Evaluation of the Economic Impacts of the Gahcho Kué Diamond Project

Prepared For:

Ministry of Industry, Tourism and Investment
Government of the Northwest Territories

By:

Schlenker Consulting Ltd.

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Executive Summary

Objective

De Beers Canada Inc (De Beers) and Mountain Province Diamonds Inc. (MPD) are proposing to construct and operate a mine that would extract diamonds from the Gahcho Kué mineral deposits in the Northwest Territories (NWT). Schlenker Consulting Ltd. was commissioned by The Ministry of Industry, Tourism and Investment of the Government of the Northwest Territories (GNWT) to estimate the economic impacts of the project in the Northwest Territories and in Canada as a whole.

Methodology

The analysis employs an input output framework to measure the direct, indirect and induced impacts arising from the construction and operation of the Gahcho Kué project. The focus is on the implications for gross domestic product (GDP), income, employment and government revenues in the NWT and Canada as a whole. This analysis measures the impacts on these variables and, unlike cost benefit analysis for example, does not address efficiency issues. This economic analysis was conducted based on capital cost, operating cost and revenue estimates provided by the project sponsors.

Economic Impacts of the Gahcho Kué Project

Construction of the Gahcho Kué project would take place over the period 2014-2016 with the bulk of the expenditures expected to occur in 2015 and 2016. The estimated direct, indirect and induced impacts are summarized below in Table 1. More than $500 million in GDP and over 4000 jobs could be expected to be generated in Canada due to project construction expenditures.[1] In the NWT, the total GDP impact would be about $150 million and 760 jobs would be created for NWT residents.[2] About 85% of those jobs would be generated in the main construction years of 2015 and 2016 creating about 325 jobs per year. Given recent NWT employment levels, this would represent about a 1.5% increase in overall employment.

[1] All dollar figures in this analysis are reported in 2010 Canadian (Cdn) dollars.

[2] Given labour market constraints in the NWT, it is anticipated that some of the labour required in the NWT during the project would come from other regions of Canada. Impacts shown here in the executive summary reflect an adjustment for this consideration (see body of report for details).

Table 1 – Summary of Construction Impacts
(values are in millions of 2010 Cdn$)

	NWT	Rest of Canada	Canada
GDP	148	374	522
Labour Income	72	250	322
Territorial/Provincial Government Revenue	13	38	51
Federal Government Revenue	20	64	84
Total Government Revenue	33	102	135
Employment (in person years)	760	3530	4290

The project sponsors have indicated the Gahcho Kué mine would operate over an 11 year period between 2017 and 2027. The estimated direct, indirect and induced impacts associated with mine operations are summarized in Table 2 below. The overall impacts on Canadian GDP, labour income and government revenues would be $4.2 billion, $1.1 billion and $1.2 billion respectively. Almost 14,000 person years of employment would be generated by the project in Canada, or close to 1300 jobs annually over the operating period.

Table 2 – Summary of Operating Impacts
(values are in millions of 2010 Cdn$)

Total Impacts	NWT	Rest of Canada	Canada
GDP	3168	1055	4223
Labour Income	380	724	1104
Territorial/Provincial Government Revenue	301	103	404
Federal Government Revenue	634	195	829
Total Government Revenue	935	298	1233
Employment (in person years)	3824	10114	13938

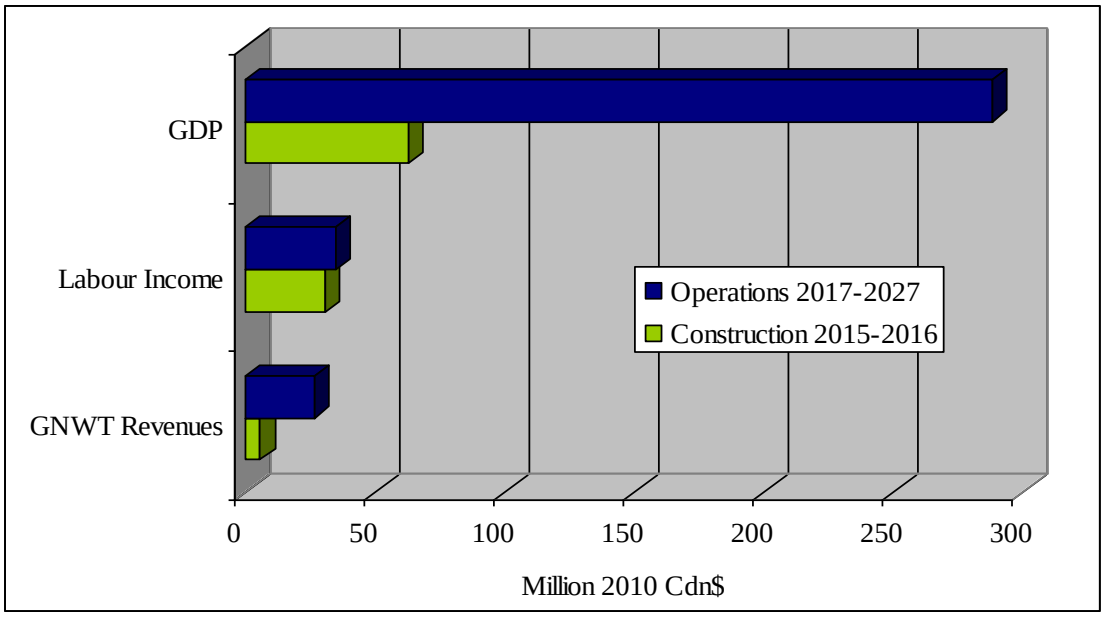
Annual Average Impacts	NWT	Rest of Canada	Canada
GDP	288	96	384
Labour Income	35	66	101
Territorial/Provincial Government Revenue	27	9	36
Federal Government Revenue	58	18	76
Total Government Revenue	85	27	112
Employment (in person years)	347	919	1266

For the NWT, overall GDP impacts associated with the Gahcho Kué project can be expected to be roughly $3.2 billion over the 11 year operating period. This amounts to about $290 million annually, or about 6-7% of annual GDP levels in the territories over recent years.

Territorial government revenues impacts would also be quite sizable in comparison to recent values. For example, the estimated annual impact of $27 million on territorial government revenues is equivalent to almost 13% of taxation revenue in the NWT for the 2009-2010 fiscal year. While the issue of clawbacks must certainly be addressed (see below), this would represent a significant increase in total taxation revenue in the NWT.

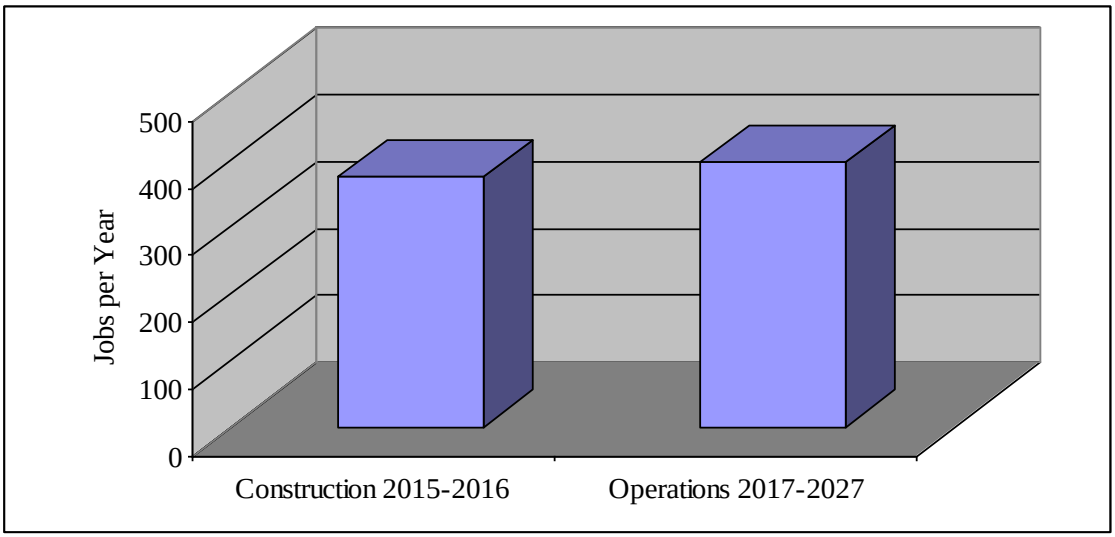
Estimates of annual GDP, labour income and government revenue impacts in the NWT are summarized in Figure 1 below for the main construction period (2015-2016) and the operating period. Labour income impacts are expected to be similar in both periods whereas significantly higher GDP and government revenue impacts could be expected in the operating phase of the project.

Figure 1 – Annual Impacts on GDP, Labour Income and Government Revenues in the NWT



Finally, employment impacts in the NWT during the operations phase of the project would total over 3800 person years, or an average of about 350 jobs per year. Given recent NWT employment levels, this would represent about a 1.6% increase in overall employment. As shown in Figure 2 below, annual employment impacts in the NWT are expected to be roughly comparable in both the construction and operating phases of the project.

Figure 2 – Annual Impacts on Employment in the NWT



Implications of the Territorial Formula Financing Agreement

The Government of the Northwest Territories (GNWT) receives a significant portion of its budgetary revenues in the form of a Territorial Formula Financing Grant from the Government of Canada. Certain taxation revenue streams received by the GNWT are implicitly subject to various tax back rates, including many of the revenue streams that would be generated by the Gahcho Kué project. This can be expected to result in a clawback of some of the territorial government revenue impacts noted above.

It is estimated that over 80% of the territorial government revenue impacts over the construction phase would be clawed back, resulting in a net impact of only $2 million for GNWT revenues. Roughly two thirds of the territorial government revenues in the operating phase would also be clawed back. However, the net impacts on GNWT revenues would still be $99 million over the operating period, or an average of $9 million per year.

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1. INTRODUCTION

1.1 Background

De Beers Canada Inc (De Beers) and Mountain Province Diamonds Inc. (MPD) are proposing to construct and operate a mine that would extract diamonds from the Gahcho Kué mineral deposits in the Northwest Territories (NWT). Construction of the mine would begin in 2014 with the bulk of the construction taking place in 2015 and 2016.[3] The Gahcho Kué Diamond project (referred to as the project hereafter) is expected to involve the extraction and processing of over 31 million tonnes of ore and the recovery of 49 million carats of diamonds over the period 2017-2027.

Schlenker Consulting Ltd. was commissioned by The Ministry of Industry, Tourism and Investment of the Government of the Northwest Territories (GNWT) to estimate the economic impacts of the project in the Northwest Territories and in Canada as a whole.

1.2 Study Objective

The objective in this study is to estimate key economic impacts on the NWT and Canadian economies arising from the construction and operation of the Gahcho Kué project. This includes the direct, indirect and induced impacts on gross domestic product (GDP), labour income, employment, and government revenues for the NWT and Canada. These impacts are estimated for a 14 year project life, consisting of a three year construction period and an eleven year operating period.

1.3 Methodology and Qualifications

The analysis in this report is referred to as an impact analysis. Various economic measures (such as GDP, labour income, employment and government revenues) are estimated taking into account the 'multiplier'

[3] In the Gahcho Kue Project Definitive Feasibility Study (NI43-101 Technical Report), prepared by JDS Mining and Energy Inc for De Beers and MPD (1 December 2010), the main construction period is shown to be 2013-2014, while the operating period is assumed to be from 2015-2025. However, the Environmental Impact Review of the project would have to be completed before construction could commence. The GNWT has indicated that the Environmental Impact Review of the project is now expected to be completed in the 2013-2014 time frame. As a result, in this analysis it is assumed that the main construction period would occur in 2015-2016 and the operating period would be 2017-2027.

effects that occur as a result of new expenditure in an economy. For example, spending on project construction would create a direct impact on the economy that would involve an increase in purchases of labour, machinery and materials. However, these expenditures would also cause those industries or sectors providing the inputs to the project to increase their purchases from other industries or sectors. This indirect impact (or inter-industry impact) will be more significant the greater the backward and forward linkages in the economy. In addition, the spending of labour income generated by the project (both directly and indirectly) would produce further activity in the economy in order to satisfy additional demand in the economy (or induced impact).[4]

Direct, indirect and induced impacts are typically estimated using an Input-Output model.[5] The analysis used in this report involves the use of the latest (2007) Statistics Canada Interprovincial Input Output Model (the I/O model). Detailed commodity (goods and services) requirements associated with the construction and operation of the Gahcho Kué project was assembled using information provided by the project sponsors.[6] This information was used in the I/O Model to estimate various economic impacts in the NWT and Canadian economies. Some additional modeling was also undertaken in order to estimate the overall impacts on government revenues.[7]

There are several important assumptions concerning this methodology that should be noted. First, an input-output model is a static model with inter-industry relationships estimated for a specific, past time period (in this case, 2007). Should there have been significant changes in these relationships in the economy since the estimation period, the model results may not provide

[4] Induced impacts can also be created with reinvestment of the corporate profits and spending of the government revenues generated by a project. These types of induced impacts are not considered in this analysis.

[5] An interregional input-output model can be used to simulate the effect of regional changes in output in a particular industry or changes in final demand for a particular commodity. The effects of such changes (or shocks) on the various industries and regions in the national economy can then be evaluated.

[6] All construction and operating cost estimates as well as revenue estimates for the operations phase of the project were taken from the Gahcho Kue Project Definitive Feasibility Study (NI43-101 Technical Report), prepared by JDS Mining and Energy Inc for De Beers and MPD (1 December 2010).

[7] The Statistics Canada Interprovincial Input-Output model provides estimates of only indirect tax impacts (i.e. consumption taxes like GST, PST or HST, gas and other excise taxes, etc.). Often more substantial government revenues are generated via direct taxes on personal and corporate income or, in mining and oil and gas projects, mining taxes and/or royalties. Payroll and property taxes are other forms of government revenues that may also be significantly affected by a project.

the most accurate representation of what would actually happen in a current or future environment.

Second, production technologies are assumed fixed regardless of the scale of production. Impacts are estimated given the average input usage by an industry, regardless of whether one unit or a million units of a particular output is produced. It is quite possible that the marginal usage of inputs in an industry as a result of a new project could differ from the average usage in the existing industry, but it is not possible to capture this effect in a traditional I/O model.[8]

Third, an implicit assumption is made that any additional demand resulting from new activity in the economy can be met using available capacity. As a result, it is assumed that no significant inflationary pressure would be created by a project. Should a project lead to higher prices for inputs (or possibly lower prices for outputs if supply were significantly increased), the accuracy of any estimated impacts would be undermined.

Finally**,** an impact analysis deals purely with economic impacts and is not to be used to evaluate the efficiency or overall return associated with that project or policy. An organization could pay people thousands of dollars to dig holes and fill them up and this type of activity would generate economic impacts. It would, however, produce no benefit to the organization or society and thus would be totally inefficient. Private and social cost benefit analyses can respectively be used to evaluate economic efficiency from a company's or society's perspective. No attempt has been made in this report to evaluate the efficiency of the Gahcho Kué project.

[8] Estimates of certain government revenues in this study such as taxes on labour income and indirectly generated corporate taxes are also based on province/territory wide averages. The project sponsors provided estimates of direct corporate taxes and mining taxes that are expected to be paid over the life of the project.

2. KEY DIMENSIONS OF THE GAHCHO KUÉ PROJECT

2.1 Overview

De Beers and MPD expect to incur numerous construction and operating expenditures over the course of the Gahcho Kué project. In addition, significant revenues are expected from the diamonds that would be produced during the operation of the project.

The evaluation of economic impacts is conducted over the period 2014 to 2027, representing a construction phase from 2014-2016 (with major construction expenditures in 2015-2016) and an 11-year operating phase that would cover 2017-2027. [9]

2.2 Construction Expenditures

The capital costs associated with construction of the project are expected to be $549 million (2010 Cdn$).[10] **It should be noted that all $ figures in this report are in 2010 Cdn$.** The construction costs would be incurred over the period of 2014-2016 with over $500 million of the spending expected to occur in 2015 and 2016. DeBeers and MPD have already spent $141 million on exploration and development, feasibility study preparation and permitting. As these costs have already been incurred (and hence are sunk costs), the impacts of these expenditures are not considered in the analysis of economic impacts in this report.

Additional capital expenditures are also expected during the operating phase of the project and beyond. The project sponsor's have indicated that sustaining capital amounting to $29 million would be required over the period 2017-2027 during the operation of the project and another $8 million would be needed in the reclamation and closure phase of the project that

[9] See footnote 3 of section 1.

[10] See page 23-119 of the Gahcho Kue Project Definitive Feasibility Study (NI43-101 Technical Report), prepared by JDS Mining and Energy Inc for De Beers and MPD (1 December 2010), hereafter referred to as the Gahcho Kue Feasibility Study. Given that the anticipated start-ups of construction and operations in this analysis are respectively two years later than those shown in the Gahcho Kue Feasibility Study, cash flows denoted as occurring in specific years in this report are shown as occurring two years earlier in the Gahcho Kue Feasibility Study. For example, major construction costs indicated as occurring in 2015 in this analysis are those shown in 2013 in the Gahcho Kue Feasibility Study.

would extend from 2028 to 2037.[11] In the analysis of impacts in this report, the sustaining capital, reclamation and closure costs have been included in the modeling of the construction expenditure impacts. Consequently, total spending on these items is expected to be $586 million.

The project sponsors provided significant detail regarding the composition of the capital spending for the project.[12] This information was used to develop the inputs required for the estimation of construction related impacts of the project.

2.3 Operating Revenues and Expenditures

Detailed modeling of expected diamond production levels, prices and the resultant revenues has been carried out by the project sponsors.[13] Various assumptions regarding diamond prices and exchange rates have been incorporated in that analysis.[14] The impacts estimated in this report are based on those assumptions.

Revenues over the operating period 2017-2027 are expected to be over $4.1 billion. More than $1.5 billion in operating expenditures would be incurred by the project sponsors. Of these, it is estimated that $461 million would be spent on direct labour income.[15] The remainder (or about $1.1 billion) would be spent on various other operating costs over the project life. It is the spending on these other operating costs that would generate the indirect impacts over the operating phase of the project. The detailed operating cost information provided by the project sponsors was used to estimate these indirect impacts. Labour income (both directly and indirectly generated by the project) is used to estimate induced impacts related to the project.[16]

[11] See page 23-120 of the Gahcho Kue Feasibility Study.
[12] See pages 23-90 and 23-91 of the Gahcho Kue Feasibility Study.
[13] See pages 23-118, 23-119 and 23-123 of the Gahcho Kue Feasibility Study.
[14] See pages 23-114 to 23-117 of the Gahcho Kue Feasibility Study.
[15] Detailed operating costs are outlined on pages 23-101 through 23-113 of the Gahcho Kue Feasibility Study. For the purposes of this analysis, labour income related to mining operations (load and haul, drill and blast, supervision and owner mine maintenance), site services, processing plant operations and G &A (onsite and offsite labour) are considered direct labour income.
[16] The 2007 Statistics Canada Interprovincial Input-Output Model calculates induced impacts based on average consumption patterns in each region. A certain percentage of labour income does not produce induced impacts (as defined in this report) in that, instead of being spent, it is either saved or is taxed away. The induced impacts identified here and by the Input-Output model only involve those related to spending of labour income directly or indirectly generated by a project. It can also be noted that a certain percentage

3. ECONOMIC IMPACTS OF THE GAHCHO KUÉ PROJECT

3.1 Construction Impacts

Direct and indirect construction impacts in terms of Gross Domestic Product (GDP), labour income, and employment are shown in Table 3.1 for the Northwest Territories, the Rest of Canada and Canada as a whole. These are the results as simulated using the Statistics Canada Input Output model prior to any adjustments for labour market constraints in the NWT (and hence are deemed unadjusted).

Table 3.1
Unadjusted Direct and Indirect Construction Impacts
(values are in millions of 2010 Cdn $)

	NWT	Rest of Canada	Canada
Capital Expenditures	586	0	586
GDP	205	191	395
Labour Income	137	117	255
Employment (in person years)	1457	1671	3128

The $586 million in capital expenditures related to the project could be expected to generate $395 million in GDP in Canada. 85% of the impact (or about $335 million) would occur in 2015 and 2016 during the main construction phase.[17]

The results of the construction spending simulation suggest that roughly $90 million of the equipment that would be directly purchased by the project sponsors would be foreign sourced. In addition, approximately another $100 million of imported items would be brought into Canada by Canadian businesses supplying inputs to the project. As a result of these imports, the GDP impact would be about 67% of the capital spending.

of the spending of labour income would be on imports which would create no additional impacts within the Canadian economy.

[17] It was noted in Section 2 that sustaining capital expenditures of $29 million would occur from 2017-2027 and reclamation and closure costs of $8 million would occur from 2028-2037. In addition, $47 million is expected to be spent on project construction prior to 2015.

The bulk of the GDP impact would involve increased labour income ($255 million). The majority of both the labour income and GDP impacts could be expected to occur in the NWT. In contrast, over half of the overall employment impacts of 3128 person years would take place in the rest of Canada.

The Input Output model produces results based on the location of activity. Generally, it is assumed that employment and labour income impacts that are generated in a particular region would be felt by residents of that region. For regions with more limited population and labour force, this may not be the case.

For example, De Beers has compiled information regarding the residency of employees working at its Snap Lake diamond mine in the NWT as well as contractors directly serving De Beers.[18] Over the construction period for the Snap Lake mine (2005-2007), De Beers reports that just over one quarter of the workers involved were NWT residents. A small labour force in the territories combined with the fact that workers with specific skills required in this type of work are not readily available has resulted in the recruiting of workers from other parts of Canada. The GNWT has indicated that this would likely be an issue for the Gahcho Kué project as well.

Consequently, it is assumed that 30% of the direct employment and labour income (as defined in the input output simulation) generated during the construction phase of the project would go to NWT residents.[19] All indirect employment and labour income impacts attributed to the NWT in the simulation are assumed to be received by NWT residents.[20]

Table 3.2 shows the estimates of impacts with the adjustment for direct employment and labour income impacts that would occur in the NWT but that are likely to accrue to residents of other regions. It should be noted that labour income is part of overall GDP. Consequently, the distribution of

[18] See pages 20-22 of De Beers 2010 Snap Lake SocioEconomic Report (on Snap Lake website).
[19] In the simulation for the construction spending related to the project, roughly 80% of the employment impacts in the NWT are classified as direct and fall primarily under the categories of other engineering construction and services incidental to mining.
[20] Of the total indirect employment impacts indicated in the simulation, under 20% are attributed to the NWT. Even if impacts related to manufacturing industries are excluded, less than 25% of the indirect employment impacts are estimated to occur in the NWT. This includes impacts in key service industries such as architectural and engineering services, other professional, scientific and technical services, and other administrative and support services.

GDP impacts between the NWT and the rest of Canada also differs from that shown in Table 3.1.[21] Government revenue impacts are also shown in Table 3.2.[22]

It can be observed that the GDP in the NWT could be expected to rise by about $128 million due to construction expenditures related to the Gahcho Kué project. This would represent about one third of the total GDP impact in Canada. The NWT labour income impact of $61 million would amount to roughly one quarter of the total Canadian labour income impact.

Table 3.2
Adjusted Direct and Indirect Construction Impacts
(values are in millions of 2010 Cdn $)

	NWT	Rest of Canada	Canada
Capital Expenditures	586	0	586
GDP	128	267	395
Labour Income	61	194	255
Territorial/Provincial Government Revenue	12	16	28
Federal Government Revenue	25	45	70
Total Government Revenue	28	70	98
Employment (in person years)	645	2483	3128

The employment impact in the NWT is expected to be 645 person years or about 20% of the overall Canadian employment impact. Given that roughly 85% of the construction related employment impacts are expected to occur in 2015 and 2016, an additional 274 jobs for NWT residents would be created in each of those years.

Government revenue impacts in total across Canada due to Gahcho Kué construction spending are estimated to be slightly under $100 million. Of that amount, the federal government could be expected to receive $70 million. The NWT would receive $12 million prior to clawbacks under the Territorial Formula Financing Agreement. Potential clawbacks are addressed in a subsequent section.

[21] Given the adjustment made in the analysis, the estimates of GDP for the NWT cannot be directly compared to typical estimates of GDP which are based strictly on the location of the economic activity (and hence do not account for potential outflows of impacts due to use of non-residents for labour requirements).
[22] Given the different tax rates in different regions, a redistribution of labour income like that done in this analysis does not produce a net neutral effect on total government revenues in Canada.

The spending of labour income generated by the project would also produce induced impacts and these are summarized in Table 3.3. The induced impacts in the NWT would add 15-20% to the direct and indirect impacts shown in Table 3.2. The most significant induced impact given the size of the NWT economy would be the additional employment created. In each of 2015 and 2016, roughly 50 induced jobs could be expected.

Table 3.3
Induced Construction Impacts
(values are in millions of 2010 Cdn $)

	NWT	Rest of Canada	Canada
GDP	20	107	127
Labour Income	11	56	67
Territorial/Provincial Government Revenue	2	13	15
Federal Government Revenue	4	19	23
Total Government Revenue	6	32	38
Employment (in person years)	116	1046	1162

Total construction impacts are summarized in Table 3.4. Over a half a billion $ in GDP and more than 4000 jobs could be expected to be generated in Canada due to project construction expenditures.

Table 3.4
Total Construction Impacts
(values are in millions of 2010 Cdn $)

	NWT	Rest of Canada	Canada
GDP	148	374	522
Labour Income	72	250	322
Territorial/Provincial Government Revenue	13	38	51
Federal Government Revenue	20	64	84
Total Government Revenue	33	102	135
Employment (in person years)	760	3530	4290

In the NWT, the total GDP impact would be $148 million and 760 jobs would be created for NWT residents. About 85% of those jobs would be generated in the main construction years of 2015 and 2016 creating about 325 jobs per year. Given recent NWT employment levels, this would represent about a 1.5% increase in overall employment.[23]

3.2 Operating Impacts

The direct and indirect construction impacts on GDP, labour income, and employment associated with the Gahcho Kué project are shown in Table 3.5. As with the initial table of results for the construction impacts in the previous section (Table 3.1), this first set of impact results is unadjusted for expected NWT labour market constraints.

Table 3.5
Unadjusted Direct and Indirect Operating Impacts
(values are in millions of 2010 Cdn $)

	NWT	Rest of Canada	Canada
Project Revenues	4143	0	4143
GDP	3347	427	3774
Labour Income	605	262	868
Employment (in person years)	5321	4709	10030

Direct and indirect GDP impacts associated with Gahcho Kué operations could be expected to be roughly $3.8 billion. This represents an annual average operating impact of about $343 million per year over the 11 year operating period.

The direct and indirect GDP impact of the operations phase would be equal to over 91% of the revenues generated by the project, substantially larger as a proportion of the initial shock to the economy than in the construction phase (67%). This is largely due to the fact that the project would generate roughly $3.1 billion in direct GDP. Although it is estimated that about $200 million in imports would be required to satisfy initial input requirements for the project and that roughly another $150 million in additional imports

[23] To date in 2011 NWT employment has averaged about 22,400 (see NWT Bureau of Statistics website under labour force activity statistics) or CANSIM series V46438838.

would be demanded indirectly in the operations phase, total imports as a proportion of revenues is relatively low.

As with the construction related impacts, it is believed that a certain proportion of direct labour income (which is also part of GDP) and direct employment should be reallocated from the NWT to the rest of Canada because of the labour market constraints in the NWT. For example, over the operating period for the Snap Lake mine (2008-2010), De Beers reports that just under 40% of the workers involved were NWT residents.[24] In this analysis, it is assumed that 40% of the direct employment and labour income generated during the operating phase of the project would go to NWT residents.[25] All indirect employment and labour income impacts attributed to the NWT in the simulation are assumed to be received by NWT residents.[26] The direct and indirect operating phase impacts after this adjustment is shown in Table 3.6.

Table 3.6
Adjusted Direct and Indirect Operating Impacts
(values are in millions of 2010 Cdn $)

	NWT	Rest of Canada	Canada
Project Revenues	4143	0	4143
GDP	3070	704	3774
Labour Income	329	539	868
Territorial/Provincial Government Revenue	289	58	347
Federal Government Revenue	614	126	740
Total Government Revenue	903	184	1087
Employment (in person years)	3262	6768	10038

[24] See pages 20-22 of De Beers 2010 Snap Lake SocioEconomic Report (on Snap Lake website).
[25] For the purposes of this analysis, labour income related to mining operations (load and haul, drill and blast, supervision and owner mine maintenance), site services, processing plant operations and G &A (onsite and offsite labour) are considered direct labour income (see pages 23-101 through 23-113 of the Gahcho Kue Feasibility Study). The direct employment in those categories is estimated to be 312 jobs per year or 3432 person years in total over the 11 year operating period. The jobs that would be created in what the project sponsors refer to as technical services and contractor categories are captured in the I/O simulation as an indirect impact
[26] The manner in which the simulation was prepared for the operations phase of the project allows for an evaluation of what can be referred to as first round indirect impacts (i.e. those impacts associated with the initial purchases of inputs for the project). The results indicate that less than 40% of the first round indirect employment impact would occur in the NWT, which is consistent with De Beers experience at Snap Lake. Of the total indirect employment impacts, the simulation indicates that less than 30% of those impacts would occur in the NWT.

Direct and indirect GDP impacts in the NWT associated with the Gahcho Kué project can be expected to be roughly $3.1 billion over the 11 year operating period, or almost $280 million annually.[27] Direct and indirect employment impacts are also expected to be significant. Almost 3300 person years of employment would be created by the project operations which would translate into about 300 jobs annually. This is roughly the same magnitude of employment impact expected in the main construction period of 2015 and 2016.

In contrast, government revenue impacts are expected to be significantly higher in the operations phase compared to the construction phase. Nearly $1.1 billion is expected to be generated for all levels of government during the operation of the project and more than $900 million of that would be generated in the NWT alone. $700 million of the government revenues generated in the NWT would be corporate taxes and mining royalties directly payable by the project sponsors.[28] Prior to clawbacks under the Territorial Formula Financing Agreement, the territorial government would receive close to $300 million over the operations phase or about $26 million per year. In the analysis it is assumed that all of the mining royalties (roughly $250 million) generated by the project would go to the federal government. New financial arrangements between the federal and territorial governments may alter the total amount that would ultimately be received by the territorial government. This possibility is discussed in the next section of the report.

In addition to the direct and indirect impacts outlined in Table 3.6, the spending of labour income generated during the operations phase of the project would create induced impacts in the NWT and Canadian economies. These impacts are shown in Table 3.7.

[27] As noted with respect to the construction related impacts earlier, GDP is defined as the value of output produced in a given region. That being the case, the GDP impact for the NWT that is shown in Table 3.5 ($3.3 billion) is comparable to measures that are shown in the main economic accounts produced by Statistics Canada. Since the focus in this analysis is on providing estimates of impacts that would accrue to NWT residents and the NWT government, GDP is altered to reflect the leakages that are expected to occur from the NWT due to the use of non-resident labour to satisfy the project's requirements.

[28] No detailed modeling of direct taxes was performed in this analysis. The figure for direct corporate taxes and mining royalties is taken from page 23-123 of the Gahcho Kue Feasibility Study. Figure 23-25 on page 23-122 of the study was used to estimate the distribution of the total among federal and territorial corporate income taxes and the mining royalties.

Table 3.7
Induced Operating Impacts
(values are in millions of 2010 Cdn $)

	NWT	Rest of Canada	Canada
GDP	98	350	448
Labour Income	52	184	236
Territorial/Provincial Government Revenue	12	45	57
Federal Government Revenue	20	69	89
Total Government Revenue	32	114	146
Employment (in person years)	562	3346	3908

For the NWT, induced impacts on GDP and government revenues are very small compared to the direct and indirect impacts on those measures, amounting to less than 5% of the direct and indirect impacts. Induced impacts would add around 15-20% to the direct and indirect labour income and employment impacts shown in Table 3.6 for the NWT. Most notably, the induced employment impact is equivalent to about 50 jobs per year in the territories over the operating period. With respect to Canadian impacts, induced impacts would add anywhere from 10-40% to the direct and indirect impacts, with the most significant increases in employment and labour income impacts.[29]

Table 3.8 summarizes the overall operating impacts that would be generated by the Gahcho Kué project. The impacts on Canadian GDP and labour income would be $4.2 billion and $1.1 billion respectively. Almost 14,000 person years of employment would be generated by the project in Canada, or close to 1300 jobs annually over the operating period.

For the NWT, overall GDP impacts associated with the Gahcho Kué project can be expected to be roughly $3.2 billion over the 11 year operating period. This amounts to about $290 million annually, or about 6-7% of annual GDP levels in the territories over recent years.[30]

[29] Compared to operations in less capital intensive industries, operations in mining and oil and gas tend to have very low direct employment to output ratios. The inclusion of indirect and induced impacts from other industries (where significantly higher employment to output ratios are typical) tends to significantly increase the overall employment impact of a mining or oil and gas project.
[30] Nominal GDP in the NWT over the last five years has ranged between $4-5 billion $ (see CANSIM series V1407356).

Table 3.8
Total and Annual Average Operating Impacts
(values are in millions of 2010 Cdn $)

Total Impacts	NWT	Rest of Canada	Canada
GDP	3168	1055	4223
Labour Income	380	724	1104
Territorial/Provincial Government Revenue	301	103	404
Federal Government Revenue	634	195	829
Total Government Revenue	935	298	1233
Employment (in person years)	3824	10114	13938

Annual Average Impacts	NWT	Rest of Canada	Canada
GDP	288	96	384
Labour Income	35	66	101
Territorial/Provincial Government Revenue	27	9	36
Federal Government Revenue	58	18	76
Total Government Revenue	85	27	112
Employment (in person years)	347	919	1266

Territorial government revenues impacts would also be quite sizable in comparison to recent values. For example, the estimated annual impact of $27 million on territorial government revenues is equivalent to almost 13% of taxation revenue in the NWT for the 2009-2010 fiscal year.[31] While the issue of clawbacks must certainly be addressed (see below), this would represent a significant increase in total taxation revenue in the NWT.

Finally, employment impacts in the NWT during the operations phase of the project would total over 3800 person years, or an average of about 350 jobs per year. Given recent NWT employment levels, this would represent about a 1.6% increase in overall employment.[32]

[31] See page vi (Summary of Revenues) of Government of the Northwest Territories 2011-2012 Main Estimates (Ministry of Finance, GNWT).
[32] To date in 2011 NWT employment has averaged about 22,400 (see NWT Bureau of Statistics website under labour force activity statistics) or CANSIM series V46438838.

3.3 Implications of the Territorial Formula Financing Agreement

The Government of the Northwest Territories (GNWT) receives a significant portion of its budgetary revenues in the form of a Territorial Formula Financing Grant from the Government of Canada. In recent years, this grant alone has constituted between 65% and 70% of the total revenues shown in the GNWT budget.[33] However, the grant is affected by certain taxation revenue streams received by the GNWT. For example, the ability on the part of the GNWT to raise additional revenues as a result of an expanded tax base (or bases) will lead to a reduction in the amount of the grant. Under the Territorial Formula Financing Agreement, many of the revenue streams that the GNWT receives are each subject to an implicit tax back rate.[34]

These tax back rates would apply to certain incremental government revenues arising from the Gahcho Kué project as well, resulting in clawbacks of the territorial government revenues shown in the previous tables. Table 3.9 illustrates the estimated effect of these clawbacks on the amounts that the territorial and federal governments would ultimately receive as a result of the project.

For the construction phase of the project, more than 80% of the tax revenues taken in by the GNWT would be clawed back resulting in a net impact of about $2 million. Over the operations phase, it is estimated that roughly two thirds of the territorial government revenue would be clawed back. Nevertheless, the net revenue impact would still be $99 million over the entire period, or about $9 million annually during the operating phase of the project.

[33] See 2011-2012 Main Estimates (Summary of Revenues) of the GNWT Budget.

[34] Although tax back rates do not appear explicitly in the formula used to calculate the grant, they can, by inference, be estimated for each revenue stream, using various parameters of the formula. The Department of Finance of the Government of the Northwest Territories provided tax back rates for the 2011-12 Territorial Formula Financing Grant. Notable tax back rates include 125% on personal income taxes, 110% on motive diesel fuel taxes, 98% on highway gasoline taxes, 86% on small business corporate taxes, 74% on general corporate taxes, 61% on off-highway gasoline taxes and 50% on payroll taxes. Although tax back rates tend to vary from year to year, it is assumed in the analysis that the rates for 2011-2012 would apply throughout the project life.

Table 3.9
Federal and NWT Government Revenue Impacts Before and After Clawbacks due to the Territorial Formula Financing Agreement
(values are in millions of 2010 Cdn $)

Total Impacts	Construction	Operations
Federal Revenue before Clawback	84	829
GNWT Revenue before Clawback	13	301
Clawback	11	202
GNWT Revenue after Clawback	2	99
Federal Revenue after Clawback (including reduction in expenditures as a result of a lower TFF transfer)	95	1031

Finally, there have been ongoing discussions between the federal and NWT governments regarding the devolution (or transfer of authority) of NWT public lands and resources from the federal government to the GNWT. In terms of the economic impacts of the Gahcho Kué project, one implication of devolution is that the GNWT may be able to keep some portion of the mining royalties associated with the development. [35] In the analysis it is estimated that roughly $250 million in mining royalties would be collected by the federal government over the life of the project (this value is incorporated in the figures shown in Table 3.6 and 3.8). Under the Agreement-in-Principle that would govern the terms of devolution, NWT governments would receive 50 per cent of the net fiscal benefit from resource development, subject to a cap. The necessary offsets against gross royalties (all of which would flow to NWT governments) would be made against the Territorial Formula Financing grant. If, for example, the GNWT were to receive a net 50% of the forecast royalties as a result of devolution, the impact would be an additional $11 million per year for the GNWT (absent the triggering of the cap on the net fiscal benefit). This would more than double the expected impact on net GNWT revenues in the absence of devolution.

[35] It can be noted that the GNWT already possesses the ability to levy a mining tax, which it could implement were it to decide that it would be advisable to do so, in similar fashion to any other tax. A mining tax, and the ability of the GNWT to impose one, would not be associated with devolution.