or significant public concern.

Moderate SEIA is for proposed medium-sized developments with more than a couple of identified potential impacts or proposed small developments with several potential impacts.

Comprehensive SEIA is for proposed large, extensive developments or any other proposed development that is likely to have a variety of adverse impacts.[3]

The level of SEIA is governed by the size, complexity, and the socio-economic environment and context of the proposed development. Generally, developers with smaller proposed developments – those with a combination of a small geographic footprint, relatively short timelines, and minimal employment requirements – are expected to do the following:

- Fulfill community-engagement responsibilities and applicable land-access agreement obligations
- Conduct a "Basic SEIA" (see Section 3.2.3 for details)

Less than 10 percent of proposed developments in the Mackenzie Valley find socio-economic issues or concerns that require dedicated attention. Most small proposed developments are unlikely to cause significant adverse impacts.

Grassroots exploration in the oil and gas, and mining sectors are common examples of small developments that are usually expected to do Basic SEIA. The developer may decide to address specific individual issues – rather than conduct a "Moderate" or "Comprehensive" SEIA – if the proposed development results in any or all of the following:

- Comes into contact with or is in proximity to any sites recognized as having spiritual or cultural significance and/or heritage resources (see Appendix G2)
- Comes into contact with or is in proximity to any sites that are important to the traditional economy and/or may interfere with this or any other alternate economic activities (see Appendix G3)
- Is located in an area already experiencing a high degree of cumulative impacts to the socio-economic environment (see Appendix G5)
- Public concern about how the proposed development may interact with the socio-economic or cultural environment

A Comprehensive SEIA should include a general socio-economic impact overview in its initial application. Preliminary screening has a broad and shallow focus and is the shortest EIA stage, usually with a 42 day maximum timeline. To avoid delay during the EA phase, the bulk of SEIA for large developments should be completed during initial developer analysis.

"Level of SEIA Test"

The developer should conduct the "Level of SEIA Test" before submitting an application for preliminary screening (see Table 5). The developer can use knowledge gained during scoping exercises and early community engagement to assist in determining the level of SEIA.

The "Level of SEIA Test" should help the developer identify the degree, development type and/or socio-economic factors of the proposed development which might create significant adverse socio-economic impacts and/or cause public concern.

The MVRMA does not specify the level of effort for collecting SEIA information; therefore, the developer should base its informed judgment about the required level of SEIA on consultation, prior experience, case studies, and reasonable expectations and predictions.

3. Notice that in the examples used here, identifying adverse impacts is the focus. The MVRMA focuses on identifying and mitigating these adverse impacts. In reality, SEIA includes the study of trade offs between adverse impacts (also called costs) and beneficial impacts (also called benefits). The use of the adverse terminology herein is not meant to construe that development has only adverse impacts, or that SEIA does not consider beneficial impacts. Enhancements and trade offs between adverse and beneficial impacts are always considered.

TABLE 4 Comparing the Expectations of Basic, Moderate and Comprehensive SEIA During Initial Developer Analysis

Level of Effort	Information Expectations	Recommended Content	Focused On…
Basic SEIA	*Low* • Simple • Mainly quantitative information from secondary sources	• Scoping • Minimal baseline data • Impact prediction • Mitigation	• Specific impacts only
Moderate SEIA	*Moderate* • Secondary research requiring either no primary research, or a moderate amount of primary research	• Scoping • Baseline conditions • Impact prediction • Mitigation	• Identified and defined impacts • Acquiring basic information about the socio-economic environmental context
Comprehensive SEIA	*High* • SEIA started well in advance of submitting the development application for preliminary screening • Primary and secondary research required	• Scoping • Baseline conditions • Impact prediction • Initial significance determination • Mitigation	• Every area of possible impact • A detailed understanding of socio-economic environment and context

Before applying the "Level of SEIA Test," the developer is expected to consider whether past developments of a similar size, type, location, or past developments with similar levels of complexity have been referred to EA. The developer can usually access information about past developments through the online electronic public registries of the land and water boards and the Review Board, and/or through consultations with informants in communities, government representatives, and consultants. In addition, the developer should note whether similar past developments impacted valued socio-economic components.

Considerations for the scope of assessment and level of SEIA effort

Table 5 will assist the developer in determining the scope of assessment and level of SEIA. While some of the information used to complete this subjective "test" can be collected from existing reports, valuable information can also come from potentially affected communities and responsible government authorities. The developer is responsible for documenting its findings and rationale for selecting value ranges.

The higher the value of the variable – the more heavily the variable is weighted toward potential impacts occurring or potential public concern – the greater the need for additional SEIA of the specific variable and/or the issues of concern. The overall level of SEIA effort required rises according to the number of high-potential variables.

TABLE 5 Considerations for the Scope of Assessment and Level of SEIA Effort

Assessment Variable	Questions and Example Indicators	Low Potential	High Potential
Level and nature of concern	• Do the developer's commitments address community concerns?	Yes	No
	• What is the level of public concern about previous developments?	Low level of concern	High level of concern
	• Is the community ready/comfortable with this type of proposed development?	Yes	No
Level of interest	• Does the community want to work with developer on SEIA?	Yes	No
	• What is the level of interest in the proposed development?	None	Very high
	• What is the level of community expectations?	Low	High
Community development issue	• How well does the development fit into existing community or regional plans?	Excellent fit	Poor fit
	• Are there obvious divisions within the community that SEIA should address?	No	Yes
Physical size of the proposed development	• Physical footprint	Small	Large
	• Associated linear developments such as roads, power lines, etc.	None	Extensive
	• Required associated physical infrastructure	None	Extensive
Relative economic value	• Vibrant wage economy, mixed or more traditional economy?	Predominant wage economy	Predominant traditional economy
	• Current socio-economic status?	Low unemployment	High unemployment
Development timeline	• Development duration	Short, <1 year	Long, >20 years
	• Duration of potential positive and negative effects	Short, <1 year	Long, >20 years
	• Duration of major labour and service requirements	Short, <1year	Long, >20 years
Complexity of proposed development	• Intrusiveness of the activity	No/limited intrusiveness	Very intrusive
	• Reliance on outside expertise	Low percentage	High percentage
	• Level of technology	Low	High
	• Potential for pollution	Low	High
	• Severity of worst-case scenario	Low	High
Economic scale	• Capital cost	<$1 million	>$300 million
	• Expected employment multipliers	Low	High
	• Annual operating costs	Low	High

Continued...

TABLE 5 Considerations for the Scope of Assessment and Level of SEIA Effort *Continued*

Assessment Variable	Questions and Example Indicators	Low Potential	High Potential
Labour force, services and supplies required	• Number of person years of work • Types of workers/services required • Average duration of employment	Low, <20 person years Low skill level Short-term	High, >2000 person years High skill level Long-term
Capacity of communities	• Skill levels required vs. available skilled labour • Local education and training demographics	Good fit Poised to take advantage	Poor fit Little capacity to take advantage
Community experience	• Is there local experience of this type of development? • Nature of development experience • Do case studies of previous developments highlight socio-economic impacts and potential public concerns?	Yes Predominately positive Several examples to draw from	No Predominantly negative Few examples to work from
Previous, current or future developments in area	• What is the potential for significant cumulative effects to (examples only): families, wildlife harvesting, social services, education, cultural resources, health, infrastructure, etc.	*(for each variable)* Unlikely	*(for each variable)* Likely
Proximity to sites of historic or current socio-economic and cultural significance	• Particular aesthetic values of place • Locations of spiritual significance • Level of possible or documented archaeological resources (contact the Prince of Wales Northern Heritage Centre for assistance)	No to low value No incidence Low density of possible archaeological resources	High value High incidence High density of possible archaeological resources
Proximity to important wildlife harvesting locations	• Density of important game animals in area • Sensitivity of land and animals in the area to development • Importance of traditional economy to potentially affected communities	Low density Low sensitivity None	High density High sensitivity High
Alternative land uses and current level of use	• Will the proposed development affect the ability of traditional users to go on the land? • Are there alternative economic or non-economic uses of the land?	No No	Yes Yes
Proximity to communities and level of interaction	• How close is the proposed development to communities? • How easily will the labour force interact with the communities?	Distant No access	Close Easy access

Continued...

TABLE 5 Considerations for the Scope of Assessment and Level of SEIA Effort *Continued*

Assessment variable	Questions and example indicators	Low Potential	High Potential
Size and demographic makeup of nearby communities	• Communities with different demographics and size will respond differently to the proposed development	Non-traditional life style Large population	Traditional lifestyle Small population
In/out migration patterns and population growth in potentially-affected communities	• Could the proposed development result in population changes in communities/region? • Will there be additional pressures on public services/infrastructure?	Small change No changes	Large change Increased demand
Identification of vulnerable communities	• e.g. Are women, youth and/or elders vulnerable?	No vulnerable groups	Many vulnerable groups

3.2.3 The Different Levels of SEIA Effort

Each level of SEIA effort builds on the requirements of the previous level.

Basic SEIA

The developer should give the preliminary screener and reviewers information that assures them the proposed development ▸ is small and simple ▸ has negligible or manageable socio-economic impacts, and ▸ does not require mitigation beyond the developer's proposed mitigation.

If Basic SEIA highlights any potential impacts that might be significant or cause public concern, the developer should examine these specific issues using the prediction, mitigation and significance tests of Moderate SEIA.

The developer should include the following in its development application for Basic SEIA:

1. A record and description of efforts to consult potentially affected communities and other parties

2. A development description, including the following socio-economic data:
   - Total estimated capital costs of the proposed development, including annual operating costs
   - Approximate number of workers including the developer's employees and contractors, and number of person days/years of work for the proposed development, including subcontracting
   - Identified archaeological resources within the footprint of the proposed development
   - A list of any extra regional infrastructure required for the proposed development to proceed

3. Any identified potential impacts on the socio-economic environment, and suggestions for mitigating these impacts

Table 6 can help the developer identify major SEIA categories during EIA. For each category with potential impacts, the developer should predict ▸ how the proposed development might interact with valued socio-economic components ▸ why it is expecting the proposed development may cause adverse impacts or public concern, and ▸ which communities and/or areas might be impacted.

Moderate SEIA

During Moderate SEIA, the developer should focus on identifying specific potential relationships between the proposed development's potential impacts and valued socio-economic components. If the developer identifies a potential impact, it should evaluate the significance of the impact, and research and propose possible mitigation.

TABLE 6 Sample SEIA Issues and Mitigation Worksheet

Impacts On ...	Description of predicted adverse impacts and proposed mitigation
Housing (access, appropriateness, affordability)	
Family/household stability	
In-migration and out-migration	
Maintenance of cultural values such as language	
Access to land for traditional uses	
Traditional economy-harvesting success	
Income and levels of disposable income	
Cost of living and inflation	
Employment levels	
Community expectations	
Business opportunities	
Gender equity	
Inter-generational equity	
Access to education/training and their perceived value	
Human health concerns including access to services	
Pressure on infrastructure (roads, buildings)	
Public safety concerns	
Level and accessibility of social services provided	
Lifestyle choices	
Boom and bust economic cycles	
Archaeological/heritage resources	

Moderate SEIA requires the following:

1. Information required for Basic SEIA
2. Consideration of the suggested information requirements listed in Table 7

During Moderate SEIA, the developer will probably collect information from case studies, discussions with communities and other parties, and local, regional and territorial socio-economic statistics. Limited primary research, if any, is needed.

Identifying valued components

It is essential that the developer identify valued components during Moderate SEIA. Valued components are parts of the biophysical, socio-economic and cultural fabric of a community or region that are important to the community who defines them.[4] Using traditional and local knowledge is especially important when identifying valued socio-economic components because the socio-economic environment is a lived experience. Valued socio-economic components vary widely because their value is based on a community's priorities and aspirations.

Valued socio-economic components are best identified – and more easily measured – in *goal-based* statements rather than passive statements. The following are commonly identified valued socio-economic components (this list is not exclusive):

- Preserving and protecting heritage and archaeological resources
- Maintaining and enhancing harvesting activities and the traditional economy
- Maximizing local and regional business opportunities (employment, training and/or a share of development revenues)
- Protection from undesirable social consequences of introducing temporary workers into the community
- Maintaining the aesthetic qualities of the built and natural environments
- Providing and maintaining adequate physical and social infrastructure

TABLE 7 Suggested Information Requirements for Moderate SEIA

Component	Information Requirements
Principal activities and development components associated with constructing, operating, maintaining and decommissioning the proposed development (scope of development)	• The physical works, associated energy, goods and services, and labour required for the proposed development • Approximate number of workers and anticipated work-rotation schedule • Whether a camp or other accommodation is necessary • A list of additional physical and social infrastructure requirements associated with the proposed development, ancillary activities or expected indirect increases i.e. in-migration to region • Number of person days/years of work associated directly with the proposed development, including subcontracting • Percentage of required labour requiring skilled trades people versus non- or semi-skilled, along with a list of jobs available • Estimated percentage of jobs that could be filled by people living near the proposed development or people from other potentially affected communities • Estimates of required in-migrant workers and likely transportation and accommodation scenario(s)

Continued...

4. Appendix D has a list of valued socio-economic components often identified in the Mackenzie Valley.

TABLE 7 Suggested Information Requirements for Moderate SEIA *Continued*

Component	Information Requirements
Timing and duration of the proposed development	• Total time length of the proposed development (including breakdown into construction, operation, closure and reclamation stages)
Description of local study area	• Description, including maps, of proposed development's relative proximity to any of the following: o heritage resources, burial sites and other sites of special significance o valuable traditional harvesting sites and traditional trails o areas with high recreational/aesthetic values o communities
Description of baseline physical character of the proposed site	• Are there biophysical environment sensitivities that merit special attention because of their interaction with the socio-economic environment? • Any feasible alternative locations for the development
Financial considerations	• Total estimated development capital costs, broken down by component and timeline • An estimate of any local or regional employment or business multipliers • New business opportunities which might be created • Estimated changes in the cost of living, including information from case studies of similar developments • Estimated costs of development not borne by developer, e.g. government cost associated with maintaining infrastructure
Land ownership/use status	• Land ownership status of the proposed development location, and any aboriginal-owned lands on transit corridors requiring access agreements or other considerations • Review of land use plans for conformity • Who uses the land? What are the prevalent and other alternative land-use types?
Identification and description of relevant valued components and their baseline conditions ***(see text)***	• Valued socio-economic components should be defined, whenever possible in consultation with the potentially affected parties; only valued socio-economic components that the proposed development may impact should be included • The developer can use secondary qualitative and quantitative information, and the results of early community engagement to describe the baseline conditions of the identified valued socio-economic components
Impact prediction that emphasizes the interaction between the proposed development and valued socio-economic components ***(see text)***	• Type and degree of potential interaction between the proposed development components and the communities' socio-economic and/or cultural environment and context • Impact prediction should include predicted beneficial impacts so reviewers can analyse trade offs
Estimate of required mitigation	• Provide details about proposed mitigation for identified adverse impacts
Estimate of significance	• An initial estimate of the significance of residual impacts remaining after mitigation is applied

Interactions between components of the proposed development and valued socio-economic components

Determining how the various components of the proposed development may interact with valued socio-economic components is important during Moderate SEIA. For example, new roads may increase in- migration *and* out-migration, or more jobs may cause a variety of lifestyle changes for community members and increase the amount of disposable income in the community.

In the absence of a Comprehensive SEIA, the developer can use the worksheet in Appendix F as a tool for predicting impact relationships between components of the proposed development and the valued socio-economic components.

Comprehensive SEIA

Comprehensive SEIA recognizes that the size and complexity of a proposed large development will likely impact a variety of socio-economic valued components, and, consequently, society in general. A proposed development requiring a Comprehensive SEIA will likely be referred to EA. Even though a Comprehensive SEIA is not a preliminary screening requirement, beginning a Comprehensive SEIA before preliminary screening may resolve certain issues before the EA begins.

Proposed complex large-scale and long-term developments such as large mines, oil and gas operations, pipelines and major infrastructure such as large new highways and hydroelectric dams are generally referred to EA. If the developer is proposing a similar scale of development, the developer should follow the guidance provided in this section for using the "Six Steps of SEIA."

SEIA for a proposed complex large-scale and long-term development should start well before the developer submits an application for preliminary screening. SEIA for large developments should follow a similar timeline as profiling the baseline conditions of the biophysical environment.

While the expectations identified in this section should guide the developer on the type of assessment for initial developer analysis during Comprehensive SEIA, reporting requirements will be lower during preliminary screening than in EA.

Preliminary screening has a broad focus and is typically the shortest of the three possible stages of EIA. The developer should consider including the following information when drafting the development description:

1. The information required in a Moderate SEIA.
2. An expanded survey and review of the local study area, including a list of identified potentially affected communities and levels of government, with a brief rationale for their inclusion.
3. An initial study of cumulative impacts on the valued socio-economic components the proposed development may contribute to (the developer should also include information about other developments that may add to the cumulative impacts).
4. A table of identified potential adverse and beneficial impacts the proposed development may cause independently or in combination with other developments; this table should include an initial estimation of significance. The developer should include identified valued socio-economic components that are categorized according to appropriate benchmarks and indicators. If the developer finds "no significant impacts," it should explain why.

Data collection requirements during a subsequent EA will build on, not replace or duplicate, any work done during the initial developer analysis. Developers of proposed large developments that have several years of lead-time before applying for permits and licenses, are recommended to use this time wisely: inadequate early SEIA-information collection and analysis can impede the progress of an EA.

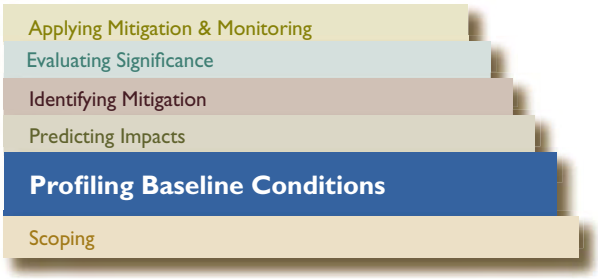
In order to understand the impacts of large developments, a detailed understanding of the socio-economic environment and its inherent dynamics is necessary. For example, a diamond mine located in the barren lands will not only impact the closest aboriginal communities. A large development impacts several regional centres, the territorial capital, entire regions, and, generally, the entire NWT. Large developments also draw significantly on resources from other jurisdictions.

In summary, the developer of a proposed large-scale development should not treat SEIA lightly during preliminary screening. The developer should use the period before and during preliminary screening to begin a Comprehensive SEIA in preparation for EA. This period is an opportunity for the developer to:

- Create a dialogue with potentially affected communities and other parties
- Address and resolve socio-economic issues
- Complete most of the initial SEIA work

These efforts should sharpen the focus of the EA scope, reduce timelines, and improve the analysis of critical issues and development decisions.

3.3 Profiling Baseline Conditions



The developer is expected to collect and thoroughly interpret information about the socio-economic environment and context of the proposed development. This interpretation should address past and current conditions and trends. An understanding of relevant trends and the socio-economic dynamics of an area is essential to predicting how much future change is likely, and how much the proposed development may affect this change. The developer needs this information to asses how the proposed development may impact valued socio-economic components.

The developer's socio-economic baseline condition profiling should identify the resilient and vulnerable members of potentially affected communities.

See Section 3.2.1 for further information on this topic.
For large, complex developments, the developer should conduct baseline condition profiling well before the Review Board issues the TOR.

Baseline condition profiling follows these three steps:

1. Choosing methods and tools for collecting baseline data
2. Determining relevant benchmarks and indicators
3. Profiling the baseline conditions

1) Choosing methods and tools for collecting baseline data

The developer may choose the methods and tools for collecting baseline data. However, the Review Board evaluates the relevance and quality of the developer's chosen methods and tools when determining the weight and adequacy of the developer's evidence. The developer should choose methods and tools that are:

- **Reasonable and cost effective** – the level of effort for gathering baseline data should be in line with the size, cost, socio-economic environment and context, and the degree of the proposed development's predicted impacts
- **Relevant** – the collected data should link logically with the issues and concerns identified during scoping
- **Accessible** – for potentially impacted communities to understand and contribute to the SEIA, they must be comfortable with the methods and tools the developer chooses
- **Responsive, representative and engaging** – the methods and tools should allow communities and vulnerable sub-populations to be involved, directly or indirectly, in collecting baseline data

a) Using existing information

The developer should use existing social research (secondary data collection) and original social research (primary data collection) as necessary. The developer should use existing studies first, and original social research only when there are gaps in the baseline data.

Sources of existing studies and data include reports, statistics and community and regional planning documents. Many resources are also available from a variety of organizations that are not parties to the EA of the proposed development. Such sources include the following:

- The SEIA of other developments in the territory/region, such as previous EIAs
- Sector-specific case studies and reports from industry associations
- Territorial and federal government documents about social and economic issues
- Basic and advanced statistical information about demographics, the labour force and a variety of other subjects, including census data collected by Statistics Canada and the GNWT Bureau of Statistics
- Territorial, community and regional development plans
- Impact benefit agreements (non-confidential portions) and socio-economic agreements from similar operations
- Community studies of traditional/local knowledge of ▸ the traditional economy ▸ heritage resources ▸ historic and current forces of socio-economic change ▸ community vulnerability and resilience ▸ valued components ▸ housing ▸ vulnerable sub-populations such as children and young people, and ▸ community wellness, etc.[5]

b) Conducting primary research

Primary data is gathered directly in the field. The level of detail is higher in primary data than secondary data. The developer may need primary data when comparing alternatives to the components of the proposed development.

Collecting primary data is more expensive and labour-intensive than collecting secondary data. The developer should only use primary data when the existing secondary data is missing information that is critical to the SEIA. Non-experts should not collect primary data; the developer is responsible for employing experts for this type of work.

Table 8 lists some methods used to conduct primary research.

Due to the small population and low population density of the NWT, researchers conducting primary research may strain the resources of communities, NGOs and

TABLE 8 Sample Primary Data Collection Methods

Tool	Description
Interviews with key informants	Formal documented interviews with ▸ political representatives ▸ government officials ▸ NGOs ▸ community health practitioners ▸ law enforcement agencies, and ▸ local social service providers, etc.
Surveys/questionnaires	Well-designed surveys of community members can allow people to express their concerns, and identify possible relationships between the impacts of the proposed development and valued socio-economic components. Knowledge of survey design is essential. Surveys can be done at the individual, worker, or household level.
Community meetings	Public meetings can be essential, particularly during scoping, in identifying issues and mitigation. Meetings are useful when assessing broad issues and maintaining communication between the assessor and affected parties.
Focus groups/workshops	These types of structured discussions between assessors and small groups of informed people allow assessors and potentially affected groups to identify areas of agreement and disagreement about social impacts and mitigation.

5. See References and Suggested Further Readings for examples of traditional/local knowledge studies

governments who are often expected to be involved directly in primary research. In the interests of building an inventory of comparable baseline data, the Review Board encourages developers to contact the GNWT Bureau of Statistics about the availability of existing data.

c) Incorporating traditional knowledge and local knowledge

The Review Board recognizes that traditional knowledge is not only ecological knowledge. Traditional knowledge encompasses ▸ specific observations ▸ knowledge of social and cultural trends ▸ values or statements of cause and effect, and ▸ impact predictions. Refer to the *Guidelines for Incorporating Traditional Knowledge into Environmental Impact Assessment* for further information.

Unlike traditional knowledge, local knowledge is not exclusive to aboriginal people. Local knowledge is based on repeated first-hand observations and personal experiences over a long period; it can help define the socio-economic context. Non-aboriginal Northern residents, experienced local social service providers, community leaders and other community members may have important local knowledge.

2) Determining relevant criteria, indicators and benchmarks

Understanding the current and trend status of valued components requires the developer find appropriate criteria and indicators.

Valued components are very broad considerations requiring separation into sub-categories for more in-depth analysis. These *criteria* can be further broken down into measurable data variables called *indicators*. For example, criteria used to assess the valued component of economic well-being may include cost of living, employment levels, and business activity. Indicators to assess cost of living may in turn include annual inflation rates and the Housing Cost Index, which compares housing costs across all NWT communities using Yellowknife as the benchmark (a set standard which can be used to measure differences in an indicator across time or space).

Data Collection Challenges

When working with small communities, the sensitivity of many social, economic and cultural issues, and competing community needs can make collecting primary data difficult for an impact assessor. The following guidance is offered:

1. Ensure that available research has been identified and considered; government departments often have this information.
2. Be familiar with the permitting requirements for conducting research on human subjects in the NWT.
3. Be aware of privacy rights and confidentiality concerns because the results of small community samples may identify individuals. Contact the GNWT's Bureau of Statistics or the Aurora Research Institute for information about survey ethics.
4. Be aware of any community-generated documents that address confidentiality, the transfer of traditional knowledge to outside parties, and/or the right to refuse participation.
5. Use quantitative and qualitative surveys when trying to understand socio-economic dynamics – numbers can mask differences within the community.
6. Be aware of the respective strengths – comprehensive, reliable and easy to replicate – and limitations – non-representative data, bias, and sampling errors – of existing secondary sources, and possible primary research methods, before collecting data.
7. Consult experts and government departments ahead of time to avoid duplication and errors.

The developer is responsible for determining which criteria and indicators to use in SEIA research. The following considerations can help the developer determine which indicators and benchmarks are applicable to the SEIA:

- **Relative importance** – relevance to the valued socio-economic components identified by communities and other parties to the EA.
- **Agreement** – the best indicators are those the parties agree on; in the absence of consensus, indicators can be identified through ranking exercises in focus groups, etc.
- **Appropriate level of detail** – wherever possible, data should be separated geographically and demographically. This allows the developer to identify differences between communities, aboriginal and non-aboriginal populations, and the concerns of vulnerable sub-populations. Indicators that can be applied at the community level or specific demographic groups should be used because regional data may not capture important distinctions between communities.
- **Data timelines** – the longer the collection period for an indicator, the better the understanding of trends. Consistent and frequent gathering of information (to maintain rigorous comparability over time) is also a consideration.
- **Rigor and replicability** – e.g. the GNWT Bureau of Statistics and Statistics Canada have reliable methods and practices that may be weighted more heavily than a small survey of 50 people.

Appendix D has a list of criteria and indicators for different SEIA themes.

3) Profiling baseline conditions

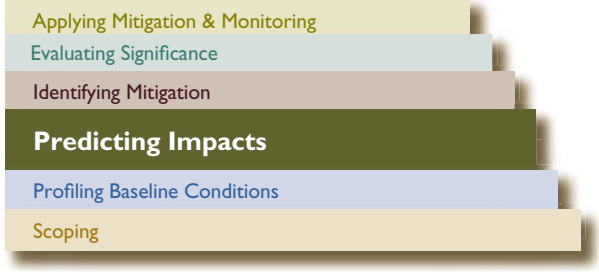
The developer should describe the current socio-economic and cultural environment and context of the proposed development. For example, during EA baseline condition profiles must address every valued socio-economic component in the "Description of the Existing Environment" portion of the TOR (see Appendix E for example considerations).
The developer should include the following:

- A description of profiled communities and regions; this may be brief if the proposed development is relatively small with minimal potential impacts. A much deeper understanding of the socio-economic environment and context may be required for the SEIA of large proposed developments.
- A rationale for the indicators used to describe current and historic conditions – i.e. how they relate to valued socio-economic components – and citation of any sources used.
- The history and status of the indicator, and any trends affecting the indicator that the developer must consider when predicting the vulnerability of the community to development-driven change.

If representatives from the community and/or government are concerned about the accuracy, depth, inclusiveness, or indicator focus of the developer's community profiles, they should make these concerns known to the developer and the assessment authority. For example, during EA the Review Board may ask the developer follow-up questions in the form of Information Requests, or seek to enhance data by identifying additional sources for consideration.

The developer may be expected to profile baseline conditions in individual communities and/or regions. Communities and government departments may also include their own community profiles in any technical reports during the SEIA. Good SEIA emphasizes that communities should have an opportunity to comment on any findings before the SEIA proceeds from the "Profiling Baseline Conditions" step to the "Predicting Impacts" step.

3.4 Predicting Impacts



Initially, the developer is responsible for predicting impacts. Predicting impacts is a process of comparing the baseline status of potentially affected communities/jurisdictions with the development component data, in order to characterize and predict the likelihood of adverse socio-economic impacts.

The predicted impacts should reflect the difference between a future with the proposed development and a future without the proposed development, as illustrated in Figure 4.

The developer should have a good baseline profile before predicting potential impacts because the baseline conditions profile will help the developer with the following:

- Establishing useful indicators and benchmarks for valued socio-economic components
- Identifying background change rates (trends) in socio-economic conditions.

To determine which potential trends may be attributable to the proposed development, the developer must study existing trends. However, the developer must consider data about expected potential trends the proposed development may impact during cumulative impact prediction, and determine whether these impacts are manageable.

In many cases, whether an impact is adverse or beneficial depends on an individual's personal choice. For example, increased disposable income can create stronger families, brighter futures for children and greater health; or it can fuel anti-social behaviour. In addition, the socio-economic environment will continue to evolve whether development occurs or not; this makes attributing change to one factor, or a number of factors, a difficult exercise.

The occurrence of two simultaneous events such as the opening of a new mine and a critical housing shortage in one community does not mean one event caused the other. Development is not the only force of socio-economic change in the Mackenzie Valley. The developer is not responsible for mitigating every adverse impact on a community. SEIA practitioners use a variety of tools to address these complex issues.

There are many ways to make reasonable and useful predictions of how change may affect people. For example, the history of a cultural group may provide information about the group's possible response to future impacts. A developer may compare similar developments in other jurisdictions to model potential impacts. Identifying how the components of a proposed development can change or alter existing socio-economic and cultural practices, activity levels and/or land use practices is essential in SEIA.

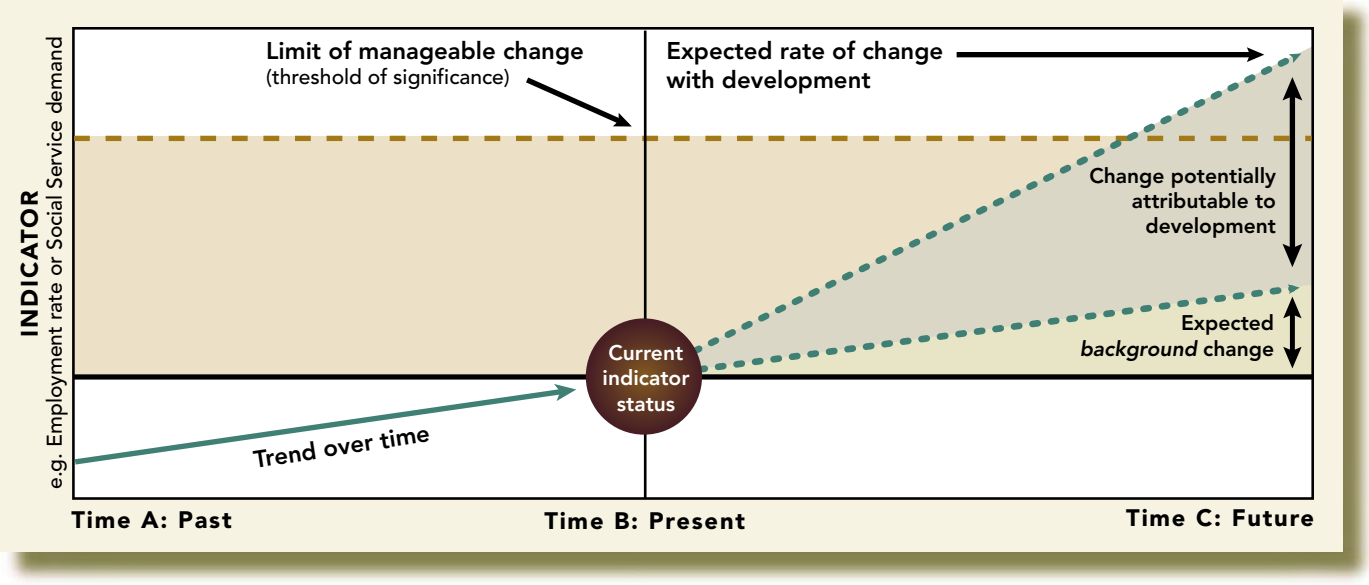
3.4.1 Characterizing Impacts and Pathways

Predicting impacts during SEIA requires the developer to determine the likely impacts and their possible causes.

1) Determining the likely impacts

The developer's impact predictions must identify and characterize the potential direct, indirect and cumulative impacts of its proposed development.

FIGURE 4 Impact Prediction



Direct impacts are the direct consequences of a proposed development's location, construction or operation on the socio-economic environment. The direct socio-economic impacts of a large-scale development are often manifested as changes in socio-economic structures (e.g. increased employment opportunities, increased income levels, new or expanded social services, etc.).

Indirect impacts are the secondary consequences of direct impacts (e.g. altered consumption patterns, increased business opportunities and/or an increased need for particular services). The types of indirect impacts that the proposed development may cause depend largely on an individual and/or community's priorities, and their ability to manage change.

When predicting impacts, including indirect impacts, the developer should examine case studies of similar developments, or the impacts and effects of industrial activities on similar communities.

Cumulative impacts are repeated impacts on a valued component. The accumulation of insignificant impacts happening over time can cause one significant impact. Addressing cumulative impacts during EA is a requirement of the MVRMA. An example of a cumulative impact is the effect on housing availability and the cost of living in a community that is experiencing an extended period of in-migration of people employed by several consecutive developments in one region. Appendix G6 looks closer at cumulative impact assessment in SEIA.

Each potential impact related to the proposed development should be characterized according to the following:

- Nature or type of the impact
- Direction of the impact i.e. adverse vs. beneficial
- Magnitude of the impact
- Geographical and interest group range of the impact (who is going to be impacted?)
- Timing of the impact including duration, frequency and extent
- Degree to which the proposed development is a contributing factor to the impact
- Likelihood of the impact occurring
- Manageability of the impact (i.e. is it easy or difficult to shoulder and, or mitigate?)

2) Determining impact triggers and pathways

The developer, and other involved parties, are responsible for reporting which components of the proposed development may cause the impact (the trigger), and the socio-economic and cultural pathways of the impact. Understanding these two factors is useful when determining appropriate mitigation. Mitigation for socio-economic impacts may involve altering the components of the proposed development, or altering patterns of socio-economic interaction to reduce adverse impacts. The worksheet in Appendix F will assist in of identifying these factors.

Socio-economic research tools can help the developer characterize and predict impact pathways. Although these guidelines compare different socio-economic impact characterization and prediction tools, the developer is responsible for choosing the appropriate tools.

3.4.2 Tools for Characterizing and Predicting Social and Cultural Change

The complex, subtle nature of social and cultural change makes this change more difficult to assess than economic change. Numerous potential social and cultural impacts may merit consideration in an EIA; some of which are discussed further in Appendix G5. Some useful tools for predicting social and cultural impacts are described in Table 9.

3.4.3 Tools for Characterizing and Predicting Impacts on the Traditional Economy

Given the existence and importance of traditional economies throughout the Mackenzie Valley, the developer can use informed community judgment and involvement to predict the impacts of the proposed development on the traditional economy using the following information:

- Baseline information about the prevalence, nature and valued components of traditional economies in potentially affected communities
- How the proposed development may impact traditional economies, including access to land and the availability of harvesting resources

TABLE 9 Sample Tools for Characterizing and Predicting Social and Cultural Impacts

Tool	Description
Cause/effect matrices	These matrices allow the developer to examine the first-order cause/effect relationship between development activities and the effects of the individual development components (see Appendix F).
Flow charts or diagrams	Impact-pathway flow charts or network diagrams examine interactions between the environment and the proposed development in detail. These techniques chart the pathways of environmental effects, and allow the developer to examine the links between environmental components.
Map overlays	Map overlays illustrate the proximity of sensitive features to the proposed development, thereby assisting the developer identify key issues and potential impacts. The developer may also use map overlays to present information when defining spatial boundaries and/or identifying potential impacts.
Delphi Technique	A panel of experts providing anonymous feedback via questionnaires or focus groups in a forum run by a central co-ordinator. Several iterations of the exercise, in which responses are provided to the group after each round, gradually produce consensus. Modified forms of this technique should be used in a culturally appropriate manner when working with aboriginal people.
Impact-hypothesis workshops	Impact-hypothesis workshops can identify ▸ the proposed development activities ▸ the valued socio-economic components, and ▸ how the proposed development activities may impact valued socio-economic components. Facilitators guide the discussion and organize the identified impacts and issues into a conceptual model.
Straight-line trend projections	Analysing an existing trend and projecting the future rate of change. Trends may also be projected using different assumptions about the rate and nature of change.
Scenarios	Scenarios are hypothetical futures that can describe the possible causes or effects of the proposed development's direct and indirect impacts.
Population multiplier methods	Forecasting population trends in scenarios that include a future with the proposed development, and a future without the proposed development; and, identifying the possible impacts of increased (or decreased) local and regional populations on the availability of jobs, housing, social and physical infrastructure needs, etc.
Comparative method	The current situation is compared to a potential future with the proposed development. Research and experience of similar cases can help the developer predict potential impacts.
Calculation of "futures foregone"	Methods used to determine what future development options would be irrevocably lost if the proposed development goes ahead, e.g. river recreation and traditional land use after a hydroelectric facility is built.
Modeling	Various methods from qualitative network diagrams to computer modeling tools, that can be used to predict probable responses of people to external changes.

- Known or perceived trends in the traditional economy and valued components (this information is also useful for assessing cumulative impacts)
- Oral or written evidence from traditional or local knowledge holders about the importance of harvesting activities to the social and cultural vitality of individuals, families and communities
- Any mitigation measures committed to by the developer or government to reduce impacts on the traditional economy (discussed further in Section 3.5)

Standard wage economy valuation methods such as GDP accounts should not be relied on, as they under-estimate the value of wildlife harvesting as an economic force and ignore the "intangible", vital role it plays in traditional culture. However, estimating the replacement value of country foods versus store bought food of similar nutritional value may be appropriate. Appendix G3 discusses assessment of the traditional economy in more detail.

3.4.4 Tools for Characterizing and Predicting Impacts on the Wage Economy

In the past, impact prediction focused on economic impacts because these impacts are the easiest to measure. Economic impact assessment tools include the following:

- Fiscal analysis (economic viability and distribution of revenue to government)
- Cost-benefit analysis estimated value of the proposed development to society)
- Input/output analysis (estimated direct and indirect contribution of the proposed development to GDP).

Table 10 highlights some of the tools a developer may use to characterize and predict economic impacts.

The developer of a proposed medium-sized development may be expected to provide evidence of employment, income and business multipliers associated with the development. The developer should also talk directly to government about potential increases in required physical and social infrastructure.

The developer of a proposed large development should undertake appropriate forms of economic impact assessment to estimate possible additional costs to government (and whether changes to the development plan could minimize these impacts), and how much value the proposed development will contribute to regional and territorial economies. For example, methods of input-output analysis can determine how much business, employment and income will stay in the North, and help establish whether impact equity is possible. A large development can contribute significantly to the economy of the Mackenzie Valley; the developer should support its estimates with a cost-benefit analysis.

Appendix G4 provides further information on SEIA on the wage economy.

The following are overall requirements for characterizing and predicting potentially significant impacts:

- Extensive public involvement; communities should be involved in predicting how change may impact their society.

TABLE 10 Sample Methodologies for Characterizing and Predicting Economic Impacts

Economic Impact	Potential Methods to Characterize and Analyze
Individual Impacts	
Employment	• Developer employment estimates including required skill levels • Multiplier analysis (with multipliers from GNWT Input/Output models[6])
Wages/salaries	• Developers wages/salaries estimates according to skill level • Multiplier analysis (with multipliers from GNWT Input/Output models)

Continued...

6. An overview of the GNWT's Input/Output model is available online at http://www.stats.gov.t.ca

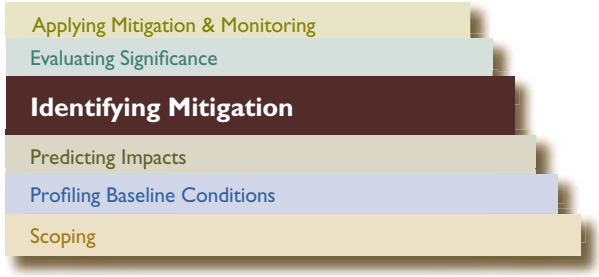
TABLE 10 Sample Methodologies for Characterizing and Predicting Economic Impacts *Continued*

Economic Impact	Potential Methods to Characterize and Analyze
Human capital (opportunities for education and training)	• Analysis of training plan(s) prepared by developer that compares required skill levels, etc. required with those that are available in the NWT
Crowding out (displacement of existing employment)	• Unemployment estimates • Training plan analysis • Follow-up studies
Labour leakage	• Analysis of human resources available in or near the location of the proposed development
Business Impacts	
Local purchases (additional business revenues) *Spin off businesses "crowding out" impacts* *Business leakage*	• Estimated economic spin offs based on multiplier analysis • Estimated number and types of new businesses • Extent to which new businesses established to serve the development may displace existing businesses • Existing business services
Government Impacts	
Demand for government services	• Assessments of historic and future demand for government services
Total economic output (GDP)	• Multiplier analysis (with multipliers from GNWT Input/Output models)
Positive and negative externalities	• Qualitative analysis • Follow-up studies • Public participation
Net Social Benefit	
Tangible costs/benefits	• Cost-benefit analysis • Multiple accounts analysis • Incidence analysis • Feasibility study • Cost-effectiveness analysis
Intangible costs/benefits	• Cost-benefit analysis • Multiple accounts analysis • Incidence analysis • Public participation
Sustainability	
Environmental valuations	• Cost-benefit analysis (contingent valuation; travel cost method; etc) • Multiple accounts analysis • Panel surveys
Cumulative economic effects assessment	• Public participation • Panel surveys • Analysis of selected economic impacts

- Characterization of impacts arising from the lifecycle of the proposed development, i.e. throughout the stages of pre-development planning, construction, operation, decommissioning and post-development closure.
- Identification of the causal factors of adverse impacts; these factors represent the root causes that mitigation will attempt to manage.
- Identification of those parties most likely to be impacted adversely by socio-economic change.
- Transparent identification of assumptions and information gaps, as well as any uncertainties about the predictions.

Limited baseline data and insufficient documented information about traditional and cultural activities can create uncertainty about the developer's impact prediction. For example, if quantitative data from the GNWT are used to collate indicators of community wellness, but there is no differentiation in the data between aboriginal and non-aboriginal sub-populations, this lack of differentiation should be stated. When adequate development-specific information is unavailable, predictions can be based on case studies and professional judgment.

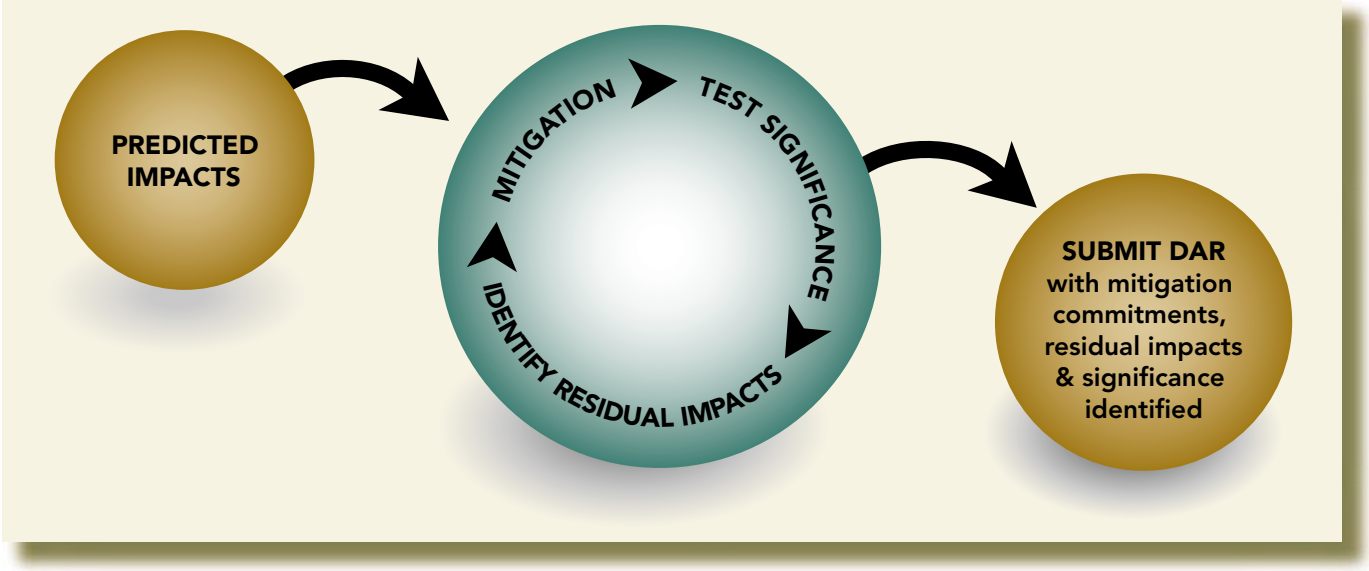
3.5 Identifying Mitigation



Identifying *mitigation* to manage, reduce or eliminate adverse impacts on valued socio-economic components or public concern is the next important step in SEIA. To identify and refine appropriate mitigation, the developer should discuss alternative mitigation with potentially impacted communities, governments and other stakeholders.

Mitigation measures that have worked in other circumstances should be considered during these discussions. Instructive information about mitigation includes completed Reports of Environmental Assessment (REA), and reports from agencies that monitor the effectiveness of mitigation.

FIGURE 5 A Developer's Mitigation Steps During EA



The impact prediction, mitigation and significance steps are conducted in an iterative fashion. There is a feedback loop between these steps, which is repeated until the potential impacts are no longer significant, or it becomes financially unfeasible to implement additional mitigation. Figure 5 illustrates this iterative process.

Assigning responsibility for pre-existing impacts to the developer, or expecting the developer to assume government responsibilities, is not mitigation.

Consider a community with high rates of unemployment, and a disproportionate number of children in care. Impact predictions indicate a high possibility of increased social problems due, in part, to background trends, and the effects of the proposed development. In this case, mitigation strategies can reduce existing socio-economic impacts that the proposed development might worsen. The following are examples of mitigation strategies:

- The developer commits to hiring a certain percentage of workers from the affected community
- The government commits to adaptive mitigation such as increasing the number of social service providers
- The community develops a community-wellness plan in cooperation with the developer and the government

Identifying appropriate mitigation

While there is no set method for identifying mitigation, and mitigation must be tailored to fit a specific situation, the following principles can help the developer identify relevant mitigation strategies:

- The more severe the predicted adverse impact, the greater mitigation is a priority. The developer should focus on mitigating likely significant adverse impacts.
- Mitigation should increase the long-term beneficial socio-economic impacts rather than simply reducing adverse impacts.
- Mitigation should focus on eliminating causal factors and pathways related to an impact – eliminate the source of the impact rather than manage the outcome.
- The developer should draft mitigation options with the assistance of those communities that are likely to be more impacted than others.
- Parties – this may include the developer, communities, regulators, and government departments responsible for socio-economic well-being – must assume responsibility for implementing and enforcing mitigation.
- The best mitigation efforts often build in public reporting requirements and/or identified "thresholds of manageable change" beyond which adaptive management is required to impose additional mitigation (see Section 3.7).

Types of available mitigation

Many types of mitigation for impacts on valued socio-economic environment components are possible.

TABLE 11 Example Mitigation Measures for Specific Socio-economic Impacts

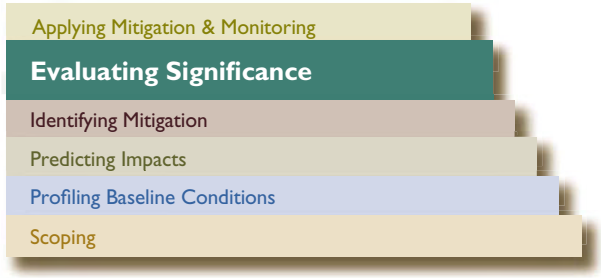
Impact Type	Possible Mitigation
Lack of time on the land or limited access to land because of increased role in wage economy	• Flexible work scheduling during harvesting periods
Loss of traditional economy due to poor hunting and trapping, longer distances to drive, loss of equipment due to disturbances	• Timing of operations • Avoidance of sensitive harvesting areas
Disturbance of cultural resources, including archaeological, burial and spiritual sites	• Community environmental monitors with power to stop work if a possible cultural resource is identified • Community meetings to discuss proposed work locations • Relocating the location of linear development to minimize impacts on other land users

Continued...

TABLE 11 Example Mitigation Measures for Specific Socio-economic Impacts *Continued*

Impact Type	Possible Mitigation
Employee retention *On-the-job cross-cultural relations* *Family disturbances related to long-distance commuting*	• Adjusting work schedules to minimize disturbance to families and provide access to cultural events • Onsite cross-cultural training • Additional social supports in communities for caregivers
Inability to compete with businesses from larger centres	• Preferential contracting policies and capacity building
Boom-and-bust cycles, where short-term beneficial employment and income benefits make the resumption of pre-development economy a difficult transition	• Lengthening the timelines of the proposed development through lower production rates • Increased investment in human and social capital to provide economic diversity and social stability prior to development closure • Provide community-development initiatives (e.g. small business development funds, improvements to infrastructure)
Maintaining benefits in the North	• Northern point of hire • Northern/aboriginal employment percentage commitments and reporting
Lack of training to attain, retain, and advance in available jobs	• Scholarships • On-site training initiatives • Off-site community trades school initiatives • Job mentoring • Internship programs
Effects of increased disposable income (e.g. increased alcohol consumption)	• Money management training • Dry camps • Provide substance-abuse programs for workers and families
Loss of cultural cohesion	• Investment in cultural programs, institutes, language preservation, healing circles, and cultural events
Public safety (road, physical and social infrastructure)	• Improve road conditions before traffic increases • Additional RCMP presence
Social concerns about impact of large numbers of workers in small communities	• Imposing controls that limit workers from accessing small communities at certain times

3.6 Evaluating Significance



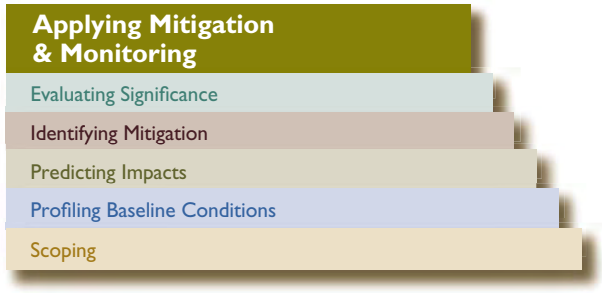
Evaluating significance has been defined as a "subjective, value dependent judgment of importance."[7] When evaluating potential significant impacts, SEIA considers whether the proposed development will alter or decrease valued socio-economic components below an acceptable threshold.

The developer should involve affected communities and other parties in the assessment when evaluating the significance of socio-economic impacts.

When researching the affected communities' and other parties' perspectives on significant impacts, the developer may draw upon ▸ traditional and local knowledge ▸ community-based assessment efforts ▸ standards ▸ guidelines ▸ policy statements ▸ research studies ▸ comparable case studies, and ▸ quantitative risk assessment.

Developers should refer to section 5.6 to familiarize themselves with questions the Review Board may consider when evaluating the significance of impacts.

3.7 Applying Mitigation and Monitoring



Mitigation and monitoring are essential for SEIA. Monitoring is a systematic method that employs scientific and/or traditional knowledge to measure and/or observe changes. This involves assessing indicators regularly in a consistent and systematic manner. Monitoring may occur at a number of levels.

Monitoring socio-economic impacts happens after the proposed development undergoes EA. However, impact evaluation, operational adjustments and mitigation must continue during the development's lifecycle. For example, governments may develop policy instruments to mitigate the socio-economic impacts after the EA is done. Using socio-economic agreements, such as those signed for the BHP Ekati and Diavik diamond mines in the NWT, is another strategy for monitoring impacts. These agreements create a framework for industrial monitoring that use indicators from government sources, and qualitative indicators collected during annual surveys.

Monitoring can be development-specific, but a well-funded regional organization is better suited to identifying and proposing mitigation for the cumulative impacts of numerous developments in a specific region.

7. Lawrence, D.P. (2004). "The Significance of Social and Economic Impacts in Environmental Assessment". ceaa-acee.gc.ca/015/0002/0023/index_e.htm

Adaptive management is part of effective monitoring: it links monitoring with pre-determined limits of manageable change in order to manage the development more effectively. Adaptive management is a systematic process for continually improving management policies and practices by learning from development outcomes. Best practices for the adaptive management of socio-economic impacts include the following:

- Promoting and supporting public participation in monitoring and adaptive management systems
- Supplying adequate resources (people, money, equipment, etc.)
- Inspection and surveillance to determine whether policies, commitments, terms and conditions are being implemented (this requires adequate resources from monitoring agencies)
- Linking the monitoring to specific "thresholds of manageable change", and the identification of compliance measures required if these thresholds are breached
- Establishing mechanisms to adjust mitigation measures to manage unanticipated changes, or an unsustainable rate of change
- Periodic independent auditing of the adaptive management system to improve public accountability
- Transparent public reporting at pre-determined intervals