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## Socio-economic Effects Handbook for Yukon Mining, Oil and Gas Projects

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# Socio-economic Effects Handbook for Yukon Mining, Oil and Gas Projects

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## **Background and Purpose**

A key feature of the new *Yukon Environmental and Socio-economic Assessment Act* (YESAA) is a much broader assessment scope in comparison to previous environmental assessment legislation. Under the *Canadian Environmental Assessment Act* (and the *Yukon Environmental Assessment Act*), the socio-economic effects of a project are held to be by-products of adverse environmental effects. In contrast, YESAA requires the explicit consideration of the positive and negative socio-economic effects of a project. Specifically, YESAA requires that the Yukon Environmental and Socio-economic Assessment Board (YESAB) take into consideration "the significance of any environmental or socio-economic effects of the project or existing project that have occurred or might occur in or outside Yukon, including the effects of malfunctions or accidents."<sup>1</sup> As noted by the Yukon Minerals Advisory Board in their *2004 Annual Report*, "the smooth implementation of administrative processes related to the implementation of the *Yukon Environmental and Socio-economic Assessment Act* (YESAA) is of paramount importance."<sup>2</sup> Accordingly, the purpose of this project is to construct a socio-economic effects handbook designed to facilitate project proponents' characterization of the potential socio-economic effects of Yukon mining, oil and gas development projects.

As the focus of this handbook is on effects assessment, requirements for the description of existing socio-economic conditions (section 4.0 of the *Proponents Guide to Information Requirements for Executive Committee Project Proposal Submissions*) are not examined. Similarly, the assessment of cumulative effects, which requires use of the not-yet-released document *Guidelines for the Assessment of Cumulative Effects Under YESAA* is not explicitly considered.

The information contained in this handbook is intended for proponents making project proposal submissions at the Designated Office, Executive Committee and Panel level of assessment. Development of this handbook has been informed by the *Guide for Socio-economic Effects Assessments* [forthcoming from YESAB] as well as the selected references listed on page 14.

## **Level of YESAA Assessment and Socio-economic Effects Assessment**

Under YESAA, an oil, gas or mineral development project proposal can be assessed at one of three levels.<sup>3</sup> Project proposals assessed by one of YESAB's six designated offices (located in Dawson City, Haines Junction, Mayo, Teslin, Watson Lake and Whitehorse) undergo a project *evaluation*. When a project proposal is evaluated at the Executive Committee level, it undergoes a project *screening*. Project proposals evaluated by a YESAB panel (or a joint panel) undergo a project *review*. The level and types of YESAA assessments are summarized in Table 1 on the following page.

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<sup>1</sup> Paragraph 42.(1)(c), *Yukon Environmental and Socio-economic Assessment Act*, S.C. 2003, c.7.

<sup>2</sup> Yukon Minerals Advisory Board, *2004 Annual Report*, 2005, p. 5.

<sup>3</sup> For purposes of this handbook, it is assumed that the project in question is not excepted from assessment under provisions of Schedule 1 or Schedule 2 of the *Assessable Activities, Exceptions and Executive Committee Projects Regulations*.

**Table 1: Level and Type of YESAA Assessments**

<b>Level</b>	<b>Type of Assessment</b>
Designated Office	Evaluation
Executive Committee	Screening
Panel	Review

The determination of level of YESAA assessment is, at the outset, a function of project size. Thresholds which delineate whether a mining, oil or gas project is subject to assessment at the designated office level or the executive committee level are stated in Schedule 3 of the *Assessable Activities, Exceptions and Executive Committee Projects Regulations*.<sup>4</sup> Projects of a size below the Schedule 3 thresholds are to be initially assessed at the designated office level. A designated office may, however, “bump” a project assessment up to the executive committee level for screening “...if, after taking into account any mitigative measures included in the project proposal, it cannot determine whether the project will have significant adverse environmental or socio-economic effects.”<sup>5</sup>

Projects of a size above the Schedule 3 thresholds are to be initially assessed at the executive committee level. The executive committee may “bump” a project assessment up to a panel for review “...if, after taking into account any mitigative measures included in the project proposal, it cannot determine whether the project will have significant adverse environmental or socio-economic effects.”<sup>6</sup> A panel review may also be required when it is determined by the executive committee:

“...after taking into account any mitigative measures included in the project proposal, that the project might contribute significantly to cumulative adverse environmental or socio-economic effects in Yukon or that the project is causing or is likely to cause significant public concern in Yukon.”<sup>7</sup>

or

“it determines that the project involves technology that is controversial in Yukon or the effects of which are unknown.”<sup>8</sup>

In terms of the intensity or scale of socio-economic effects assessment required at each of the three levels of review, YESAA, the YESAA regulations and guiding documents so far available are much less explicit. Both the *Proponent's Guide to Project Proposal Submission to a Designated Office* and the forthcoming *Guide for Socio-economic Effects Assessments* suggest that a predictive tool be used to gauge the scale of socio-economic assessment required. An adaptation of the tool is presented in Table 2 below.

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<sup>4</sup> *Assessable Activities, Exceptions and Executive Committee Projects Regulations*, Canada Gazette, Part II, December 14, 2005, pp. 2891 to 2893. Excerpts of Schedule 3 relevant for mining projects and oil & natural gas projects may be found in Appendix 1 and Appendix 2 of this handbook, respectively.

<sup>5</sup> Paragraph 56. (1) (d), *Yukon Environmental and Socio-economic Assessment Act*, S.C. 2003, c.7.

<sup>6</sup> Paragraph 58. (1) (d), *Yukon Environmental and Socio-economic Assessment Act*, S.C. 2003, c.7.

<sup>7</sup> Paragraph 58. (2) (a), *Yukon Environmental and Socio-economic Assessment Act*, S.C. 2003, c.7.

<sup>8</sup> Paragraph 58. (2) (b), *Yukon Environmental and Socio-economic Assessment Act*, S.C. 2003, c.7.

**Table 2: Considerations for the Potential Scale of the Socio-economic Assessment**

	Potential for significant socio-economic effects	
	Lower potential ←	→ Higher potential
<b>Economic input relative to size of local economy</b>	small input-----	-----large input
<b>Community resiliency</b>	highly adaptable-----	-----not adaptable
<b>Relative number of people involved</b>	small number-----	-----large number
<b>History and experience of people in the area</b>	common project-----	-----uncommon project

Source: adapted from Figure 2 "Considerations for the Potential Scale of the Assessment" in the *Proponent's Guide to Project Proposal Submission to a Designated Office*, Yukon Environmental and Socio-economic Assessment Board, 2005, p. 18.

According to the tool, projects which are relatively large in terms of their total economic inputs relative to size of the local (or community economy) will have a lower potential for significant socio-economic effects. In terms of community resiliency, communities which are considered highly adaptable will have a lower potential for significant socio-economic effects. Projects which involve large numbers of people relative to the size of the local community will feature a higher potential for significant socio-economic effects. Lastly, a project of a nature which is common in the history and experience for people living in the area will have a lower potential for significant socio-economic effects.

**The YESAA Socio-economic Effects Assessment Continuum**

The handbook is organized into six elements which together form a continuum in the assessment of socio-economic effects as required under YESAA. The six elements and a brief description of each is shown in Table 3.

**Table 3: Handbook Organization and Element Descriptions**

Element	Description
<b>A. Possible Socio-economic Components</b>	<ul style="list-style-type: none"> <li>▪ A "long list" of socio-economic components which could conceivably be influenced, in a positive or negative way, by the project.</li> <li>▪ Not all components will be relevant for every project.</li> </ul>
<b>B. Identification of Valued Socio-economic Components</b>	<ul style="list-style-type: none"> <li>▪ A shorter list of socio-economic components identified as having importance – or, value – from the perspective of local communities.</li> <li>▪ Valued components are identified according to a timing-degree-span framework.</li> <li>▪ For larger-scale projects, identification of valued components is made at each project stage (planning, construction, operations and decommissioning).</li> </ul>
<b>C. Characterization of Potential Effects</b>	<ul style="list-style-type: none"> <li>▪ Measurement (estimated) of potential changes in valued socio-economic components when compared to baseline levels.</li> <li>▪ For large-scale projects, to be applied at each project stage (planning, construction, operations and decommissioning).</li> </ul>
<b>D. Enhancement and Mitigation</b>	<ul style="list-style-type: none"> <li>▪ On the basis of the results of elements of B and C, a "max/min strategy" which maximizes (i.e., enhances) the positive socio-economic effects and minimizes (i.e., mitigates) the negative socio-economic effects of the project.</li> </ul>
<b>E. Determination of Significance</b>	<ul style="list-style-type: none"> <li>▪ An overall assessment of potential effects, post-mitigation.</li> </ul>
<b>F. Effects Monitoring &amp; Adaptive Management</b>	<ul style="list-style-type: none"> <li>▪ Proposed approach to monitoring to test accuracy of predicted effects.</li> <li>▪ Planned strategy for adaptation in response to findings of monitoring findings.</li> </ul>

**A. Possible Socio-economic Components**

As a starting point, a range of socio-economic components which could result from development of the Yukon's mineral, and oil and gas resources are outlined in Table 4.<sup>9</sup> The components are grouped according to the following categories: demographics, health, cultural well-being, land and resource use, social community, labour market, economic community, business and government. Note that this list is illustrative; it is not intended to be an exhaustive list of potential components.

**Table 4: Description of Possible Socio-economic Components**

Component	Description
<b>Demographics</b>	
▪ population	changes in the level and composition (age, gender) of community populations
▪ influx/outflux of workers	changes in community dynamics which result from a sudden influx of "outside" workers or the rotational migration of community members to remote worksites
▪ vulnerable sub-populations	consideration of effects from development on sub-populations (women, elders, youth) less able to take advantage of employment and training opportunities which accompany development projects
<b>Health</b>	
▪ stress and anxiety related to working conditions	extent to which workers and their families experience stress and anxiety as a result of working conditions
▪ substance abuse/addictions	capacity of existing social infrastructure (treatment centres, women's shelters, social services for youth) to prevent, manage and mitigate changes in the number of individuals directly and indirectly affected by unhealthy behaviours
<b>Cultural Well-being</b>	
▪ cultural composition of communities	the degree of change in the number of long-term community residents relative to new residents
▪ heritage resources	effects on known cultural, historical, spiritual and archeological resources
▪ loss of language	changes in the relative number of individuals speaking indigenous languages
▪ traditional livelihood	changes in the amount of time spent participating in the wage economy relative to time spent participating in the traditional economy
<b>Land and Resource Use</b>	
▪ sustainable resource development	extent to which the project affords a stable pace of development (as opposed to boom and bust development)
▪ reduced harvesting success	effects of project development on traditional food harvests (animal and plant)
▪ competing uses for land	extent to which proposed development precludes use of land for other purposes
<b>Social Community</b>	
▪ pace of change on vulnerable communities	extent to which social programming in communities is able to deal with pre-existing social issues and can be expected to handle new issues arising from development
▪ social infrastructure	the extent to which to the project will increase demand for existing social infrastructure (e.g., community wellness programs, health services) beyond what it is designed to support
▪ leisure opportunities	changes in the range of available recreational and leisure opportunities
▪ social networks or community organizations	extent and manner in which social networks and community organizations will be affected by project development
▪ criminal activity	assessment of the capacity of existing social infrastructure to take care of people affected by crimes in the local community

<sup>9</sup> Adapted in part from a) *Raising the Bar for Socio-Economic Impact Assessment*, Mackenzie Valley Environmental Impact Review Board, 2006, and b) Jessica Turnley, *Social, Cultural, Economic Impact Assessments: A Literature Review*, United States Environmental Protection Agency, 2002.

Table 4: Description of Possible Socio-economic Components

Component	Description
<b>Labour Market</b>	
▪ employment	the number of job opportunities expected to be created by the project
▪ wages/salaries	the labour income associated with available job opportunities
▪ training/education opportunities	the extent to which local residents and Yukoners have opportunities to improve their skills, knowledge and training as a result of the project
▪ labour income leakage	the extent to which labour income will accrue to the local economy versus the territorial and national economies
▪ labour market crowding out	the extent to which new employment opportunities will result in shortages of skilled and experienced labour in previously existing positions at other businesses
▪ skills and labour availability	the relative extent to which skills and experience required for the project are available in the local and territorial labour market
<b>Economic Community</b>	
▪ price inflation	the extent to which increased demand from new community residents and businesses for local goods and services (including housing) is expected to result in higher prices
▪ positive externalities	identification and description of any potential positive externalities associated with the project (e.g., expanded markets, new or improved infrastructure, demonstration effects)
▪ negative externalities	identification and description of any potential negative externalities associated with the project (e.g., adverse environmental effects, adverse social pressures, pressure on cultural assets, increased land prices, overuse of existing public infrastructure)
▪ infrastructure benefits sharing	extent to which new physical infrastructure created for the project (roads, bridges, electricity transmission, etc.) will benefit other projects
▪ new technology transfer/adoption	extent to which the project will result in the transfer or adoption of new technologies, production processes, skills, knowledge
<b>Business</b>	
▪ backward business linkages	the expected extent to which existing Yukon suppliers of goods and services are expected to be able to supply production/project inputs
▪ forward business linkages	the expected extent to which the project results in an increased local supply of complementary goods and services (i.e., spin-off businesses)
▪ input supply leakage	the degree to which inputs needed during the construction and operations phases will be sourced from outside the Yukon
<b>Government</b>	
▪ taxes and royalties	calculations of the value of personal income tax, corporate income tax, commodity taxes, resource royalties, etc. expected to accrue to federal, territorial and First Nation governments as a result of the project
▪ physical infrastructure	the extent to which the project will increase demand for physical community infrastructure (roads, buildings, sewer, water, waste disposal, etc) beyond what it was designed to support
▪ economic output (GDP)	changes in economic output as measured by gross domestic product

## **B. Identification of Valued Socio-economic Components**

The next step in the socio-economic assessment process is to identify which of the possible socio-economic components are important – or, valued – by community members. The *Proponents Guide to Information Requirements for Executive Committee Project Proposal Submissions* states that project proponents are to:

“Identify the key environmental and socio-economic components that may be affected by the project and present a selected list of expected VCs<sup>10</sup> for the project, and the rationale for each selection. Focus on the components identified as being the most important according to the issues and concerns raised by government, stakeholders, First Nations and the public.” (page 34)

In terms of how proponents are to go about the identification of valued environmental and socio-economic components, the *Proponents Guide to Information Requirements for Executive Committee Project Proposal Submissions* also states:

“Although no process for identifying VCs has been formalized, these components are typically identified through consultation with relevant government departments and agencies, stakeholders, local First Nations and other interested parties.” (page 32)

A recommended approach to the identification of VCs is to undertake a survey of “relevant government departments and agencies, stakeholders, local First Nations and other interested parties” with an instrument designed to gauge perceptions of possible socio-economic components according to a timing-degree-span framework. In terms of *timing*, socio-economic effects can be direct or flow-on in nature. Direct effects are the most immediate of all project effects and are generally a clear result of the project.<sup>11</sup> Flow-on effects (or, indirect and induced effects) are the result of direct effects. Flow-on effects last for a longer period of time than do direct effects and typically involve more individuals located in a broader geographic area. The duration of the effect (the length of time an effect lasts) is also an important aspect.

With regard to *degree*, a socio-economic effect may be positive or negative in nature. Positive effects are usually described as benefits (e.g., jobs) while negative effects are often described as impacts (e.g., changes in family structure). Whether positive or negative, the scale (or, size) of the effect is also important.

In the course of community consultation to assist with the drafting of their forthcoming *Socio-economic Impact Assessment Guidelines*, the Mackenzie Valley Environmental Impact Review Board received many suggestions on how to improve the *process* of socio-economic impact assessment, including:

- early and continuous community engagement
- improve preliminary screening of socio-economic impacts
- avoid consultation burnout
- avoid information overload
- identify vulnerable populations and sub-populations
- use locally appropriate data collection and interpretation
- find ways to make socio-economic measures stick
- support community based assessment
- improve community capacity

Source: *Raising the Bar for Socio-Economic Impact Assessment*, Mackenzie Valley Environmental Impact Review Board, 2006.

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<sup>10</sup> “VCs” is an abbreviation of “Valued Environmental and Socio-economic Components”.

<sup>11</sup> An example of a direct effect is employment at a mine site. An example of a flow-on effect is the new employment that might be created in a local business which supplies goods to the mine site.



The *span* of an effect refers to how far afield the effect is experienced – locally, territorially or nationally. Social effects tend to be experienced more at the local and territorial level while economic effects flow according to the economic linkages associated with the project. As a result, it is possible for some economic effects to be experienced mainly only at distances far removed from the project location.

To complete the identification of valued socio-economic components, the timing-degree-span-framework should be applied to all socio-economic components not filtered out due to scoping considerations. Two examples of how the timing-degree-span framework can be applied are shown below.

<b>Example #1: Component = social infrastructure</b>			
<b>Timing</b>	direct	is the project likely to increase direct demands on social infrastructure (community wellness programs, health services, etc.)	<input type="checkbox"/> yes <input type="checkbox"/> no
	flow-on	is the project likely to result in flow-on demands on social infrastructure (community wellness programs, health services, etc.)	<input type="checkbox"/> yes <input type="checkbox"/> no
	duration	over what time frame will direct and flow-on employment be created?	_____ weeks
<b>Degree</b>	positive	will an increase in direct/flow-on demands likely be seen by the community as positive in nature?	<input type="checkbox"/> yes <input type="checkbox"/> no
	negative	will an increase in direct/flow-on demands likely be seen by the community as negative in nature?	<input type="checkbox"/> yes <input type="checkbox"/> no
	scale	what is the likelihood of the expected increases in direct and flow-on demands bringing total demand for services beyond existing capacity?	<input type="checkbox"/> high <input type="checkbox"/> medium <input type="checkbox"/> low
	local	are the increased demands on social infrastructure most likely to be concentrated at the community level?	<input type="checkbox"/> yes <input type="checkbox"/> no
	territorial	are the increased demands on social infrastructure most likely to be concentrated at the territorial level?	<input type="checkbox"/> yes <input type="checkbox"/> no
	national	are the increased demands on social infrastructure most likely to be concentrated at the national level?	<input type="checkbox"/> yes <input type="checkbox"/> no

<b>Example #2: Component = employment (job creation)</b>			
<b>Timing</b>	direct	will more than a week of employment be created as a direct result of the project?	<input type="checkbox"/> yes <input type="checkbox"/> no
	flow-on	will more than a week of employment be created as a flow-on result of the project?	<input type="checkbox"/> yes <input type="checkbox"/> no
	duration	over what time frame will direct and flow-on employment be created?	_____ weeks
<b>Degree</b>	positive	is the effect (job creation) likely to be seen by the community as positive in nature?	<input type="checkbox"/> yes <input type="checkbox"/> no
	negative	is the effect (job creation) likely to be seen by the community as negative in nature?	<input type="checkbox"/> yes <input type="checkbox"/> no
	scale	what is the likely scale of direct and flow-on employment effects relative to the existing employment in the community	<input type="checkbox"/> high <input type="checkbox"/> medium <input type="checkbox"/> low
	local	are the direct and flow-on employment effects expected to accrue largely at the local community level?	<input type="checkbox"/> yes <input type="checkbox"/> no
	territorial	are the direct and flow-on employment effects expected to accrue largely at the territorial level?	<input type="checkbox"/> yes <input type="checkbox"/> no
	national	are the direct and flow-on employment effects expected to accrue largely at the national level?	<input type="checkbox"/> yes <input type="checkbox"/> no

Respondents should also be given opportunity to identify variants of the potential socio-economic components listed in Table 3 as well as alternate socio-economic components not listed in Table 3. The timing-degree-span framework should then be applied to the additional components identified. Lastly, for larger-scale projects which involve distinct

stages (e.g., planning, construction, operations and decommissioning) the framework could conceivably be applied at each project stage.

**C. Characterization of Potential Socio-economic Effects**

With the long list of possible socio-economic components now narrowed to a list of valued socio-economic components, the next step in the socio-economic assessment process is to attempt to estimate potential changes in valued socio-economic components in comparison with their baseline levels. Table 5, which contains the same “long list” of possible socio-economic components presented in Table 4, outlines the data types, possible data sources and potential analytical methods which could be used to both establish baseline levels and estimate changes in the valued socio-economic components. Note that, to the extent possible, the same timing-degree-span framework that was described in element B should be applied to the estimation of the potential changes in valued socio-economic components. Proper documentation of the rationale and methods to estimate socio-economic effects is required by YESAB.

**Table 5: Characterization of Socio-economic Effects – Data and Methods**

<b>Component</b>	<b>Data Type</b>	<b>Data Source</b>	<b>Potential Analytical Method</b>
<b>Demographics</b>			
▪ population	secondary	Statistics Canada (Census); Yukon Bureau of Statistics	statistical analysis; scenarios
▪ influx/outflux of workers	primary	project description; public participation	statistical analysis
▪ vulnerable sub-populations	primary	public participation; expert judgment	case studies; scenarios
<b>Health</b>			
▪ stress/anxiety related to working conditions	primary	survey; public participation	comparative method; case studies
▪ substance abuse/addictions	primary; secondary	survey; Yukon Bureau of Statistics	statistical analysis
<b>Cultural Well-being</b>			
▪ cultural composition of communities	primary	public participation; traditional knowledge	comparative method; scenarios
▪ heritage resources	primary	public participation; expert judgment; traditional knowledge	comparative method
▪ loss of language	primary	survey; traditional knowledge	statistical analysis; scenarios
▪ traditional livelihood	primary	public participation; traditional knowledge	comparative method; scenarios
<b>Land and Resource Use</b>			
▪ sustainable resource development	primary	expert judgment; public participation	net social benefit calculations; multi-project comparisons
▪ harvesting success	primary	survey; traditional knowledge	statistical analysis
▪ competing uses for land	primary	public participation; document review	case studies; scenarios
<b>Social Community</b>			
▪ pace of change on vulnerable communities	primary	public participation; expert judgment	statistical analysis; scenarios
▪ social infrastructure	primary	public participation	case studies; comparative method
▪ leisure opportunities	primary	survey	statistical analysis
▪ social networks or community organizations	primary	public participation	case studies
▪ criminal activity	secondary	Yukon Bureau of Statistics	statistical analysis; case studies

**Table 5: Characterization of Socio-economic Effects – Data and Methods**

Component	Data Type	Data Source	Potential Analytical Method
<b>Labour Market</b>			
▪ employment	secondary	proponent estimates	statistical analysis
▪ wages/salaries	secondary	proponent estimates	statistical analysis
▪ training/education opportunities	secondary	training plans	gap analysis of training plans
▪ labour income leakage	secondary	local labour market survey	statistical analysis
▪ labour market crowding out	primary	local labour market survey; Statistics Canada Census	statistical analysis; unemployment estimates
▪ skills and labour availability	primary	local labour market survey	statistical analysis
<b>Economic Community</b>			
▪ price inflation	primary (secondary in Whitehorse)	survey	statistical analysis
▪ positive externalities	primary	project description; public participation	qualitative analysis
▪ negative externalities	primary	project description; public participation	qualitative analysis
▪ infrastructure benefits sharing	primary	project description; public participation	qualitative analysis
▪ new technology transfer/adoption	primary	project description	qualitative analysis
<b>Business</b>			
▪ backward business linkages	primary	project description; public participation	statistical analysis; qualitative analysis
▪ forward business linkages	primary	project description; public participation	statistical analysis; qualitative analysis
▪ input supply leakage	primary	project description; public participation	statistical analysis; qualitative analysis
<b>Government</b>			
▪ taxes and royalties	secondary	Statistics Canada	input/output multipliers
▪ physical infrastructure	primary	project description; public participation	qualitative analysis
▪ economic output (GDP)	secondary	Statistics Canada	input/output multipliers

Table 6 below outlines where to find the data sources outlined in Table 5 above.

**Table 6: Data Source Locations**

Data source	Location
Statistics Canada	<a href="http://www.statcan.ca">http://www.statcan.ca</a>
Yukon Bureau of Statistics	<a href="http://www.gov.yk.ca/depts/eco/stats/">http://www.gov.yk.ca/depts/eco/stats/</a>
project description	documents prepared by the proponent
public participation	interviews, focus groups, informal discussions with community members (with assistance from the community)
expert judgment	scenario development and implication assessment by persons familiar with the study area
survey	primary data collected at the community level using structured techniques
traditional knowledge	gathered within the community [n.b. a guide on traditional knowledge is forthcoming from YESAB]
document review	examinations of grey literature and published documents
proponent estimates	engineering and feasibility studies prepared by the project proponent
local labour market survey	human resource plans prepared by proponent

**D. Enhancement and Mitigation**

The findings of element B (Identification of Valued Socio-economic Components) will provide an indication of which socio-economic components are of the greatest importance at the community level. Element C (Characterization of Potential Socio-economic Effects) will provide a quantitative and qualitative measure of the scale of the “valued effects”, both positive and negative. The objective of this element of the socio-economic effects assessment continuum is to outline a “max/min” strategy which seeks to maximize (i.e., enhance) the positive socio-economic effects and minimize (i.e., mitigate) the negative socio-economic effects of mining, and oil and gas developments.

A variety of tools, some with a relatively narrow focus and others more comprehensive in approach, are used to enhance positive socio-economic effects and minimize negative effects. Examples include:<sup>12</sup>

- socio-economic agreements
- industrial benefit plans
- community capacity building initiatives
- strategies to protect and bolster community wellness
- harvester compensation agreements
- access agreements
- impact and benefit agreements
- special interest plans and agreements
- human resources, infrastructure and business studies
- strategies to protect against cultural disruption in transitions from traditional to wage-based economies

As shown in Table 7, the Mackenzie Valley Environmental Impact Review Board has identified a series of common features of socio-economic agreements and benefit plans which have been negotiated in the Northwest Territories.

**Table 7: Common Features of Socio-economic Agreements/Benefit Plans<sup>13</sup>**

<p><b>Recruitment, Training and Employment</b></p> <ul style="list-style-type: none"> <li>▪ recruitment and employment strategies;</li> <li>▪ literacy training;</li> <li>▪ on-site learning centres; and,</li> <li>▪ employment skills training programs.</li> </ul>
<p><b>Health and Wellness</b></p> <ul style="list-style-type: none"> <li>▪ substance abuse prevention and treatment;</li> <li>▪ Aboriginal liaison personnel;</li> <li>▪ family support services;</li> <li>▪ money management training;</li> <li>▪ transportation to site;</li> <li>▪ cultural awareness programs; and,</li> <li>▪ support mechanisms for Aboriginal traditional practices (e.g., time on the land).</li> </ul>
<p><b>Economic Development</b></p> <ul style="list-style-type: none"> <li>▪ contracts and contact lists;</li> <li>▪ workshops for local business development; and</li> <li>▪ local business preference.</li> </ul>

An extensive list of specific provisions may be found in Steven Kennett’s *A Guide to Impact and Benefit Agreements* published by the Canadian Institute of Resources Law.

<sup>12</sup> These examples are drawn from the Mackenzie Valley Environmental Impact Review Board, *Socio-economic Impact Assessment Guidelines for Environmental Assessment in the Mackenzie Valley*, 2005, page 53 and Jacques Whitford, *Industrial Benefits Planning Discussion Paper (draft)*, 2006 pp. 9 to 11.

<sup>13</sup> Mackenzie Valley Environmental Impact Review Board, *Socio-economic Impact Assessment Guidelines for Environmental Assessment in the Mackenzie Valley*, 2005, page 53.

Section 68 of the Yukon's *Oil and Gas Act* explicitly requires the negotiation of a benefits agreement. The agreement must provide opportunities for Yukon First Nations (government and citizens) on whose settlement land the oil and gas activity will be taking place, residents of communities affected by the oil and gas activity and other Yukon residents. The benefits agreement must, at a minimum, include opportunity provisions for employment and training as well as the local supply of goods and services.

While the negotiation of some form of socio-economic agreement or benefit plan is not a statutory requirement for Yukon-based mining projects, there is an extensive history of the negotiation of such agreements. Examples of Yukon mining projects for which benefits agreements have been negotiated include the Sa Dena Hes Mine (1991), Faro Mine (1994), the Kudz Ze Kyah Property (1995) and the Mount Nansen Mine (1996).

### **E. Determination of Significance**

The approach to socio-economic effects assessment outlined in both the *Proponents Guide to Information Requirements for Executive Committee Project Proposal Submissions* and the *Guide for Socio-economic Effects Assessment* is modeled on the same general approach which has been in common use in the field of environmental assessment for many years. For the most part, socio-economic assessment practices translate well to the environmental assessment model. An obvious exception, however, concerns the concept of significance.

As defined in the YESAB *Guide for Socio-economic Effects Assessments* [forthcoming], significance is defined as:

“A value-based, subjective judgment or interpretation about what is important with criteria based on thresholds set on a case-by-case basis that encompasses the magnitude or intensity measurements of effects in a particular environment.”  
(page 164)

To phrase it another way, the purpose of a significance determination is to decide on a subjective basis whether, after mitigative measures have been applied, the proposed project will likely result in adverse socio-economic effects beyond what the local community is willing to accept. Because the process of significance determination follows from the realm of environmental assessment which is focused on adverse effects, the concept of significance is not intended to encompass the beneficial effects of mining, oil and gas development projects. Indeed the *Guide for Socio-economic Effects Assessments* [forthcoming] states:

“Currently the YESAB is working to develop a framework that will allow the consideration of the significance of favourable effects in parallel with that of adverse effects. This framework has not yet been completed and for the purposes of this guide and assessments under YESAA, favourable effects of a project will only be considered as far as they can be considered as mitigation measures for potentially adverse effects.” (page 95)

In addition, significance determination in an environmental assessment context benefits greatly from the existence of accepted thresholds against which adverse environmental effects are compared. In the context of socio-economic effects assessment, however, agreed-upon objectives, let alone thresholds, have not yet been established. Notwithstanding the foregoing, determination of significance of socio-economic effects is a requirement under YESAA. Proponents are required to document their significance

methodology "...in sufficient detail to enable YESAA assessors to understand and review the proponent's analysis and interpretation of the significance of effects."<sup>14</sup>

As outlined in the *Guide for Socio-economic Effects Assessments* [forthcoming] significance determination involves the following three steps:

"Determine whether any residual socio-economic effects are adverse or favourable in consideration of the directional change of the VCs:

- Positive; or,
- Neutral; or,
- Negative; or,
- Both negative and positive.

Determine whether the adverse effects are significant in consideration of the following effect attributes:

- Magnitude;
- Geographic extent;
- Duration;
- Frequency;
- Reversibility;
- Socio-economic context;

Determine whether the significant effects are likely to occur in consideration of the following:

- Probability of their occurrence; and
- Uncertainty (in the context of scientific or traditional knowledge)."  
(page 98)

Given the current uncertainty associated with this element of the socio-economic assessment process, it is recommended that project proponents work closely with YESAB officials in the analysis and documentation of significance determination for proposed projects.

## **F. Effects Monitoring and Adaptive Management**

The final element in the socio-economic effects assessment continuum concerns effects monitoring and adaptive management. Proponents are required to outline the proposed approach to monitoring the socio-economic effects expected to accompany the project in order to test the accuracy of predicted effects. Thus, for each socio-economic effect characterized in element C, project proposals should indicate how often the effect will be measured and in what format the monitoring findings will be reported.

Monitoring findings are to be used (in the manner of a feedback loop) to adapt the enhancement and mitigation measures described in element D (Enhancement and Mitigation) with the objective of reducing the significance of effects. As the requirements for monitoring and adaptive management of socio-economic effects represent new ground for YESAB (and the Mackenzie Valley Environmental Impact Review Board), it is recommended that project proponents work closely with YESAB officials on the effects monitoring and adaptive management element.

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<sup>14</sup> Yukon Environmental and Socio-economic Assessment Board, *Proponents Guide to Information Requirements for Executive Committee Project Proposal Submissions*, 2005, p. 40.

### Summary Checklist

This handbook has presented a synopsis of the six elements which together form a continuum in the assessment of socio-economic effects as required under YESAA. Table 8 below provides a summary checklist of the elements.

**Table 8: Socio-economic Assessment Checklist**

<b>Element</b>	<b>Completed?</b>
A. Possible Socio-economic Components	<input type="checkbox"/> yes <input type="checkbox"/> no
B. Identification of Valued Socio-economic Components	<input type="checkbox"/> yes <input type="checkbox"/> no
C. Characterization of Potential Effects	<input type="checkbox"/> yes <input type="checkbox"/> no
D. Enhancement and Mitigation	<input type="checkbox"/> yes <input type="checkbox"/> no
E. Determination of Significance	<input type="checkbox"/> yes <input type="checkbox"/> no
F. Effects Monitoring and Adaptive Management	<input type="checkbox"/> yes <input type="checkbox"/> no

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**Appendix 1: Mining Projects to be Submitted to the Executive Committee**

Excerpt from SCHEDULE 3  
(Subsection 1(1) and section 5)

PROJECTS TO BE SUBMITTED TO THE EXECUTIVE COMMITTEE

*Mining*

1. Quartz exploration program involving the movement of 250 000 t or more of rock.
2. Placer mining operation involving suction dredging.
3. Construction, decommissioning or abandonment of
  - (a) a metal mine, other than a gold mine, with an ore production capacity of 1500 t/day or more; or
  - (b) a gold mine with an ore production capacity of 300 t/day or more.
4. Expansion of a metal mine, other than a gold mine, that increases ore production capacity by 50% or more, or by 750 t/day or more, and increases the ore production capacity to 1500 t/day or more.
5. Expansion of a gold mine that increases ore production capacity by 50% or more, or by 150 t/day or more, and increases the ore production capacity to 300 t/day or more.
6. Construction, decommissioning or abandonment, or an expansion that increases production capacity by more than 35%, of
  - (a) an asbestos mine;
  - (b) a graphite mine with a production capacity of 1500 t/day or more;
  - (c) a gypsum mine with a production capacity of 4000 t/day or more;
  - (d) a magnesite mine with a production capacity of 1500 t/day or more;
  - (e) a limestone mine with a production capacity of 12 000 t/day or more; or
  - (f) a clay mine with a production capacity of 20 000 t/day or more.
7. Construction, decommissioning or abandonment of a coal mine with a production capacity of 3000 t/day or more.
8. Expansion of a coal mine that increases production capacity by 50% or more, or by 1500 t/day or more, and increases the production capacity to 3000 t/day or more.

**Appendix 2: Oil and Natural Gas Projects to be Submitted  
to the Executive Committee**

Excerpt from SCHEDULE 3  
(Subsection 1(1) and section 5)

**PROJECTS TO BE SUBMITTED TO THE EXECUTIVE COMMITTEE**

***Oil and Natural Gas***

13. Construction, decommissioning or abandonment, or an expansion that increases inlet capacity by more than 35%, of a sour natural gas processing plant with sulphur inlet capacity of more than 2000 t/day.
14. Construction, decommissioning or abandonment, or an expansion that increases processing capacity by more than 35%, of a sweet natural gas processing plant with processing capacity of 2 000 000 m<sup>3</sup>/day or more.
15. Construction, decommissioning or abandonment, or an expansion that increases processing capacity by more than 35%, of a plant for the liquefaction of natural gas or re-gasification of liquefied natural gas with processing capacity of more than 3000 t/day.
16. Construction, decommissioning or abandonment, or an expansion that increases storage capacity by more than 35%, of a plant for the storage of natural gas with storage capacity of more than 50 000 t.
17. Construction of an oil or natural gas pipeline 25 km or more in length if the pipeline is not on a right of way developed for a power line, pipeline, railway line or road nor on a right of way contiguous to, for its whole length, a right of way developed for a power line, pipeline, railway line or road.
18. Construction, decommissioning or abandonment of an oil or natural gas pipeline 75 km or more in length if the pipeline is on a right of way developed for a power line, pipeline, railway line or road.
19. Construction, decommissioning or abandonment of an offshore oil or natural gas pipeline in fresh water.
20. Construction, decommissioning or abandonment, or an expansion that increases input capacity by more than 35%, of an oil refinery with an input capacity of more than 5000 m<sup>3</sup>/day.
21. Construction, decommissioning or abandonment, or an expansion that increases production capacity by more than 35%, of
  - (a) a facility for the production of liquid hydrocarbon products from coal with a production capacity of more than 2000 m<sup>3</sup>/day;
  - (b) a heavy oil or oil sands processing facility with an oil production capacity of more than 5000 m<sup>3</sup>/day; or
  - (c) an oil sands mine with a bitumen production capacity of more than 5000 m<sup>3</sup>/day.

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