

# Human and Community Well-Being

GUIDELINES FOR ASSESSING SOCIAL, ECONOMIC, CULTURAL AND HEALTH EFFECTS IN ENVIRONMENTAL ASSESSMENTS IN B.C.

VERSION 1.0

APRIL 2020

ISSUED BY:



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KEVIN JARDINE, CHIEF EXECUTIVE ASSESSMENT OFFICER  
ENVIRONMENTAL ASSESSMENT OFFICE

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## ACRONYMS AND ABBREVIATIONS

Act	<i>Environmental Assessment Act (2018)</i>
AIA	Archaeological Impact Assessment
AOA	Archaeological Overview Assessment
B.C.	British Columbia
CBA	Cost-Benefit Analysis
EA	Environmental Assessment
EAO	Environmental Assessment Office
FLNRORD	Ministry of Forests, Lands, Natural Resource Operations and Rural Development
GBA+	Gender Based Analysis Plus
GDP	Gross Domestic Product
HHRA	Human Health Risk Assessment
HIA	Health Impact Assessment
I-O Model	Input-Output Model
SIA	Social Impact Assessment
VC	Valued Component
VIA	Visual Impact Assessment

## 1.0 INTRODUCTION

British Columbia's (B.C.) *Environmental Assessment Act* (the Act) (2018), section 25(2)(a) requires all assessments of a reviewable project to consider the "positive and negative direct and indirect effects [...], including environmental, economic, social, cultural and health effects and adverse cumulative effects."

This document provides guidance to help identify, understand, assess and manage potential social, economic, health and cultural effects of reviewable projects in accordance with the requirements of the Act. This guidance does not supersede the requirements specified in the Act, related regulations, or project-specific orders issued under the Act.

This document is a guidance tool. It is not legal advice and it does not restrict the professional judgment, discretion and autonomy exercised by EAO staff, the Chief Executive Assessment Officer or the Minister in carrying out their duties.

## 2.0 WHAT ARE EFFECTS ON HUMAN AND COMMUNITY WELL-BEING?

For the purposes of this guidance document, changes resulting from a reviewable project that may occur to social, economic, health, or cultural outcomes are referred to collectively as 'human and community well-being effects.' These effects describe changes to the way people live, work, play, practice their culture and/or organize themselves.

Human and community well-being effects can be highly dependent on each other and inter-related. This notion is reflected in the World Health Organization's definition of health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." These effects are also often closely intertwined with the state of, and trends in, the biophysical environment. Indigenous perspectives on health and wellness demonstrate the need to consider this interconnectedness from a holistic perspective<sup>1</sup>.

Proponents are required to include a summary of potential effects on human and community well-being in their applications. Refer to the EAO's Process Planning Policy for more information.

These types of effects can be directly attributable to a project or can arise indirectly from a project's activities; they can also be driven by project-related changes in the natural or biophysical environment. Human and community well-being effects can be positive or negative.

Human and community well-being effects can be experienced at an individual, household, family, social/cultural group, community level, or even beyond and can occur across generations. Effects may be experienced differently—and at different times—by individuals and groups within a community or region. To reflect this, Section 25(2)(d) of the Act requires every assessment consider "disproportionate effects on distinct human populations, including populations identified by gender" (see Section 5 of this document for more information) and Section 25(2)(f) of the Act requires every assessment consider "effects on current and future generations."

## 3.0 USING THIS DOCUMENT

For environmental assessments (EA) it is very important that the right things are studied, in the right way. Studying many things in great detail is typically not the right approach for assessing a project. EAs in B.C. use a framework of Valued Components (VC) to guide the assessment of effects, and some of the early steps in the EA process involves determining which VCs should be studied and how. The Environmental Assessment Office (EAO) provides detailed guidance on the

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<sup>1</sup> Refer to the First Nation's Health Authority's website for more information: <https://www.fnha.ca/wellness/wellness-and-the-first-nations-health-authority/first-nations-perspective-on-wellness>

selection of appropriate VC in the EAO's Effects Assessment Policy. The information provided in this document provides additional context for helping to plan for what may need to be assessed regarding the potential effects of a project on human and community well-being, and then for considering the potential scope and scale of the assessment. Specifically, this document contains guidance on: assessment planning; assessing differential effects within human populations; scoping the assessment; effects assessment; methods; and mitigation and enhancement measures related to human and community well-being effects.

The primary audience for this document is proponents of projects that require an EA in B.C. and their technical consultants. This guidance will help proponents effectively plan for and participate in the EA process by setting out contextually appropriate, thorough and feasible approaches to assessing the potential effects of proposed projects on people and communities. Proponents should engage qualified experts<sup>2</sup> with the appropriate technical expertise and experience in assessing human and community well-being effects.

Other important audiences for this guidance are EAO staff, Indigenous nations, local communities, government agencies, the public and any other stakeholders of the EA process with an interest in effects to human and community well-being. These groups provide important input and advice to the EAO to inform how the EAO specifies project-specific study requirements and the assessment of the effects of a project on human and community well-being.

This document is intended to be used together with the various other regulations, policies and guidance developed by the EAO to support the implementation of the Act. Please refer to the EAO's website for a list of [\*guidance documents related to EAs in B.C.\*](#)

## 4.0 ASSESSMENT PLANNING

A robust and clear approach for the assessment of human and community well-being is important. Early input on the assessment approach of potential effects to human and community well-being supports a shared understanding of the purpose and intended outcomes of the assessment being undertaken by a project proponent. Seeking input from government agencies, Indigenous nations and local communities on the approach supports the understanding of the needs and requirements of all parties. It should be noted that not all EAs will require the same level of assessment and the assessment approach should be scaled appropriately to each project with consideration to the anticipated nature of the potential effects; additional consideration should be given to the information that can reasonably be obtained and the analytical methods that can be reasonably employed for the purposes of a project EA.

Consistent with best practices in human and community well-being assessments, proponents should consider both quantitative and qualitative data (including data obtained through participatory processes) collected through a variety of methods to inform an assessment. Data may be sourced from publicly available sources, as well as local and project-specific datasets and primary data collection (for example, surveys, interviews), recognizing that a mix of sources can lead to more robust analyses. Section 2(2)(c) of the Act requires the use of best available science, Indigenous knowledge and local knowledge in decision making.

The Assessment Planning Tool in Appendix 1 presents the various factors that should be considered in planning an effective approach to assessing human and community well-being effects that is scaled to and appropriate for a project. This tool will also inform local and community engagement, including with Indigenous nations. Although primarily aimed at supporting early planning stages, including project design, the questions in the Assessment Planning Tool should be revisited throughout the EA process.

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<sup>2</sup> Qualified experts may include Indigenous and local community experts.

The assessment approach must also take into consideration best practices in participant consent and confidentiality when collecting information that may be sensitive particularly for Indigenous nations. For guidance regarding the collection of information specific to Indigenous nations, refer to the EAO's Indigenous Knowledge Guide, found [here](#).

## 5.0 DIFFERENTIAL EFFECTS

The potential effects of a project often do not affect all portions of the human population in the same way. Some individuals and sub-groups may be more vulnerable to adverse effects; others may be better positioned to realize positive effects. As noted previously, Section 25(2)(d) of the Act requires that every assessment consider the “disproportionate effects on distinct human populations, including populations identified by gender.”

Assessment of effects to human and community well-being should include consideration of if/how certain effects may be experienced differentially or more acutely by specific sub-groups within the population. Factors that often contribute to differential effects includes demographic factors (for example, age, sex), socio-cultural factors (for example, gender, ethnicity), economic factors (for example, skills, employment, income level), geography (for example, location in relation to the project), or physiological factors (for example, existing health status) (see Figure 1).



Figure 1. Examples of identity Factors that can Influence Differential Effects<sup>3</sup>

It is important to consider how such factors may overlap or intersect to produce unique or layered experiences and effects for individuals or groups of people. There may be various aspects of peoples' identities or living situations that are intrinsically woven together to influence how they experience projects. The idea that people have multiple identity factors that influence their experiences is referred to as “intersectionality”.

<sup>3</sup> Government of Canada's GBA+: <https://cfc-swc.gc.ca/gba-acis/index-en.html>

Such factors are dynamic, and it is also important to note that people can be simultaneously privileged and marginalized in various aspects of their lives depending on context.

Understanding differential and unique effects across population groups requires careful consideration in each EA depending on the local context (including existing social relations and patterns of vulnerability) and specific project details. Part of this process is to engage directly with sub-groups of the population and specifically vulnerable populations (for example, women, elders, youth, minority groups, people with disabilities, Indigenous people) to ensure their perspectives on how project-related interactions may materialize or affect them differentially are understood and reflected in an EA. Seeking to ensure that data collection and analytical approaches (qualitative or quantitative) are disaggregated to capture different sub-groups can help address this issue. Refer to Appendix 2 for a list of guiding questions that may be relevant to consider when assessing differential effects.

In 1995, the Government of Canada committed to using Gender Based Analysis Plus (GBA+) <sup>4</sup> as part of the ratification of the United Nations' Beijing Platform for Action. In 2018, the Government of B.C. also adopted application of GBA+, as have eight other provinces and territories. Globally, over 160 governments and institutions are using gender-based analysis tools as key components of their policy-making process. A GBA+ approach should be used during an EA.

The recommendations of the Truth and Reconciliation Commission and the National Inquiry into Missing and Murdered Indigenous Woman and Girls also support and explore the emerging approaches related to the application of GBA+ in Indigenous communities, sometimes called IGBA+.

## 6.0 SCOPE OF ASSESSMENT

In an EA, Valued Components (VCs) are identified based on comprehensive issues scoping and engagement, which reveals the values that may be affected by the project and priorities of government, Indigenous nations, local communities, the public and stakeholders. VCs will vary by project, industry and geographic region, to reflect the nature of the potential project effects and the environmental, economic, social, cultural and health context within which the project is located. VCs may also vary depending upon the interests of Indigenous nations identified in the area potentially affected by the project. For more information, refer to the EAO's Effects Assessment Policy, found [here](#).

The VC Scoping Tool in Appendix 3 helps identify the VCs that may be relevant for an effective assessment of human and community well-being and should be considered on a project-by-project basis. The VC Scoping Tool is organized around the VCs shown in Table 1 below that are often relevant for major projects in B.C.

The VCs in Table 1 are not an exhaustive list. Each project context has unique considerations that may emerge from the interplay of project attributes and local factors <sup>5</sup>. Accordingly, the VCs listed below are not required to be assessed and may not be relevant in all EAs; however, proponents should be able to provide a rationale for the inclusion or exclusion of each VC, including how the views of Indigenous nations, local communities and stakeholders informed VC selection.

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<sup>4</sup> Government of Canada's GBA+: <https://cfc-swc.gc.ca/qba-acis/index-en.html>

<sup>5</sup> All communities are unique, and it is important for proponents to have a clear understanding of the capacity of existing service capacity to support proposed project. This is particularly noteworthy for EAs of linear development projects that span multiple communities or those that have a large area of influence. In addition, hub communities may have the social programs in place that serve a broader geographical base and may be affected differently than a host community

Table 1. Potential Valued Components related to Human and Community Well-Being

VALUED COMPONENTS	SUBCOMPONENTS	POTENTIAL TOPICS
Employment and Economy	Employment	<ul style="list-style-type: none"> <li>• Employment, wages and training</li> <li>• Access to economic opportunities / economic equity</li> </ul>
	Economy	<ul style="list-style-type: none"> <li>• Government revenues and expenditures</li> <li>• GDP contributions</li> <li>• Business and local economic activity</li> <li>• Property, land and resource valuations (including tourism)</li> <li>• Cost of living (for example, housing, food, goods and services)</li> </ul>
Land and Resource Use	Private property	<ul style="list-style-type: none"> <li>• Use and enjoyment of private property</li> </ul>
	Tenured land and resource use	<ul style="list-style-type: none"> <li>• Industrial land uses (for example, mining, oil and gas)</li> <li>• Other tenured, permitted or licensed land uses</li> </ul>
	Public land and resource use	<ul style="list-style-type: none"> <li>• Consumptive land uses (for example, hunting, fishing, trapping, vegetation gathering)</li> <li>• Non-consumptive land uses (for example, camping, hiking, skiing, boating, climbing, caving)</li> <li>• Agriculture</li> <li>• Tourism</li> </ul>
	Parks and protected areas	<ul style="list-style-type: none"> <li>• Federal, provincial, regional, municipal parks</li> <li>• Other protected areas</li> <li>• Recreation Sites and Trails B.C. sites</li> </ul>
	Visual resources	<ul style="list-style-type: none"> <li>• Visual resources</li> </ul>
Marine Use	Marine navigation	<ul style="list-style-type: none"> <li>• Marine navigation</li> </ul>
	Tenured marine use	<ul style="list-style-type: none"> <li>• Tenured, permitted or licensed marine uses (for example, aquaculture, moorage, commercial fishing)</li> </ul>
	Public marine use	<ul style="list-style-type: none"> <li>• Consumptive marine uses (for example, hunting, fishing, vegetation gathering)</li> <li>• Non-consumptive marine uses (for example, boating, kayaking)</li> <li>• Tourism</li> </ul>
	Marine protected areas	<ul style="list-style-type: none"> <li>• Marine protected areas</li> </ul>
	Visual resources	<ul style="list-style-type: none"> <li>• Visual resources</li> </ul>
Infrastructure and Services	Community Infrastructure and Services	<ul style="list-style-type: none"> <li>• Health care and social services and facilities</li> <li>• Emergency response services</li> <li>• Domestic water supply</li> <li>• Sewage and water treatment facilities</li> <li>• Landfills and recycling facilities</li> <li>• Community recreational facilities</li> <li>• Educational services and facilities, including day cares</li> <li>• Other public and private sector services</li> </ul>
	Transportation infrastructure	<ul style="list-style-type: none"> <li>• Transportation infrastructure</li> </ul>
	Housing and accommodation	<ul style="list-style-type: none"> <li>• Housing and accommodation</li> </ul>
Human Health		<ul style="list-style-type: none"> <li>• Air quality</li> <li>• Drinking water quality</li> <li>• Noise</li> <li>• Soil quality</li> </ul>

VALUED COMPONENTS	SUBCOMPONENTS	POTENTIAL TOPICS
		<ul style="list-style-type: none"> <li>Quality and quantity of country foods</li> <li>Population health<sup>6</sup></li> </ul>
Archaeological and Heritage Resources <sup>7</sup>		<ul style="list-style-type: none"> <li>Sites of historical importance</li> <li>Sites of archaeological importance (including culturally modified trees)</li> <li>Paleontological resources</li> </ul>
Culture <sup>8</sup>		<ul style="list-style-type: none"> <li>Governance and stewardship systems</li> <li>Customs, beliefs and values</li> <li>Language and intergenerational knowledge transfer</li> <li>Community and cultural cohesion</li> </ul>

## 7.0 EFFECTS ASSESSMENT

Assessing human and community well-being effects is not a one-size-fits-all process and each assessment should be proportionate and tailored to suit each project and local setting. The Analysis Support Tool in Appendix 4 provides guidance to inform the level (or scale) and type of analysis that may be required for an effective assessment of human and community well-being effects.

Building on the VCs identified in the VC Scoping Tool, the Analysis Support Tool includes questions to help identify the ways a project could affect human and community well-being. The questions represent key lines of inquiry that should be explored and answered as part of the assessment process and which consider the interaction of effects between topic areas, including how biophysical effects (for example, effects related to air, noise, water, wildlife and vegetation) can result in effects on people and communities. Not all questions will be relevant to every assessment.

### 7.1. Methods

For most EAs, multiple methods are used to consider the full scope of potential human and community well-being effects of a project. Regardless of the methods selected, and as discussed in the EAO's Effects Assessment Policy, the following information should be provided:

<sup>6</sup> Population health includes an integrated analysis of the social, economic and cultural determinants of health that may be captured under other VCs (e.g., Employment and Economy, Infrastructure and Services, and Culture) and which would then support the characterization of receptors for a human health risk assessment.

<sup>7</sup> Includes intangible values related to these sites and resources as applicable.

<sup>8</sup> Effects related to Indigenous culture may be better addressed with individual consideration for each nation, depending on the scale of the project, potential effects, and concerns identified by nations.

- **Input/Baseline Data:** Concise presentation of data and identification of data sources used.
- **Method:** Description of analytical methods used, including rationale for methods selection.
- **Assumptions/Biases:** Description of assumptions used in the selection of input data, project effects mechanisms and the analysis of information, as well as potential biases.
- **Limitations:** Describe any limitations in the analysis, such as limitations in completeness of data sources used in the analysis and how (or if) this was managed.
- **Outputs:** Output information should be presented using appropriate qualitative and quantitative formats for the analysis methods. This should include a quantitative or qualitative discussion of the uncertainty associated with estimates.

Refer to the EAO's Effects Assessment Policy for guidance related to all aspects of conducting an EA in B.C., including establishing spatial boundaries, describing existing conditions, assessing potential effects, identifying mitigation measures, characterizing potential residual effects, assessing cumulative effects and assessing effects to Indigenous nations.

### 7.1.1. Examples of Analytical Methods

Some examples of analytical methods are described in more detail below; these specific methods may not be appropriate for every EA and proponents should identify the methods and resulting outputs that are appropriately scaled to the assessment requirements of each project. This list is not meant to be exhaustive and does not supersede the need for early input on assessment approach and associated analytical methods. Refer also to Appendix 5 for more information regarding examples of analytical methods specific to the assessment of economic effects.

- **Archaeological Overview Assessment (AOA):** AOAs include a desktop review of several variables (for example, known archaeological sites, traditional land use, environmental variables) to identify and assess the potential of an area for as-yet unrecorded archaeological sites. B.C. has established guidelines for conducting AOAs; the EAO recommends engaging with the Archaeology Branch of the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD).
- **Archaeological Impact Assessment (AIA):** If an area of high archaeological potential overlaps with a project, an AIA may be required. However, AIAs are typically only required at permitting, following the issuance of an EA Certificate. Please refer to B.C.'s Archaeological Impact Assessment Guidelines (1989, 1998 and as amended from time to time)<sup>9</sup> for more information.

The various approaches commonly used to assess potential effects on people and communities, may be described as social impact assessment (SIA), socio-economic impact assessment, economic impact analysis, or health impact assessment (HIA), among others. It is the EAO's view that these assessment approaches tend to be interrelated and complementary in terms of methods and outcomes; for example, an SIA may be synonymous with HIA and vice versa depending on the definition, practitioner or jurisdiction. The intent of this document is to be inclusive of the breadth of these various assessment approaches.

<sup>9</sup> [https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/archaeology/forms-publications/archaeological\\_impact\\_assessment\\_guidelines.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/archaeology/forms-publications/archaeological_impact_assessment_guidelines.pdf)

- **Cultural Impact Assessment (CIA):** CIA is the process of identifying and evaluating the potential effects of a project on culture and cultural resources (both tangible and non-tangible).
- **Cost-Benefit Analysis (CBA):** CBA, also called Benefit Cost Analysis, is a method for predicting the net change in financial or social welfare that may arise from the development of a project. The objective of CBA is to determine (i) whether a project will have a positive economic effect, in comparison with the do-nothing scenario (for example, the business as usual case), or (ii) which of several project options would be most beneficial from a net economic benefits perspective. Refer to Appendix 5 for more information.
- **Input-Output (I-O) Model:** I-O Models can be used to assess the regional impact of a proposed project. I-O Models generally provide estimates of economic output, Gross Domestic Product (GDP), jobs, income, imports and exports and some government revenues. This includes the estimates of direct, indirect and sometimes induced impacts. The EAO recommends engaging with B.C. Stats or Statistics Canada for more information. Refer to Appendix 5 for more information.
- **Cost of Living Analysis<sup>10</sup>:** Localized inflation can occur when there is a rapid increase in demand for goods or services relative to supply. Cost of living analysis helps determine whether localized inflationary effects of a project adversely affect economically disadvantaged sub-populations within a community, particularly those on low and fixed income. Refer to Appendix 5 for more information.
- **GBA+:** An analytical process used to assess how diverse groups of women, men and non-binary people may experience potential effects of a project. The “plus” in GBA+ acknowledges that GBA goes beyond biological (sex) and socio-cultural (gender) differences. Indigenous Gender Based Analysis Plus (IGBA+), more specifically, considers the social-cultural and historical realities for Indigenous woman, Indigenous girls and Indigenous non-binary people resulting from colonization and racism.<sup>11</sup> Refer to Section 5 for more information regarding GBA+, IGBA+ and considering differential effects.
- **Human Health Risk Assessment (HHRA):** HHRA is used to estimate the potential human health risk from exposure to contaminants through environmental media. B.C.’s Ministry of Health is developing technical guidance on HHRA and Health Canada<sup>12</sup> has existing guidance related to conducting HHRAs.
- **HIA:** Health Canada is in the process of developing guidance related to conducting HIA, which the EAO considers to be complementary to this guidance. Health Canada defines HIA as “a transparent and systematic process that uses a combination of procedures, methods, tools and input from stakeholders, to identify and assess the potential health outcomes (for example, positive and negative) of a resource development and/or infrastructure project and their distribution within the study population(s).” Several Tsimshian First Nations recently supported the development of guidance for conducting HIA for Indigenous Nations in B.C. (Shandro and Jokenin, 2018).<sup>13</sup> A comprehensive HIA should consider both the direct physical effects to human health, as well as how the social,

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<sup>10</sup> Proponents should consider that there is often a lag time in market adjustments (e.g., wages increase due to labour shortages), which is often cited as disproportionately affecting vulnerable populations.

<sup>11</sup> Ministers Advisory Council on Indigenous Women, 2019: <https://www.bciroc.ca/BPDwebsite/wp-content/uploads/2019/05/IROC19-Barkaskas.pdf>

<sup>12</sup> Health Canada, 2019: <https://www.canada.ca/en/health-canada/services/publications/healthy-living/guidance-evaluating-human-health-impacts-risk-assessment.html>

<sup>13</sup> Shandro, J. and Jokenin, L. A guideline for conducting health impact assessment for First Nations in British Columbia, Canada. Tsimshian Environmental Stewardship Authority, July 2018. Available at <http://www.hianetworkasiapac.com/wp-content/uploads/HIA-framework-for-BC-First-Nations.pdf>.

economic and cultural determinants of human health may be affected.<sup>14</sup> Note that an assessment of the social, economic and cultural determinants of human health can also be achieved through other methods.

- **Visual Impact Assessment (VIA):** VIA considers potential landscape or visual effects of a project from potentially sensitive receptors. B.C. has developed a guidebook to help forest resource managers plan, prescribe and implement sound forest practices, which can also be applied outside of the forestry sector. The EAO recommends engaging with FLNRORD in the early stages of planning a VIA.

## 7.2. Mitigation and Enhancement Measures

Defining appropriate mitigation measures is a central part of the EA process. The Act defines mitigation as actions to offset the potential adverse effects of a project. In the context of EA, enhancement refers to deliberate attempts by the proponent to realize the success of a wider range of direct and indirect positive outcomes to the human and biophysical environment. For more information regarding mitigation and enhancement measures, refer to the EAO's Effects Assessment Policy.

Mitigation measures that get established as conditions of an EA Certificate are the enduring part of the EA process, and the project's ongoing compliance is evaluated against these conditions. In the context of effects to human and community well-being, once it is understood that a project has the potential to cause a certain type of effect it can sometimes be more important for the EA process to focus on identifying appropriate mitigation measures to address the pathway of effects, rather than fixating on developing specific estimates of the project's effects.

### 7.2.1. Selecting Mitigation and Enhancement Measures

There is a range of measures that can be proposed by proponents to assist in mitigating negative effects and enhancing positive effects on people and communities; similar to the assessment approach, there are no one-size-fits-all mitigation or enhancement measures. A clear connection between the potential effects that are predicted, and the mitigation or enhancement measures selected should be identified, as well as applicable standards that define what is acceptable.

The management of human and community well-being effects is a shared responsibility. In some cases, mitigation or enhancement may extend beyond the sole management or control of the proponent. This may be either because the potential effect is cumulative and the project is only one contributing factor, or because management of the potential effects or mitigations are the responsibility of government or another party. In those cases, the proponent will need to work with outside parties to seek to identify and develop appropriate mitigation.

Proponents should also consider ways that the project can be used to enhance the positive effects in a way that maximizes the benefit to the community. For example:

Indirect effects related to human and community well-being can be challenging for proponents to mitigate given the challenge in attributing the effect to a specific project. Even so, there are opportunities for proponents to commit to monitoring such outcomes over time and providing information to local governments to assist in planning, program design and so on.

<sup>14</sup> There are various examples of this approach. However, more information on a perspective from B.C is available in the Northern Health Authority's Social Determinants of Health Impacts of Resource Extraction and Development in Rural and Northern Communities, 2018. Available at [https://www.northernhealth.ca/sites/northern\\_health/files/services/office-health-resource-development/documents/impacts-promising-practices-assessment-monitoring.pdf](https://www.northernhealth.ca/sites/northern_health/files/services/office-health-resource-development/documents/impacts-promising-practices-assessment-monitoring.pdf).

- While a project may provide local employment, how can the project use training, strategic hiring or other strategies<sup>15</sup> to direct some of the employment opportunities to people in the community and to those who are under- or unemployed?
- While a project may need to build new or reinforce existing infrastructure to support the project (for example, roads, water infrastructure or power transmission), can the infrastructure be designed to also benefit the community and, if so, how?
- While a proponent may need to collaborate with other companies or local authorities to gain access to needed services, can the collaboration also support future services that benefit the community region and, if so, how?

Benefit enhancement is not necessarily tied to the mitigation of a direct project effect but seeks to identify ways that a project can contribute to positive outcomes for the community. Benefit enhancement opportunities are community- and project-specific and should be based on innovative and creative thinking, as well as engagement directly with communities on what might constitute a benefit<sup>16</sup>. These may not necessarily be required as conditions to an EA Certificate, however, if these enhancement measures are considered by decision makers as a key factor in deciding to issue an EA Certificate, then some form of condition may be advisable to ensure these measures become required activities (for example, monitoring, reporting, engagement requirements).

### 7.2.2. Management Plans

Management plans are commonly used by project proponents to organize their activities in relation to mitigating adverse effects – and enhancing positive effects – related to biophysical or human and community well-being outcomes. Management plans are post-EA certificate tools and the activities they help manage can occur in any phase of project development. To be effective, management plans need to have a framework that assigns responsibility, as well as describe timing and partnerships needed to support the activities.

A variety of management plans may be useful to help focus and operationalize mitigation for effects to the human and community well-being, especially those mitigation that also address biophysical effects (for example, vegetation restoration/reclamation plays a role in managing visual effects as well as cultural, livelihood and health effects). In addition, a wider-reaching socio-economic management plan can outline a range of measures on multiple topics.

It is likely that environmental management plans developed by a proponent may also have implications for aspects of human and community well-being. Appropriate linkages should be made between human and community well-being management plans and environmental management plans.

### 7.2.3. Follow-Up Strategy

The purpose of a follow-up strategy is to verify the accuracy of the EA and evaluate the effectiveness of mitigation measures for VCs where positive or negative residual effects or adverse cumulative effects are predicted or uncertain. Monitoring is a key component of an effective follow-up strategy. The information gathered as part of a follow-up strategy may be used to determine whether additional or corrective actions are necessary to address unanticipated outcomes. The proponent must provide an appropriate strategy (for example, adaptive management) to apply if predicted effects and mitigation effectiveness are not as expected and that corrective action is required.

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<sup>15</sup> Other strategies might include company policies that support bereavement leaves, leaves for traditional practices, childcare services, transportation options and so on.

<sup>16</sup> A potential benefit to one group may be considered an adverse effect to another, or both the benefit and adverse effect can co-exist. For example, increased employment has the potential to interrupt some traditional patterns of resource harvesting in some communities. Engagement is key in understanding the range in views as to the outcome of potential enhancement measures, and how to potentially mitigate adverse effects.

Project monitoring should aim to actively involve Indigenous people and local residents, and ensure the perspectives of different populations, including women and gender-diverse people are included. This could be through project-led programs to retain or involve Indigenous monitors or through partnering with other organizations (for example, Indigenous Guardians program). Indigenous involvement in monitoring programs, both environmental and related to the human and community well-being, will support the building of trust in the process and aligns with government's objective of reconciliation, which proponents also have a role in supporting.

For more information regarding follow-up strategies including monitoring, refer to the EAO's Effects Assessment Policy, found [here](#).

## 8.0 CONCLUSION

Proponents should consider the guidance presented in this document at the earliest stages of project planning and, as projects move through the EA process, this document should be revisited. Early and ongoing discussions with Indigenous nations, government agencies, other technical advisors and stakeholders will also help inform an effective approach to assessing human and community well-being effects. This document will help provide a strong foundation to support an EA that includes an appropriately focussed, scoped and scaled assessment of the social, economic, health and cultural effects of a project. These assessments will help ensure projects are developed in a way that helps foster a sound economy and well-being of British Columbians and their communities (Section 2(2) of the Act).

As proponents and other EA participants work on a project during the EA process, it may be worthwhile consulting this document in conjunction with the various other regulations, policies and guidance developed by the EAO to support the implementation of the Act. A list of guidance documents related to EAs in B.C. can be found on the EAO's website [here](#).

## APPENDIX 1 – ASSESSMENT PLANNING TOOL

**Instructions:** Each consideration includes a series of questions to guide the development of the assessment approach. These are not necessarily a linear or step-wise series of questions and should be considered in a holistic manner; some questions under different headings are interrelated.

### IDENTIFY APPROPRIATE EXPERTISE, CAPACITY AND RESOURCES

- Who will scope, design and conduct the assessment in the Application? What are their credentials and/or experience, recognizing that it may require several people with different expertise to cover all aspects of human and community well-being?
- How will trusting relationships be developed between project staff responsible for understanding and managing effects to human and community well-being and local community members?
- What level of budget will be required to conduct a thorough assessment?
- How will the participation of Indigenous nations, local communities and stakeholders be facilitated?

### FRAME THE LOCAL CONTEXT

- How will you identify potentially affected Indigenous nations, local communities and stakeholders that may experience human and community well-being effects from the project? How will these groups help to identify key project issues?
- How will the priorities of provincial, federal, local and Indigenous government agencies/authorities involved in managing social, economic, health and cultural issues (for example, Health Authorities; social service agencies; provincial ministries; local land use planning departments) be identified and considered in project planning?
- How will local, provincial or national planning mechanisms, regulations and policies that are relevant to the potential human and community well-being effects of the project be identified and considered?
- How will past, existing and future developments be identified to inform the assessment of cumulative human and community well-being effects?
- How will the broader regional context over time be identified, including historic factors and experiences that have led to current human and community well-being conditions?

### INCORPORATE INDIGENOUS KNOWLEDGE

- How will all potentially affected Indigenous communities be involved in the assessment of human and community well-being effects, including the identification of appropriate mitigation, management plans and monitoring/follow-up?
- How will knowledge holders be identified and engaged?
- How will Indigenous knowledge be incorporated into the human and community well-being assessment and development of mitigations, management plans and monitoring/follow-up?
- How will the characterization of residual human and community well-being effects reflect Indigenous knowledge and what constitutes acceptable change?
- What guidelines and protocols will be used to protect Indigenous knowledge and ensure ethical principles are followed when collecting, storing, using and sharing this information?
- Refer to the [EAO's Indigenous Knowledge Guide](#).

### INCORPORATE LOCAL KNOWLEDGE

- How will all potentially affected communities and local stakeholder groups be involved in the assessment of human and community well-being effects, including the identification of appropriate mitigation, management plans and monitoring/follow-up?
- How will local knowledge be gathered and incorporated into the human and community well-being assessment and development of mitigations, management plans and monitoring/follow-up?
- How will the characterization of residual human and community well-being effects reflect local concepts of what is important and what constitutes acceptable change?
- What guidelines and protocols will be used to protect local knowledge and ensure ethical principles are followed when collecting, storing, using and sharing this information?

#### CONSIDER DIFFERENTIAL EFFECTS

- How will the assessment consider the differences between ways that community members experiences effects and the differential effects to specific populations (for example, by gender)?
- How will populations that may be particularly vulnerable to stressors related to the project (for example, Indigenous women and children, people with disabilities) be identified?
- See Section 5 of this document.

#### INTEGRATE ASSESSMENT FINDINGS

- How will early and ongoing consideration of human and community well-being effects occur such that potential adverse effects can be reduced and positive effects enhanced through project design?
- How will the team assessing human and community well-being effects work with project leads and technical staff (for example, engineers) to ensure potential effects including opportunities for benefits are considered in an ongoing manner in project design and planning, including mitigation and management plans and follow-up programs?
- How will relevant information from the biophysical environment assessment (for example, air, water, noise, vegetation, wildlife) and other aspects of the assessment be shared with the team assessing human and community well-being effects and vice versa?

#### CONDUCT A TRANSPARENT PROCESS

- How will Indigenous nations, local communities and other stakeholders be involved throughout the assessment of human and community well-being?
- How will engagement be conducted regarding the proposed assessment approach and process?
- How will the human and community well-being effects assessment outcomes and results be shared and discussed with communities, residents, land and marine resource users and government authorities?
- How will Indigenous nations, local communities and stakeholders be involved through mitigation, monitoring and management activities related to human and community well-being effects?

#### MONITOR AND MANAGE EFFECTS

- If the project proceeds, how will it be determined if mitigation and enhancement measures related to human and community well-being effects is working as planned?
- If mitigation and enhancement measures related to human and community well-being effects are not working as planned, how will additional mitigations and enhancement measures be identified and decided upon?

- If the project proceeds, how will Indigenous nations, local communities and stakeholders be involved in human and community well-being effects monitoring and adaptive management?
- If the project proceeds, how will opportunities for continuous improvement be identified during project implementation?

## APPENDIX 2 – DIFFERENTIAL EFFECTS

**Instructions:** The following key questions provide guidance as to how a project’s potentially disproportionate effects on distinct human populations should be considered during the human and community well-being assessment. For clarity, these questions are grouped together here; however, the consideration of differential effects are also reflected in the individual tools appended to this document.

1. How can baseline data collection identify existing strengths, weaknesses and diversities, as well as the potential for unique project interactions in populations?
  - a. Are there differential patterns of livelihoods, labour and social issues in the study area (for example, among women, men and gender-diverse people; among Indigenous and non-Indigenous people; people with disabilities)?
  - b. Who has the skills to participate in project employment? Are there systemic barriers that may prevent some people from participating in project employment (for example, education, training, family care, cultural differences, discrimination and stereotypes)?
  - c. Do people work, live or play near the project? Does the project have the potential to affect residential areas, schools, or other areas that a segment of the population utilizes?
  - d. Are there populations near the project that are reliant on natural resources for food security, cultural practices, governance, self-determination, or informal economies?
  - e. Are there existing health challenges in communities near the project?
  - f. Are there capacity constraints in affected communities in terms of community infrastructure and services?
  - g. How will scientific, Indigenous and local knowledge and perspectives be integrated into the scoping and information gathering process of the EA, including the perspectives of different sub-populations?
  - h. What are the data gaps that may exist that limit an understanding of existing conditions and diverse perspectives of distinct sub-populations recognizing that published data may not be available or adequate? Are community-led studies available and/or should they be facilitated?
2. Does the assessment include engagement techniques that promote trust and inclusivity and support the participation of diverse groups and perspectives throughout the EA process, such as outreach and meetings with groups that represent diverse interests? Are there systematic barriers to these groups participating in engagement?
3. How have a proponent’s mitigation and enhancement measures considered differential effects (for example, early project-specific training programs, flexible work schedules, project-supplied day care facilities)?
4. Has a monitoring program been established to understand the effectiveness of mitigation and enhancement measures and allow for the identification of and response to potential effects on specific sub-groups of people? Have adaptive management approaches been identified to ensure that unintended consequences are identified and managed in a timely and appropriate manner? How are other government authorities, service providers and local communities being engaged in the mitigation, monitoring and adaptive management process? How are the sub-groups affected being engaged to provide input into appropriate mitigation strategies?

## APPENDIX 3 – VALUED COMPONENT SCOPING TOOL

**Instructions:** For each potential VC identified in Section 6 of this document, an individual scoping table is provided below. Within each table, check off the appropriate box for each question. In the ‘rationale/notes’ column, describe the considerations that informed the selection, which may be related to:

- The project location and existing land and resource/marine use or social patterns;
- Project design features;
- Project policies, mitigation and enhancement strategies;
- Feedback to-date from Indigenous nations, local communities or stakeholders; and/or
- Other factors.

All project phases should be considered (for example, construction, operations, decommissioning/closure). Responses in the ‘unknown’ column may require additional information gathering.

As per the Act, every EA must consider positive effects. The VC Scoping Tool does not include questions specific to positive effects because a potential positive effect to one group may be considered negative to another, or both a positive and negative effect could co-exist. Even so, proponents should consider the potential for positive effects in their scoping.

This tool does not provide a definitive threshold for determining whether a VC should be considered in the EA. Ultimately, that decision requires professional judgment, discussions with the EAO, Indigenous nations, local communities, stakeholders and other government agencies, as well as consideration of project attributes and local context. In addition, some considerations may be more important than others. If a VC is determined not to be relevant to a project, proponents should provide a strong rationale for exclusion.

EMPLOYMENT AND ECONOMY							
Key Considerations	Very Likely	Somewhat Likely	Unknown	Somewhat Unlikely	Very Unlikely	Not Applicable	Rationale / Notes
1. Would the local or regional labour force have limited ability to meet the project's direct workforce needs in terms of size, capacity, skills, or availability?	<input type="checkbox"/>						
2. Would local or regional suppliers have limited ability to meet the project's goods and service requirements in terms of capacity or availability?	<input type="checkbox"/>						
3. Are there nearby communities, including Indigenous communities, that rely on resource-based livelihoods or subsistence resources?	<input type="checkbox"/>						
4. Could the project potentially contribute to local inflation or increases in cost of living (for example, housing, food, goods and services)?	<input type="checkbox"/>						
5. Are there distinct sub-groups that may experience adverse project-related economic stressors differently?	<input type="checkbox"/>						
6. Other:	<input type="checkbox"/>						
Will this VC be included/considered in the assessment? Yes / No / Unknown							
Rationale / Notes:							

LAND AND RESOURCE USE							
Key Considerations	Very Likely	Somewhat Likely	Unknown	Somewhat Unlikely	Very Unlikely	Not Applicable	Rationale / Notes
1. Are there land and resource uses in or near the project area?	<input type="checkbox"/>						
2. Does the project have the potential to adversely affect land and resource use?	<input type="checkbox"/>						
3. Does the project have the potential to change access to or use of land and resources?	<input type="checkbox"/>						
4. Are there overlapping tenures in the project footprint?	<input type="checkbox"/>						
5. Does the project have the potential to create a visual effect (including night-time light), noise, vibration, odour or other disturbances that would affect land and resource users?	<input type="checkbox"/>						
6. Does the project have the potential to adversely affect the availability of resources (for example, fish, wildlife, plants) relied upon for subsistence, recreational or other purposes?	<input type="checkbox"/>						
7. Are there distinct sub-groups that may experience potential effects on land and resource use differently?	<input type="checkbox"/>						
8. Other:	<input type="checkbox"/>						
Will this VC be included/considered in the assessment? Yes / No / Unknown							
Rationale / Notes:							

MARINE USE							
Key Considerations	Very Likely	Somewhat Likely	Unknown	Somewhat Unlikely	Very Unlikely	Not Applicable	Rationale / Notes
1. Are there marine uses in or near the project?	<input type="checkbox"/>						
2. Does the project have the potential to adversely affect marine uses?	<input type="checkbox"/>						
3. Does the project have the potential to change access to or use of marine areas?	<input type="checkbox"/>						
4. Are there overlapping tenures in the project footprint?	<input type="checkbox"/>						
5. Does the project have the potential to create visual effect (including night-time light), noise, vibration, odour or other disturbances that would affect marine resource users?	<input type="checkbox"/>						
6. Does the project have the potential to adversely affect the availability of resources (for example, fish, marine wildlife, marine plants) relied upon for subsistence purposes?	<input type="checkbox"/>						
7. Are there distinct sub-groups that may experience potential effects on marine use differently?	<input type="checkbox"/>						
8. Other:	<input type="checkbox"/>						
Will this VC be included/considered in the assessment? Yes / No / Unknown Rationale / Notes:							

INFRASTRUCTURE AND SERVICES							
Key Considerations	Very Likely	Somewhat Likely	Unknown	Somewhat Unlikely	Very Unlikely	Not Applicable	Rationale / Notes
1. Would the project require a non-local workforce that is notable in size in relation to the population size of local and potentially affected communities, including Indigenous communities?	<input type="checkbox"/>						
2. Would workers be housed in community-based accommodation (for example, hotels, rentals, permanent housing)?	<input type="checkbox"/>						
3. Would the project (including any work camps) require the use of public utilities (for example, waste, water, power)?	<input type="checkbox"/>						
4. Would the project (including workers) require the use of local or regional transportation infrastructure (for example, roads, railway, ports or airports)?	<input type="checkbox"/>						
5. Does the project have the potential to result in a shadow population?	<input type="checkbox"/>						
6. Would the project workforce use local or regional infrastructure and services, including health care, social, emergency and recreational?	<input type="checkbox"/>						
7. Are there distinct sub-groups that may be affected by changes in infrastructure and services differently?	<input type="checkbox"/>						
8. Other:	<input type="checkbox"/>						
Will this VC be included/considered in the assessment? Yes / No / Unknown							
Rationale / Notes:							

HUMAN HEALTH							
Key Considerations	Very Likely	Somewhat Likely	Unknown	Somewhat Unlikely	Very Unlikely	Not Applicable	Rationale / Notes
1. Would the project require a non-local workforce that is notable in size in relation to the population size of local and potentially affected communities, including Indigenous communities?	<input type="checkbox"/>						
2. Would construction, operations, or decommissioning/closure of the project result in emissions, noise, odours, discharges or waste, including through the disturbance of existing contaminated media?	<input type="checkbox"/>						
3. Would the project result in emissions, discharges or waste in areas that could adversely affect natural resources that are consumed as food, including through the disturbance of existing contaminated media?	<input type="checkbox"/>						
4. Would the project affect the health of human populations due to potential changes in social, economic and cultural determinants of health captured under other VCs?	<input type="checkbox"/>						
5. Are there distinct sub-groups that may experience adverse project-related health effects differently?	<input type="checkbox"/>						
6. Other:	<input type="checkbox"/>						
Will this VC be included/considered in the assessment? Yes / No / Unknown							
Rationale / Notes:							

ARCHAEOLOGICAL AND HERITAGE RESOURCES							
Key Considerations	Very Likely	Somewhat Likely	Unknown	Somewhat Unlikely	Very Unlikely	Not Applicable	Rationale / Notes
1. Is there archaeological potential in the project footprint, including the intangible values related to these sites?	<input type="checkbox"/>						
2. Is there paleontological potential in the project footprint, including the intangible values related to these sites?	<input type="checkbox"/>						
3. Would the project affect any sites of historical or heritage importance, including those not legally designated, as well as the intangible values related to these sites?	<input type="checkbox"/>						
4. Are there distinct sub-groups that may experience adverse project-related archaeological or heritage effects differently?	<input type="checkbox"/>						
5. Other:	<input type="checkbox"/>						
Will this VC be included/considered in the assessment? Yes / No / Unknown Rationale / Notes:							

CULTURE							
Key Considerations	Very Likely	Somewhat Likely	Unknown	Somewhat Unlikely	Very Unlikely	Not Applicable	Rationale / Notes
1. Would the project require a non-local workforce that could affect governance and stewardship systems; customs, beliefs and values; language and intergenerational knowledge transfer; or community and cultural cohesion of local or Indigenous communities?	<input type="checkbox"/>						
2. Would the project use or build work camps that could affect governance and stewardship systems; customs, beliefs and values; language and intergenerational knowledge transfer; or community and cultural cohesion of local or Indigenous communities?	<input type="checkbox"/>						
3. Does the project have the potential to affect Indigenous people’s traditional and current use areas or sacred sites, or any other culture’s use areas?	<input type="checkbox"/>						
4. Would the project result in visual effects (including night-time light), noise, vibration, odour or other disturbances that would be perceptible to people during cultural practices?	<input type="checkbox"/>						
5. Are there distinct sub-groups that may experience adverse project-related cultural effects differently?	<input type="checkbox"/>						
6. Other:	<input type="checkbox"/>						
Will this VC be included/considered in the assessment? Yes / No / Unknown Rationale / Notes:							

## APPENDIX 4 – ANALYSIS SUPPORT TOOL

**Instructions:** For each topic in the table below, review the questions provided and consider the extent to which each is applicable to the project. Specifically, consider project interactions that could occur during construction, operations and decommissioning/closure, as well as design changes or mitigation and enhancement measures that can be developed to mitigate, avoid or reduce adverse effects and enhance positive effects.

**Table 3. Analysis Support Tool**

VALUED COMPONENT	KEY QUESTIONS
<p>Employment and Economy</p>	<ul style="list-style-type: none"> <li>• How would the project affect Indigenous, local or regional employment, local business supplier opportunities and revenues and general skills development/training?</li> <li>• What specific measures are being identified by Indigenous nations, local communities, stakeholders and the proponent to enhance employment and business opportunities and skills/training?</li> <li>• How could project-related local hiring affect individual and/or family income levels, or income security?</li> <li>• How would employment and income generated through local hiring and local supplier opportunities associated with local procurement be distributed across the local population (for example, what would be the differential effects)?</li> <li>• How will the project enhance employment or contracting opportunities for groups or individuals who may be typically underrepresented by usual industry hiring or contracting practices?</li> <li>• How would the project contribute to government tax revenues (federal, provincial, local)?</li> <li>• How would the project affect government expenditures (for example, such as increased expenditures on community services to support project construction/operations)?</li> <li>• How would the project effect economic development at the provincial or national level?</li> <li>• How would local hiring for the project affect job stability or labour availability (for example, labour market balance) for other local businesses?</li> <li>• How would the project affect educational outcomes of Indigenous nations, local communities and stakeholders?</li> <li>• How would the project affect current resource-based industries or livelihoods (for example, forestry, agriculture, gravel/aggregates, fisheries, tourism, livestock, commercial recreation, hunting, guiding, trapping and Indigenous economy)?</li> <li>• How would project hiring, procurement and associated waged income contribute to changes in the cost of living (for example such as local inflation in housing, food and services)?</li> <li>• How would the project affect procurement (for example, cost, availability, quality) of store-bought foods in specific communities?</li> <li>• How would the project influence (increase or decrease) the ability of individuals to be able to afford or access healthy foods?</li> <li>• Which groups within the study area would be most vulnerable to adverse changes in food systems (for example, Indigenous people, low- or fixed-income families, single parent families)?</li> </ul>

VALUED COMPONENT	KEY QUESTIONS
	<ul style="list-style-type: none"> <li>• Which sub-groups within the study area would be most vulnerable to adverse livelihood effects (for example Indigenous people, farmers, those on low or fixed incomes)? How would these sub-groups experience effects differentially?</li> <li>• How does the project align with local economic and community development planning?</li> </ul>
Land and Resource Use	<ul style="list-style-type: none"> <li>• How would the project affect the following types of land or resource uses, either through disturbance, change in access, or resource availability:               <ul style="list-style-type: none"> <li>○ Private and residential property?</li> <li>○ Industrial land uses (for example, mining, oil and gas)?</li> <li>○ Other tenured land uses (for example, trapping, guiding)?</li> <li>○ Consumptive land uses (for example, hunting, fishing, trapping, vegetation gathering, agriculture)?</li> <li>○ Non-consumptive land uses (for example, camping, hiking, skiing, boating, caving)?</li> <li>○ Cultural practices?</li> <li>○ Tourism?</li> <li>○ Parks and protected areas?</li> <li>○ Recreational sites or areas?</li> <li>○ Other?</li> </ul> </li> <li>• Would the project be consistent with existing land use plans?</li> <li>• Describe how changes in noise, vibration, air quality, odour, daytime visual changes, or night-time light would affect the activities and experience of people in the area, including residents and commercial, recreational and/or Indigenous land and resource users?</li> <li>• How would the visual quality from key public use areas be affected by the project?</li> <li>• Which sub-groups within the area would be most vulnerable to adverse land and resource use effects (for example, Indigenous people, farmers) and why? How would these sub-groups experience effects differentially?</li> </ul>
Marine Use	<ul style="list-style-type: none"> <li>• How would the project affect the following types of marine uses, either through disturbance, change in access, or resource availability:               <ul style="list-style-type: none"> <li>○ Navigation?</li> <li>○ Commercial, recreational and Indigenous fisheries?</li> <li>○ Coastal tourism?</li> <li>○ Recreational areas?</li> <li>○ Other?</li> </ul> </li> <li>• Would the project be consistent with existing marine-related management plans?</li> <li>• Describe how changes in noise, vibration, air quality, odour, daytime visual changes, or night-time light would affect the activities and experience of people in the area, including residents and commercial, recreational and/or Indigenous land and resource users?</li> <li>• Would the project be consistent with existing marine use plans?</li> <li>• How would the visual quality from key public use areas be affected by the project?</li> <li>• Which sub-groups within the area would be most vulnerable to adverse marine use effects (for example, Indigenous people, harvesters) and why? How would these sub-groups experience effects differentially?</li> </ul>

VALUED COMPONENT	KEY QUESTIONS
<p>Infrastructure and Services</p>	<ul style="list-style-type: none"> <li>• How would the project effect demand on, capacity of, or financial viability of local, regional or provincial infrastructure and services, including:                             <ul style="list-style-type: none"> <li>○ Health care and social services and facilities?</li> <li>○ Emergency response services?</li> <li>○ Domestic water supply?</li> <li>○ Sewage and water treatment facilities?</li> <li>○ Landfills and recycling facilities?</li> <li>○ Community recreational facilities?</li> <li>○ Educational services and facilities, including day cares?</li> </ul> </li> <li>• Other public and private sector services? Are non-local workers anticipated to relocate to the project area? Are non-local workers anticipated to bring their families?</li> <li>• To what extent is the project expected to result in a shadow population?</li> <li>• How might the project affect the ability of a community to meet residents’ infrastructure and service needs? How might the project affect the ability of current residents to access community infrastructure and services (for example, by altering residents’ access routes/mobility, increased cost of services, services diverted to project needs)?</li> <li>• Which community services may be affected more acutely by project-related demands?</li> <li>• To what extent would direct project demands require increased spending on local or provincial infrastructure or utilities?</li> <li>• To what extent do local governing authorities have the capacity to respond to project engagement or other project-related requirements?</li> <li>• What is the shift length? Will workers be able to access community services during their off hours?</li> <li>• To what extent would the project and its workers add traffic to public roads? How would project incremental vehicle movements affect local road usage, safety, level of service?</li> <li>• To what extent would the project and its workers affect the capacity of airports and rail lines?</li> <li>• Are there adequate social supports in place (for example, food banks, food sharing programs) to help food-insecure individuals and families?</li> <li>• To what extent would the housing and accommodation capacity (for example, hotels, rentals) in the communities where the project is located and nearby areas, support the needs of temporary project workers, considering the current population, projected population growth during the project and projected visitor patterns?</li> <li>• How would the project affect housing and accommodation availability or affordability? Could the use of local accommodation by project workers affect the availability of rental units for community members, or cause an increase in rental prices?</li> <li>• To what extent do communities have adequate supports in place to address potential issues and needs related to housing affordability and availability (for example, low income housing, homeless shelters)?</li> <li>• Which sub-groups within the area would be most vulnerable to adverse effects on infrastructure and services and why? How would these sub-groups experience effects differentially?</li> </ul>

VALUED COMPONENT	KEY QUESTIONS
Human Health	<ul style="list-style-type: none"> <li>• Could people be exposed to project-related nuisances, contaminants or emissions to the environment in any way?</li> <li>• Will project activities disturb existing contaminated media?</li> <li>• How might the project contribute to the spread of communicable diseases within the workforce, or between the workforce and a community?</li> <li>• Which sub-groups within the area would be most vulnerable to adverse health effects (for example land and resource users, Indigenous people, women and girls, elderly, young people), how and why?</li> <li>• Could the project increase exposure to health risks to residential areas, commercial areas, recreational areas and traditional use areas?</li> <li>• To what extent might the project contribute to an increase or decrease in existing health disparities across the population in a short, medium or long timeframe (for example, short daily/weekly pollution peaks versus annual averages, versus lifetime average exposure)?</li> <li>• To what extent is the project expected to result in a shadow population?</li> <li>• How might the project directly or indirectly affect the health behaviours of community members and workers (for example, substance use, physical activity, diet, sexual health practices)?</li> <li>• How would the project affect access to, quality of or acceptability of subsistence and traditional foods (including medicines), including foods that are hunted, gathered, fished, or raised in private and community gardens? Consider short, medium and long-term exposure windows.</li> </ul>
Archaeological and Heritage Resources	<ul style="list-style-type: none"> <li>• How would archeological resources be affected?</li> <li>• How would paleontological resources be affected?</li> <li>• How would heritage resources be affected?</li> <li>• How would the project affect the non-physical considerations of these sites and values?</li> </ul>
Culture	<ul style="list-style-type: none"> <li>• To what extent would the project disturb natural resources (for example, plants, animals, water resources) or cultural assets (for example, spiritual or gathering places, cabins, local and traditional food and medicines)? How will access to these resources and assets be changed?</li> <li>• How will cultural practices related to traditional land and marine resource use by Indigenous nations, or other cultural groups, be affected?</li> <li>• How have the potential effects on cultural practices shared by Indigenous nations or other cultural groups been considered?</li> <li>• In what ways could the project affect the cultural or social values or practices of community members or sub-groups in the community?</li> <li>• How could the project affect the social cohesion of communities?</li> <li>• How would the project affect laws, value systems and the political structure of governance of Indigenous or other cultural groups?</li> <li>• How might the project affect the degree of self-determination experienced by communities?</li> </ul>

VALUED COMPONENT	KEY QUESTIONS
	<ul style="list-style-type: none"><li>• How would the project affect current knowledge of Indigenous or other cultural groups and the ability to transfer knowledge and language?</li><li>• How would the timing and location of the project intersect with areas of Indigenous ceremonies or cultural events, or events of other cultural groups?</li></ul>

## APPENDIX 5 – OVERVIEW OF METHODS FOR ASSESSING ECONOMIC EFFECTS

There is not one approach that is appropriate for assessing economic effects of major projects: the level of detail and complexity should be proportionate and tailored to suit each project and local setting, consideration to the anticipated nature of the potential effects, as well as the information that can reasonably be obtained and the analytical methods that can be reasonably employed for the purposes of a project EA. Discussions regarding assessment approach should occur early and be informed by engagement with Indigenous nations, government agencies, technical advisors and other stakeholders. Analytical methods specific to the assessment of economic effects are discussed in more detail below; not all will be required or relevant in every EA. These methods are not mutually exclusive, and the use of multiple methods may be necessary to achieve an understanding of the economic effects of a project. This list is not meant to be exhaustive and does not supersede the need for early engagement on assessment approach.

### Input-Output Modelling

Input-Output (I-O) models model the interlinkages between the sectors of an economy. Over the past decade, I-O models have been the most commonly used approach for economic effects analysis in EAs in B.C. I-O models, or multipliers derived from such models, can be used to estimate positive economic effects resulting from increased spending, such as direct and indirect employment, contributions to provincial and national economic output, GDP and government revenue.

I-O models are operated by inputting cost or revenue data associated with the project being evaluated. Data used to run the model are obtained from project proponents including construction and operating expenditures and estimated workforce requirements. I-O models have a high degree of flexibility regarding the level of detailed data needed to operate. They can be run with either aggregated or disaggregated data and this flexibility in data requirements is one of most attractive features of the method.

The B.C. Stats I-O Model (BCIOM) and the Statistics Canada Interprovincial I-O Model (SCIPIOM) are options for estimating economic effects of project spending or revenue generation in B.C. Custom runs of publicly-accessible models are typically available on a cost-recovery pricing basis. Multipliers from I-O models are available for both models and the BCIOM includes more detailed regional and sectoral multipliers specific to B.C.

I-O models generally provide estimates of economic output, GDP, jobs, income, imports and exports and some government revenues. This includes the estimates of direct, indirect and sometimes induced effects. I-O model output data is typically organized as direct and indirect for open models and direct, indirect and induced for closed models. However, I-O models do not help with the analysis of potential economic effects unrelated to project expenditures or revenue generation. In general, I-O models have the following limitations:

- They estimate resource allocations associated with a given change or “shock” (for example, capital expenditure), but do not indicate whether resources will be readily available or would need to be diverted from other uses;
- They are based on fixed technical production coefficients representing average industry operation (for example, technological changes and economies of scale are not accounted for); and
- They do not include variables related to price level or inflation, interest rates, or other financial variables and lack labour force and unemployment rates.

In addition to the limitations above, I-O models are often based on national and provincial datasets, which may not be appropriate for estimating economic effects within local and regional economies. They also do not show how economic effects would vary over time or how they may be distributed across population groups. These models provide a partial understanding of the economic effects of a project and are often better at estimating potential effects when the projects are relatively small or when labour markets are not very constrained.

## Equilibrium Modelling

In addition to I-O models, other methods for estimating economic effects include partial equilibrium and computable general equilibrium (CGE) models. Partial equilibrium modelling assumes one sector of an economy operates in isolation from other sectors of the economy. Given this assumption, it may be an effective form of analysis for smaller or less complex projects or where economic effects are confined to one sector.

CGE modelling describes how economic activities are linked to each other among sectors and across regions. These models use actual economic data to determine how major project, policy or other external factors may affect the economy. CGE modelling tends to be more data intensive and can be more time consuming to use and interpret. CGE modelling can be a good approach for estimating the “net effects” of a major project, particularly when the project is expected to have sizeable overall economic effects and could result in supply side changes to economic variables (for example, wages for labour).

## Cost-Benefit Analysis

Cost-Benefit Analysis (CBA), also called Benefit Cost Analysis, is a method for predicting the net change in financial or social welfare that may arise from the development of a project. The objective of CBA is to determine (i) whether a project will have a positive economic effect, in comparison with the do-nothing scenario (for example, the business as usual [BAU] case), or (ii) which of several project options would be most beneficial from a net economic benefits perspective. It should be noted that CBA requires the analysis be carried out from the perspective of a specific group or stakeholder – in the EA context, CBA would require assessing a project for its monetized effects on the people of B.C.

The outputs of a CBA are the net-present value (NPV) and/or the benefit-cost ratio (BCR) of a stream of costs and benefits, associated with a project, which will occur over time. CBA can then be used for comparing different projects, or project alternatives, or for comparing a project with the do-nothing scenario, when such an economic assessment is needed to support a public project investment decision.

Generally, a CBA will provide estimates for a wide range of costs and benefits. Project costs should consider those of construction, operation and decommissioning of the project, as well as the full cost of environmental management. These inputs are then adjusted to economic costs and benefits using shadow pricing and other techniques. Economic benefits are often grouped into market- and non-market benefits depending on the degree by which market values can be attributed to them:

- **Market:** Goods and services that can be bought or sold on the market (for example, commercially caught fish);
- **Non-market:** Goods or services that have uses but are not traded in a marketplace (for example, recreational fishing); and
- **Non-use:** Provide utility, such as improved environmental quality, without any identified use. Common examples are existence value (value in knowing that an environmental attribute occurs) and bequeath value (value in knowing that an environmental/socio-economic component will be passed to future generations).

CBA can be limited in that it focuses on net values and will not provide information related to the distribution of jobs, employment income, GDP, or government revenue created by a project. CBA does not provide a “complete” analysis of costs and benefits due to methodological challenges in estimating the true cost of some environmental goods and services (such as climate change and loss of wetland function). For this reason, it should not replace the use of non-monetized metrics used in the evaluation of environmental effects.

## Labour Force Analysis

Labour force analysis refers to the process through which the availability of qualified labour within a given area is compared to project labour demands. In the context of major projects, labour force analysis is useful for contextualizing:

- The extent to which estimated project employment could be realized within a given area;
- The extent to which education and training is required to increase the qualified labour supply within that area;
- Potential labour drawdown effects and project contributions to wage inflation; and
- Requirements for enhancement and mitigation measures.

Baseline estimates of the availability of qualified labour within a given area can be completed through desktop review of secondary-source statistical information (for example, Statistics Canada Census and Labour Force Survey data) and supplemented with primary information collected through project-specific labour force surveys. Using descriptive statistics, census data (for example, educational attainment data, employment and unemployment rates, participation rates and employment by occupation and industry) can be used to estimate the available qualified labour supply within a given area (baseline). However, because Census data are only collected every five years and are only available in certain aggregations, information may need to be supplemented with more up to date or local information. Example methods of supplementing estimates derived from census information include using data available from Statistics Canada's monthly Labour Force Survey or similar publications, or project-specific labour force surveys.

Once established, baseline estimates are compared with estimated or modelled project labour demand. The assessment of employment effects may include various elements and require the use of several methods. The analysis can help understand various labour force related effects, including the adequacy of labour supply, the potential effects of wage competition, requirements for education or training and the distribution of project employment benefits.

## Land and Resource Valuation

Land and resource valuation is the process of estimating the value of lands taken up by a project and estimating the economic losses other resource users may experience. Most of B.C. is provincial Crown land and organizations and individuals can be granted exclusive or non-exclusive commercial rights to harvest or use specific resources within a Crown land tenure area. There may be multiple tenure holders on a given piece of land, each with commercial rights to different resources. Tenure holders cannot generally expect to be compensated because of the activities of other tenure holders on the land.

In EAs, the valuation of land and resources potentially affected by a project might be relevant in one or more of the following circumstances:

- Where there is potential for substantial financial loss by another resource dependent industry within a region;
- Where there is potential for substantial financial loss within a subsistence economy with a region; and/or
- As an input into a CBA.

The main outputs of the land and resource valuation are the estimated value of land taken up by the project, the total and annual loss or reduction of resource values and the total or annual loss or reduction of downstream resources uses. Challenges in land and resource valuation include estimating the non-market value of resources, which is particularly relevant for subsistence economies.

## Multiple Criteria Analysis

Multiple Criteria Analysis (MCA) is a form of structured decision-making that facilitates selection of options in consideration of a wide range of economic and non-economic criteria. The output of MCA is a ranking of options, which considers (i) the discounted cost of the options and (ii) a weighted-benefits "score," which is a numerical representation of the relative attractiveness of each option, based on the sum of the weighted preference scores for each criterion.

Through MCA (or similar structured decision-making tools), it is possible to compare project alternatives using a combination of environmental and socio-economic criteria with the performance expectations for each option estimated

quantitatively or qualitatively using methods appropriate for each criterion. Within the context of an environmental assessment, MCA can be used to compare project alternatives, or to compare a project with the BAU scenario, when such an economic assessment is needed to support a public project investment decision.

One of the main advantages of MCA over CBA is that criteria do not need to be expressed in monetary terms but can instead be expressed in metrics best suited to each criterion. Because it involves ranking and scoring, there is a subjective element of MCA. Establishing the “correct” weighting of criteria can be a challenging exercise that requires expertise from a variety of disciplines in order to appropriately rank the various criteria. MCA is often better suited for the comparison of alternatives, although it can also be used to compare a “project” scenario with a BAU scenario.

A limitation of MCA is that there is no single way of discounting across criteria to compare costs and benefits, so multiple methods are required that are suitable for each type of variable. It is also challenging to account for temporal differences between effects that occur in different project phases.

## Cost of Living Analysis

Cost of living analysis helps determine whether localized inflationary effects of a project may adversely affect economically disadvantaged sub-populations within a community, particularly those on low and fixed income. This information can be used to inform the assessment of disproportionate effects on distinct human populations, which is a required assessment matter under the Act. Localized inflation can occur when there is a rapid increase in demand for goods or services relative to supply. Major projects can affect several aspects of local inflation, such as:

- **Housing:** Demand for rental housing by project-related workforce can soak up available supply, motivating landlords to increase rents and implement other practices such as “renovictions.”
- **Labour:** Project hiring of local resident workers at higher than average wages may lower the residual local labour supply and force local employers to raise employee wages in order to retain or hire staff. Higher employee costs may be passed on to consumers in the form of higher prices for goods and services.
- **Services:** Hiring of skilled trades people, such as electricians and plumbers, could lead to shortages and higher prices for consumers.

A cost of living analysis may be relevant for projects where there is expected to be substantial local hiring relative to the population size, substantial local procurement of goods and services relative to the size of the local economy, or the plan is to lodge the construction workforce within accommodations currently available to the community. In the analysis and identification of mitigation measures, proponents should consider that there is often a lag time in market adjustments (for example, wages increase due to labour shortages), which can disproportionately affect vulnerable populations.

## Government Finances Analysis

Government revenues at local, provincial and federal levels can be estimated using other accounting approaches. In addition to revenues, consideration should also be given to the economic expenditures and other related effects that may occur locally due to major projects. These economic effects can occur in several ways:

- Additional expenditures to provide government services to non-residents who are not contributing to the local tax base, such as services consumed by a transient labour force;
- Additional expenditures to provide government infrastructure and services that support project activities for which there may be no mechanism to cover, such as costs associated with increased maintenance of government-owned roadways; and
- Temporal lag between increased expenditures and increased tax-based revenues, for projects that are assessable within a local tax base.

Baseline government budget and forecast information is generally available. For example, summarized local government financial statistics are provided by the Ministry of Municipal Affairs and Housing. When reviewing budgets and financial statements it is important to understand how services by a municipality are financed. Some services, such as waste disposal, may be funded on a cost-recovery basis, through charges and user-fees, whereas others, such as policing, fire and general government, are financed through local taxes, grants, or other mechanisms.

For projects that are located within a municipality and thus subject to local taxation, preliminary estimates of local taxes that will be payable can be undertaken based on estimated assessable value and appropriate mill rates. Such an analysis should consider that local governments may change their mill rates based on the respective value of taxable properties within each assessment class. The population effects of a project that houses its temporary construction workforce at locations physically removed from a municipality will likely be different from one in which the workforce is lodged at facilities within a municipality.

## Benefits Planning

Although not a method of analysis, benefits planning should be considered as an overarching outcome of project development that stems from early and ongoing engagement with Indigenous nations, government agencies, other technical advisors and stakeholders. To enhance positive economic effects of a project and help address potential issues related to disproportionate effects on sub-populations (for example, unequitable distribution of employment and contracting opportunities among disadvantaged groups and individuals), it is encouraged that proponents develop project-specific benefits plans. The objectives of such plans include:

- Providing employment to Canadians and residents of B.C., giving first consideration to local residents and residents of B.C. for employment and training during the project;
- Facilitating the participation of Canadian manufacturers, consultants, contractors and service companies, giving first consideration to services provided from within B.C. and to goods manufactured in B.C., for all proposed work or activities, where those services and goods are competitive in terms of fair market price, quality and delivery; and
- Facilitating the access of disadvantaged individuals or groups access to employment and business opportunities generated by the project.

It may also be relevant to include a description of potential long-term outcomes that a project may have on a region such as economic clustering, talent development and attraction, as well as the stimulation of follow-on investments, innovation and technological transfers.

Benefits plans should describe the consultative, monitoring and reporting procedures intended to be implemented to meet these objectives.