



The Centre for Spatial Economics

**The Economic and Fiscal Impacts of the
New Prosperity Mine on British Columbia**

Prepared for Taseko Mines

by

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The Centre for Spatial Economics

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I. Executive Summary

On June 6th, 2011, Taseko Mines submitted to the Government of Canada a comprehensive Project Description of its “New Prosperity Gold-Copper Project” in British Columbia’s Cariboo-Chilcotin Region.

The New Prosperity project, the 7th largest undeveloped gold-copper porphyry deposit in the world, represents an initial capital investment of \$1 billion and includes a \$300 million commitment to limit environmental impacts and preserve Fish Lake.

This report is a comprehensive estimate of the economic and fiscal impact of developing the project. Using a macroeconomic model of the British Columbia economy, *The Centre for Spatial Economics* (C₄SE), reviewed the project starting with a construction period beginning in 2013 and ending with the closure of the mine in 2036. These impacts are measured in 2007 dollars unless otherwise specified.

The C₄SE report reveals that the development of New Prosperity will act as a significant long term economic stimulus to the Cariboo-Chilcotin Region, British Columbia, and Canada as a whole. Specifically it is estimated the construction and operation of the New Prosperity over the period 2013 to 2036 will result in the following:

- A direct expenditure by Taseko Mines of \$1.5 billion
- Generate production revenues in excess of \$11.0 billion.
- Increase employment in BC by 71,000
- An increase in Real GDP of \$11.0 billion
- On a per capita basis this GDP increase is \$2,200
- Consumer spending will increase in BC by \$9 billion
- Residential investment expenditure increase by \$786 million
- Non-residential construction investment increases by \$1.03 billion
- Investment in machinery and equipment (by others) increases by \$1.38 billion
- The population of BC rises by 5,400
- Disposable income per household in BC rises \$1,157
- Federal government revenues rise by \$4.30 billion

- Provincial government revenues rise by \$5.52 billion

The report provides a description of the methodology used to conduct the analysis, describes the macroeconomic model of British Columbia used in the study and how the model is applied to estimate the impacts.

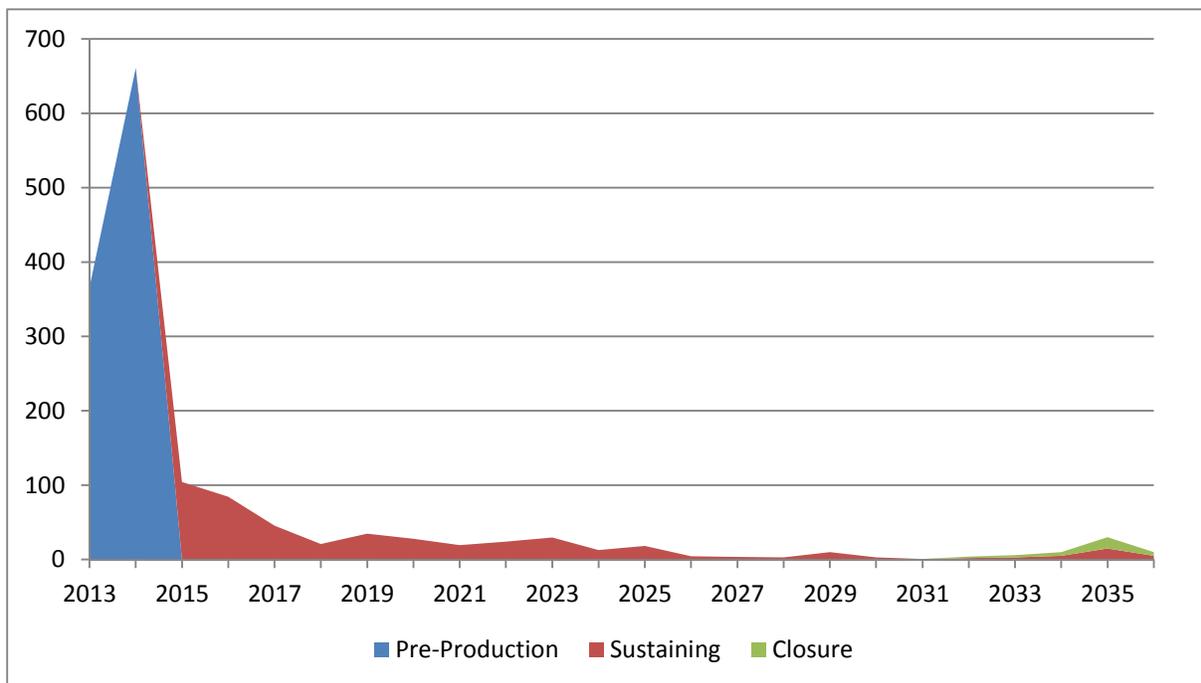
To provide the reader with an understanding of the factors that need to be considered in the impact analysis the report contains a brief description of the information and assumptions used to model the quantitative estimates of the project.

II. Overview

Taseko Mines has developed a new plan to develop and operate its New Prosperity gold and copper mine 125 km southwest of the City of Williams Lake in the Cariboo-Chilcotin region of British Columbia. The estimated capital and operating associated with the project have been increased to address environmental concerns. It is expected that the project will have important impacts on the economy of the region and the province, as well as on the income statements of the provincial and federal governments in British Columbia. The purpose of this report is to present estimates of these impacts for the current project plan. This plan starts with the construction period beginning in 2013 and ends with the completion of the shutdown of the mine in 2036.

The planned investment expenditures for the project are shown in Figure i below in a stacked format. They are separated into pre-production capital – construction of the mining complex – sustaining capital, and expenditures required for the closure of the mine. The expenditures total in excess of \$1.5 billion over the period 2013 to 2036. In 2014, investment expenditures peak at \$660 million. Construction expenditures total just over \$1.0 billion and sustaining capital about \$475 million. The remaining amount of expenditures is associated with the closing of the mine.

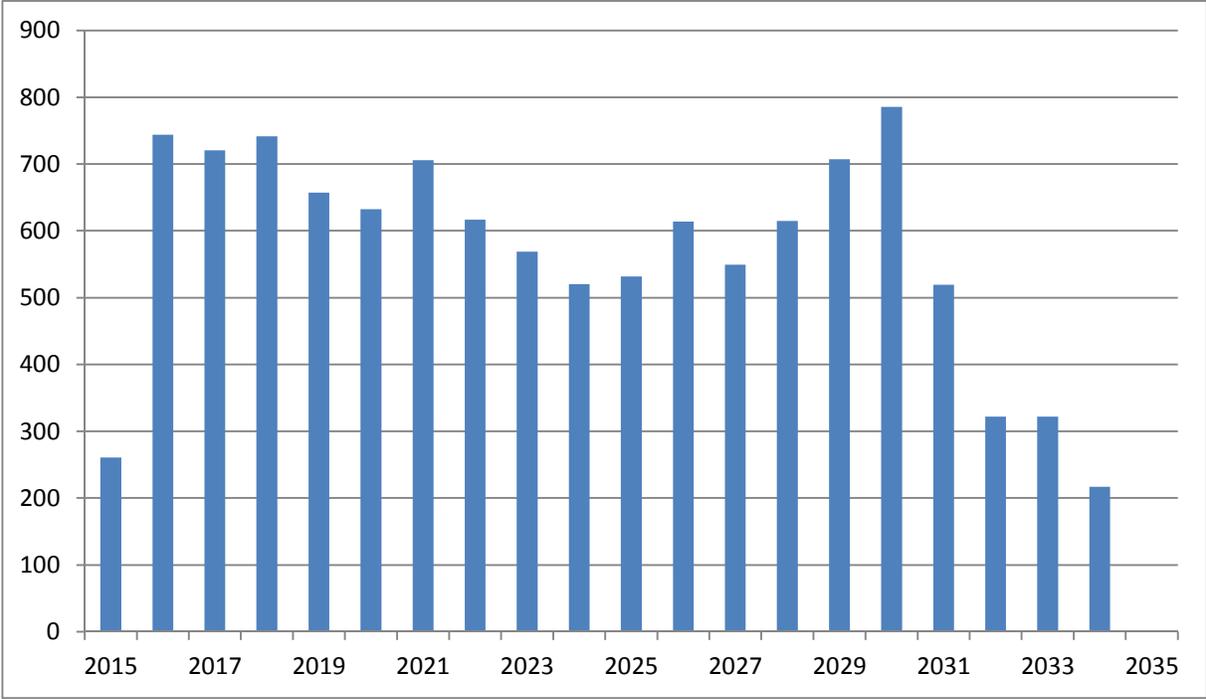
Figure i: New Prosperity Investment Expenditures (\$Millions)



It is estimated that about 2.1 thousand person years will be required to construct the mining complex. It will be attempted to source the largest proportion of these jobs from the provincial labour force, but this attempt will depend on provincial labour market conditions.

The total production revenues from the mine over the life of the project, which will be largely seen in exports, are expected to exceed \$11.0 billion. As shown in Figure ii below, the revenues peak in 2030 nearly reaching \$800 million. To produce these exports requires just over 7.0 thousand person years of employment over the life of the project. If possible, 95 per cent of the operating employees are to be sourced from British Columbia.

Figure ii: New Prosperity Revenues (\$Millions)



The impacts of the project are estimated by creating a projection of the future performance of the British Columbia economy with New Prosperity and comparing the values of key economic and fiscal indicators against those in a projection in which New Prosperity is not included.

A summary of the impacts of the project on the economy for selected economic and fiscal indicators is shown in the table below. These impacts are measured in 2007 dollars unless otherwise specified. The table shows the average annual difference between the values of the variables with and without New Prosperity along with the sum of the values of the annual differences, cumulative differences, over the life of the mine including its closure – the 2013 to 2036 period.

The cumulative amount of GDP produced both directly and indirectly by New Prosperity over the life of the mine is estimated at slightly above \$11.0 billion measured in 2007 dollars – see Table i below. GDP associated with the direct production of the mine is about \$4.8 billion. The indirect

GDP associated with the mine is \$6.2 billion. The total additional GDP represents \$2,200 per person in the province.

**Table i: Selected New Prosperity Impacts, 2013-2036
(Annual Difference and Cumulative Difference, \$2007 Millions)**

	Average Difference	Cumulative Difference
Real GDP	459	11,020
Consumer Expenditures	375	8,993
Residential Investment Expenditures	33	786
Machinery & Equipment Investment	58	1,388
Non-Residential Construction Investment	43	1,038
Employment (000s)	3.0	71
Population (000s)	5.4	NA
Disposable Income Per Household (\$)	48	1,157
Federal Revenues	180	4,309
Provincial Revenues	230	5,522

The increase in GDP leads to an average annual difference in employment of 3.0 thousand. On a full-time equivalent basis, the cumulative difference of 71 thousand workers represents about 57 thousand person years of employment added to the economy. This additional amount suggests that for every 1 person year of employment created directly by New Prosperity an additional 5 person years of employment are created in the province.

Consumer expenditures demonstrate a significant improvement with the undertaking of the project. The average annual difference between the two projections is \$375 million. This increase is a result of the increased employment and disposable income generated by the project. It should be noted that the average wage paid to the mine workers is much higher than the average wage of employees in the province as a whole, which in part contributes to the additional expenditures.

In addition to its own capital expenditures New Prosperity leads to higher investment expenditures required by other firms in the province to produce the additional nearly \$11 billion GDP it creates.

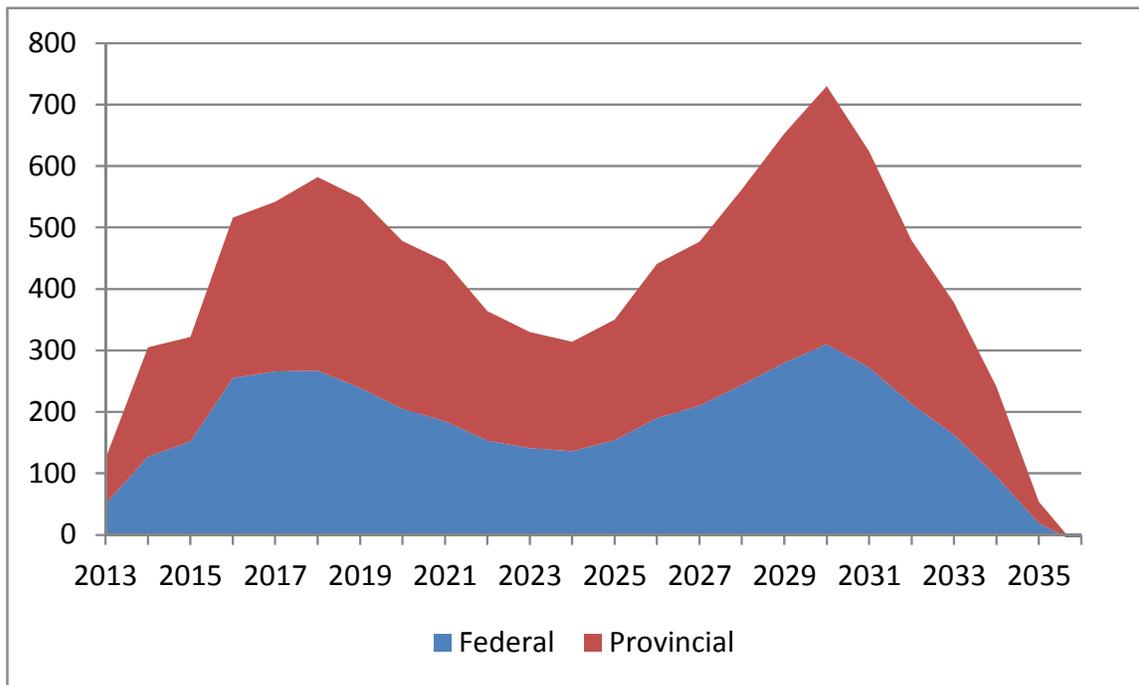
Residential expenditures are \$33 million and non-residential expenditures – machinery and equipment plus construction – \$101 million higher on average over the life of the mine.

The increase in residential investment is a result of the higher employment resulting from the project causing people to move to the province. The province’s population is 5.4 thousand persons higher on average during the project. The need to move people to the province is a result of rising retirements over the period associated with the aging of the population. In this case it is necessary to move people into the province to meet provincial employment requirements.

Some of the higher non-residential expenditures are associated with the project’s need for sustaining capital, as mentioned above. The remainder is required to increase firms’ production capacity to meet the higher consumer and other expenditures generated by the project.

The project and its related impacts have a significant impact on government revenues – see Figure iii below. Both federal revenues – in the province – and provincial revenues rise significantly over the project period with combined revenues reaching \$730 million at the peak of New Prosperity production in 2030. The average annual difference in revenues is \$180 million and \$230 million, respectively, for the federal and provincial governments.

Figure iii: New Prosperity’s Impact on Government Revenues (\$2007 Millions)



1. Methodology

The approach adopted to estimate the economic and fiscal impacts of the New Prosperity project is to conduct two long-term economic and fiscal projections of the performance of the British Columbia economy and compare the results of these projections. The first projection, which is called the “base case” projection, is one in which the New Prosperity project does not take place. The second projection is the one in which the project takes place. A comparison of the results of the latter projection against the base case projection for selected key economic and fiscal indicators provides estimates of the impacts of the project on the British Columbia economy.

British Columbia Macroeconomic Model

The projections are prepared using the C₄SE macroeconomic model of the British Columbia economy. This model is used by the C₄SE and its clients to produce projections and conduct impact studies. The model is a multi-sector macroeconomic model. Its structure and properties are derived from neo-classical economic theory. A description of the nature of these models can be found in almost all advanced economic theory textbooks.

The model is calibrated to British Columbia economic, demographic, and fiscal data obtained from Statistics Canada. The economic data employ a 2007 base year. The input-output coefficients used in the model are derived from the input-output tables published by Statistics Canada.

While the model involves the simultaneous decisions of various actors, its basic workings can be seen from the figure shown below.

Short Term Operation

The main outside forces driving the economy are the influences of the rest of the world and economic policies. These two sets of influences shape the views of local decision makers including the decision to undertake major projects. Real GDP growth, inflation, and interest rates in the rest of the world drive British Columbia economic growth through their influence on exports, domestic inflation, and the cost and availability of credit. Economic policies such as government tax rates and expenditures also impact domestic growth.

Given the external forces and the production capacity of the various sectors in the economy, firms set capacity utilization rates based on expected sales thereby determining real output.

Once real output for each industry is determined, employment for all industries is set through the productivity of labour. Employment combined with wages, other income, and consumer prices then determines private consumption. Employment when compared with labour force then drives net in-migration, which in turn sets population growth. In the current version of the model, population is determined outside the model.

Investment in industries that are primarily export oriented is set based on views regarding growth in the rest of the world and economic policies affecting the cost of investment and profitability. In industries that serve the latter sectors and the population of the country, investment is determined by the expected amount of capital that will be needed to achieve a target level of output. The latter target is determined by growth in demand for the particular industry's product, which depends on the growth in the other industries in the domestic economy and domestic demand along with capital costs.

Estimating Economic Impacts

The approach used to estimate economic impacts with the model is to prepare an economic projection for the time period under consideration that does not include the New Prosperity project and compare its results against the projection that includes the project.

The first projection is often called the "base case" projection. It is the reference projection against which other projections that adopt different assumptions can be compared. The base case projection is created by making assumptions about the future performance of the key inputs to the British Columbia macroeconomic model. Such assumptions include the economic performance of British Columbia's major trading partners, commodity prices, and government policy.

Making changes to the assumptions included in the base case projection creates the projection for the project. The assumptions that are changed are those related directly to the characteristics of the project.

The key assumptions for the New Prosperity project include such things as the:

- Value and time pattern of the investment expenditures;
- Proportion of investment that is machinery and equipment versus construction;
- Proportions of the machinery and equipment that would be purchased inside and outside of British Columbia;
- Estimated number of construction workers;
- Value of production, and;
- Estimated number of workers needed to run the new operations.

A number of modifications must be made to these assumptions to convert them to the accounting basis used for the model's data. For example, the data used in the model are measured in \$2002 to adjust for the effects of inflation. Data provided for project expenditures and revenues need to be converted to this basis. The estimates of the impacts of the project are presented in \$2007 to allow comparisons consistent with those used to evaluate the impacts of the original New Prosperity mine development plan. The conversion of model results from \$2002 to \$2007 uses projected values of price deflators and the exchange rate found in the projections. When it is not possible to convert all measures to \$2007, \$2002 values are displayed.

With the assumptions created, they are entered into the model and the model is run to create a new economic and fiscal projection for the economy. The results for key and economic and fiscal variables in the two projections are then examined and compared to see what impact the project has had on them.

In comparing the projections a distinction is sometimes made between the direct and indirect impacts. The direct impacts are those associated directly with the project such as the number of employees hired or the value of the project's construction expenditures. The indirect impacts are those caused by the direct impacts. For example, the increase in mining employment leads to increased expenditures by the employees, which increases employment in industries that are supplying the employees with the additional goods and services and so on. The sum of the direct and indirect impacts represents the total impact of the project.

2. Expected Project Impacts

Before presenting the estimated quantitative impacts of the project, this section outlines what would be expected for the impacts from a theoretical point of view. The focus of the discussion is on the British Columbia economy as a whole, rather than for the region where the project is located. The purpose of the discussion is to illustrate the type of impacts that are likely to be found and the types of information that are necessary to estimate such impacts.

There are three phases to the project: Construction, Operations, and Closure. The construction phase is concerned with constructing transmission lines and mining facilities and the purchase and installation of machinery and equipment required for operations. During the operations phase the activities are those associated with the mining process, but expenditures to replace worn out machinery and equipment also take place. In the closure phase the activities include dismantling and removing buildings and removing all petroleum products, chemicals, explosives and associated wastes and reclamation of the landscape. There is some overlap of the phases in the project.

The nature of the impacts of the project is expected to differ across the phases of the project, since the phases often involve different types of activity. During the construction phase, for example, purchases of goods and services associated with building the facilities are the main driving force of the impacts. In the operations phase, the output of the mining process along with the associated demand for goods and services required as inputs to this process drive the impacts. The discussion below will focus on the construction and operation phases of the project. The impacts of the closure phase are similar to those for the construction phase.

Construction Impacts

The direct economic impacts of the construction phase of the project are associated with the impact of investment expenditures need to construct the mining operations. An increase in investment expenditures raises the demand for goods and services including construction employment. The indirect impacts are the increased expenditures and employment that are required to support the direct impacts. The latter expenditures and employment often include both those for private goods and services as well as public ones.

An increase in investment expenditures raises the demand for goods and services in the economy. To produce these additional expenditures, the firms involved must, in turn, purchase additional goods and services to meet this higher demand. The additional services include labor services, which lead to increases in labor income and additional expenditures by households. The increased household expenditures require firms to purchase additional goods and services to meet the higher demand.

Part of these additional purchases by firms will be capital goods needed to increase the firms' productive capacity to provide the additional goods and services. The increases in investment will further increase the demand for goods and services and so on.

The increase in employment in the region where the project is located will reduce unemployment and raise migration to the region. In the absence of increased immigration, people will be drawn from other parts of the country thereby leading to a reduction in unemployment in the country as a whole. The increase in population will increase the demand for government services in the region, which will lead to increased government expenditures. Reductions in population in the other regions of British Columbia or the rest of Canada, however, will reduce government expenditures in these regions.

The additional incomes, both corporate and personal, generated by the project will lead to higher government revenues in the form of personal, corporate and indirect taxes. Normally, a net increase in government balances results during the period of construction for a project such as New Prosperity.

As a result, overall Gross Domestic Product (GDP), employment, household income, and government balances rise. The extent of this increase depends on the economic leakages associated with the direct construction expenditures – the largest source of leakages is the necessity to purchase goods and services from outside the province. The higher the proportion of expenditures, including materials, services, and labour, sourced in British Columbia – rather than obtained from outside the province – the greater will be the economic impact.

It is expected that the investment expenditure leakages – largely import leakages – for the region where the project is located will be larger than those for British Columbia as a whole. There will still be significant leakages at the provincial level, nevertheless, for example, for machinery and equipment expenditures.

It should be noted that the economic impacts could extend past the construction period because of slow adjustment in economic activity. Such impacts can be both positive and negative. For example, a project with a relatively long construction period can induce increased investment and employment to produce a higher level of output. Once the construction stops, unemployment will rise and excess capacity in firms will develop. This situation will lead to lower investment until the excess capacity is eliminated. Ultimately the economy will level off close to its position before the construction activity began.

Operations Impacts

One of the offsets to the latter effect is the positive impact of the activities associated with the operations phase of the project. While construction expenditures diminish, increased sales and expenditures associated with the operations of the mine begin. This situation will help to smooth the transition between the two phases.

The economic impacts of the operations phase originate from the new production associated with the project. Increased production from the project raises GDP directly and purchases of inputs from the rest of the economy also raise GDP. This increased activity leads to higher consumer and investment expenditures, which further increases GDP and employment along with government balances.

A direct need for employees for the project and the indirect need for workers to supply inputs to the mining operations and the rest of the regional economy will increase population in the region where the project is located. Given Taseko's commitment to focus efforts to source employment requirements locally with a particular emphasis on First Nation communities, the project is expected to also reduce unemployment in the region and the county as a whole.

A significant amount of the direct GDP associated with the project will go to labour. Labour productivity is relatively high in the mining sector. While relatively few employees are required to run the operations, average compensation is high relative to other sectors of the economy.

The economic impact associated with the operations phase of the project will be higher the greater the amount of inputs sourced from the British Columbia economy. Similar to the construction phase, increasing the sourcing of employment in British Columbia will raise the impact, as less income will leak out of the province.

The observations regarding the impact of the completion of the construction phase of the project also apply for the completion of the operations phase of the project. The effect of winding down the operations will begin to reduce the economic impacts near the project's completion. Nevertheless, the economy will return to a position near that attained before the undertaking of the project.

3. Project Analysis Assumptions

To estimate the impacts of the New Prosperity project it is first necessary to set up the assumptions that define its direct impacts. These impacts are the data needed as input to the macroeconomic model to compute the total impacts of the project. They are associated with the various activities such as investment and production undertaken in the project. The purpose of this section is to describe the assumptions for the direct impacts.

The two key sets of information regarding the different project phases needed for the analysis are for investment and production.

Capital Expenditures

To model the project it is necessary to know the amount and time pattern of investment expenditures along with the estimated number of construction workers and the likely geographic source of these workers. Moreover, it is important to have some idea of the amount of the project investment that is accounted for by machinery and equipment in contrast to construction and the geographic source of the machinery and equipment.

Knowledge of the geographic source of the construction workers is important for the impact on the British Columbia economy. Sourcing workers from British Columbia increases employment and income of British Columbians. If workers are obtained from outside British Columbia that remain non-residents, there will still be increased expenditures associated with these workers, since they will spend part of their income in British Columbia, but there will be a greater leakage of income out of British Columbia, as they send the bulk of their income home.

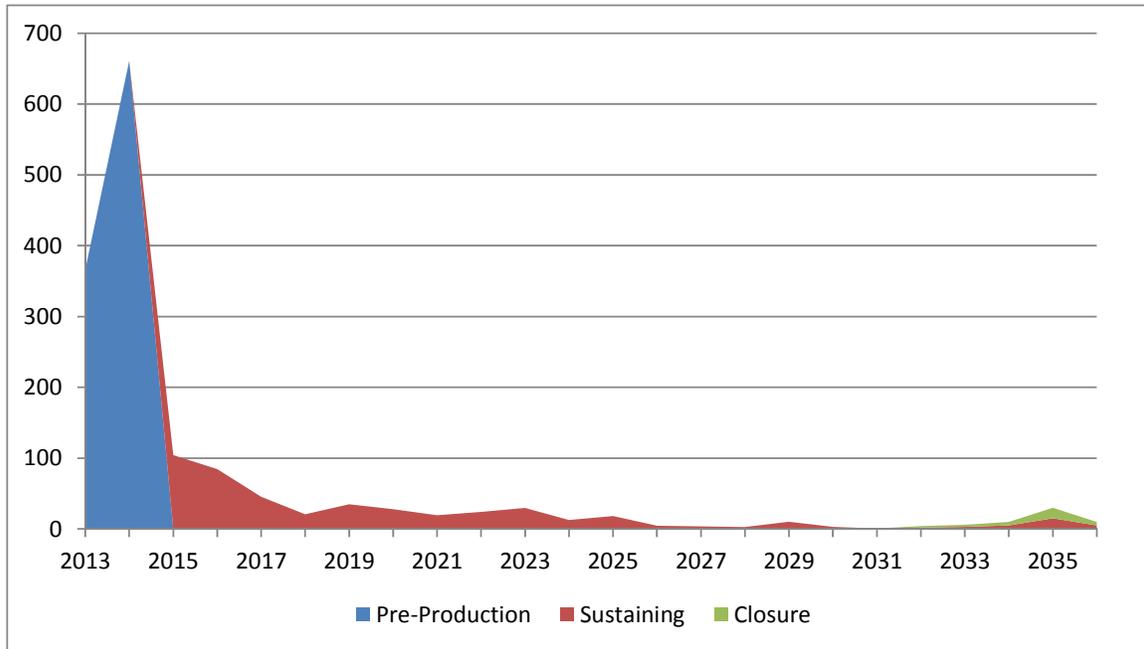
The proportion of machinery and equipment and from where it will be obtained is important to determine the nature of the goods and services required and the amount of import leakage for British Columbia. Different types of goods and services yield differing amounts of GDP and sourcing them outside British Columbia reduces the impact of their purchase on the British Columbia economy.

While the discussion above focused on capital expenditures occur during the construction and closure phases of the project, additional spending occurs during ongoing mining operations. Such expenditures, for example, include those for the replacement of worn out machinery and equipment. These expenditures are called sustaining capital expenditures.

The planned investment expenditures for the project are shown in the Figure 3.1 below in a stacked format. They are separated into pre-production capital – construction of the mining complex – sustaining capital, and expenditures required for the closure of the mine. The expenditures total in excess of \$1.5 billion over the period 2013 to 2036. In 2014, investment expenditures peak at \$660million. Construction expenditures total just over \$1.0 billion and sustaining capital about

\$475 million. The remaining amount of expenditures is associated with the closing of the mine.

Figure 3.1: Capital Expenditures (\$Millions)



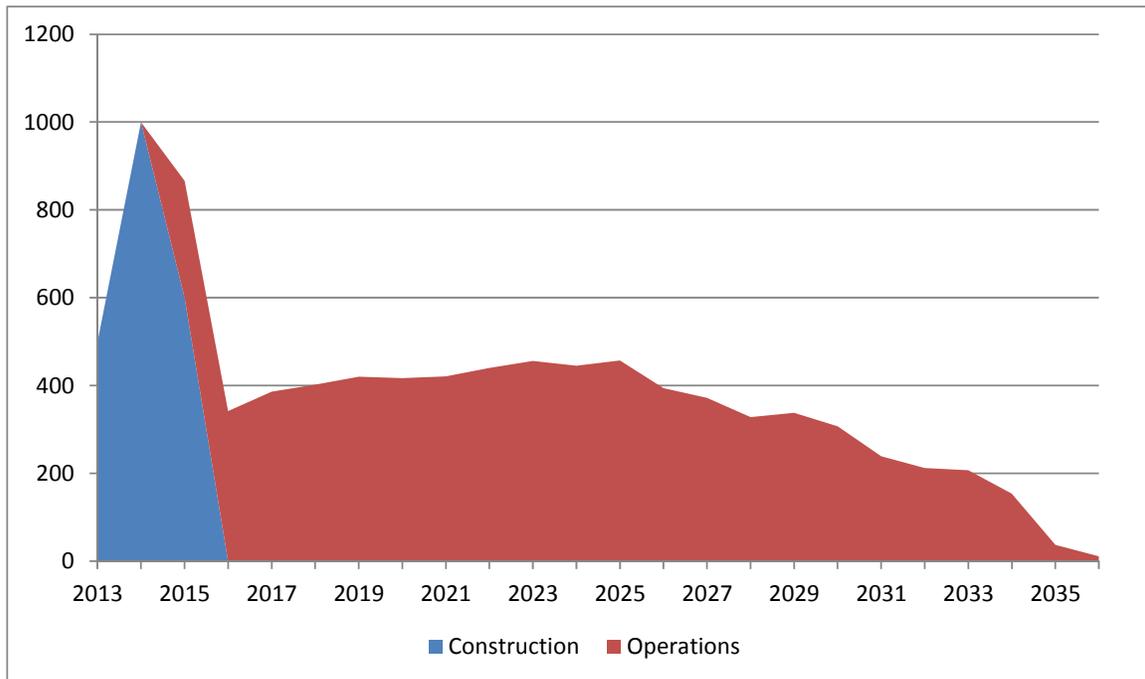
It is estimated that about 2.1 thousand person years of employment will be required to construct the mining complex. Figure 3.2 shows both the estimates of construction and operations workers for the project in a stacked format. Construction employment peaks at 1000 in 2014. Taseko will attempt to source the largest proportion of the construction jobs from the provincial labour force, but this attempt will depend on provincial labour market conditions.

Operations Production and Employment

The key information required for the operation of the mining process includes operation revenues and employees. The operations phase of the project starts in 2015 and production ceases in 2034.

The revenues from the project come from sales of copper and gold. The total sales in physical units during the life of the project are about 950 million tonnes of copper and 4.5 million ounces of gold.

Figure 3.2: Project Employment



The total production revenues from the mine over the life of the project, which will be largely seen in exports, are expected to reach over \$11.3 billion. As shown in Figure 3.3 below, the revenues peak in 2030 at nearly \$800 million. The value-added share of the production revenues – the part that represents GDP – is estimated to be about 50 percent, which suggests that the cumulative increase in GDP associated with New Prosperity is about \$5.6 billion.

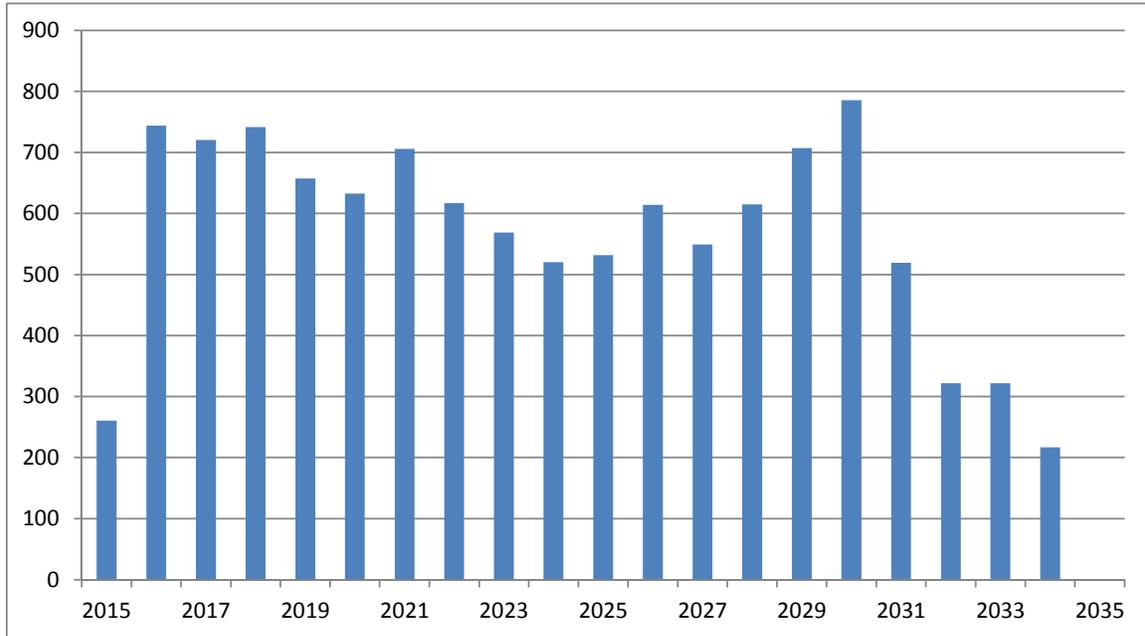
The estimated number of operations workers for the project is shown in Figure 3.2. The total number of person years of employment required over the life of the project is about 7.0 thousand. Annual employment peaks at just above 450 workers in 2025. It declines thereafter as mining activity slows.

The impact of the project on the nominal performance of the economy will depend on the prices received for the products of the mining operations. The future prices assumed for copper and gold were provided by Taseko.

Other Assumptions

There are a couple of other assumptions that need to be made to conduct the analysis. Two of these assumptions are related to fiscal policy and the supply of labour.

**Figure 3.3: New Prosperity Revenues
(\$Millions)**



In the case of fiscal policy, it is assumed that governments use the additional revenue received from the project to pay off debt or earn interest on cumulated surpluses. The changes in expenditures that are made are those related to increases or decreases in the cost of goods and services purchased by governments associated with wage and price changes and to service the additional population generated by the project.

The provincial economy is expected to face severe labour force pressures over the next decade or so as the population ages and retirements from the labour force increase. In the base case projection this situation forces additions to the labour force to come largely through increases in immigration to the province as unemployment rates in the province remain low. The additional employment requirements associated with the project and its impacts, as a result, will also be sourced from migration to the province, with the exception of the short run where the economy faces a recession and rising unemployment rates. The impact of this situation will be to lead to increases in the population that result from the higher economic activity in the province.

4. Quantitative Impacts

This section presents the results of the quantitative impact analysis of the New Prosperity project. The measures of performance used to examine the impacts include key economic and fiscal indicators. The impacts for these measures are discussed under the headings of general impacts, industry impacts and fiscal impacts.

General Impacts

The impacts of the project for a number of key economic indicators are shown in Table 4.1. The table shows the average annual difference between the values of the variables in the projections with and without New Prosperity along with the sum of the annual differences, cumulative difference, of the values of the differences over the life of the mine including its closure – 2013 to 2036. Unless otherwise specified these numbers are measured in millions of 2007 dollars. For example, for real GDP the average annual difference over the period is \$459 million. The cumulative difference over the period is \$11,020 million.

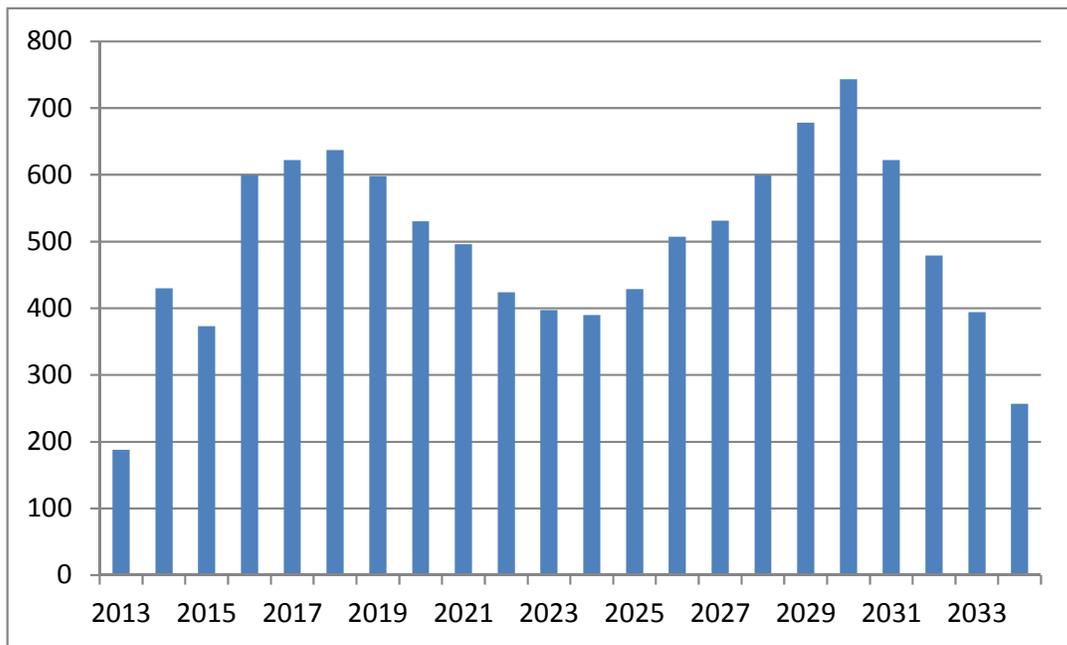
Table 4.1
New Prosperity Impacts, Selected Indicators, 2010-2033
(Average Annual and Cumulative Difference, \$2007 Millions)

	Average Difference	Cumulative Difference
Real GDP	459	11,020
Consumer Expenditures	375	8,993
Residential Investment Expenditures	33	786
Machinery & Equipment Investment	58	1,388
Non-Residential Construction Investment	43	1,038
Employment (000s)	3.0	71
Population (000s)	5.4	NA
Disposable Income Per Household (\$)	48	1,157
Federal Revenues	180	4,309
Provincial Revenues	230	5,522

Figure 4.1 shows the difference in real GDP with and without New Prosperity. These increases reflect both the impact of the operations and capital expenditures over the

life of the mine. The impact peaks at \$743 million in 2030 in conjunction with production and declines thereafter as production falls. In the first two years the increase in GDP is due largely to capital expenditures. Over the remainder of the period the revenues of the project are largely responsible for the impact, but sustaining capital and closure expenditures also make a contribution. The cumulative difference in GDP is just over \$11.0 billion, which is about 7.0 percent of the value of the current level of the province's GDP.

Figure 4.1
Impact on Real GDP
(Difference From Base Case, \$2007 Millions)



The cumulative increase in real GDP produced directly through New Prosperity's sales is about \$4.8 billion. An additional \$6.2 billion is created in the economy through the indirect impacts of New Prosperity GDP including the \$1.5 billion of capital expenditures associated with the project. This additional GDP represents about \$2,200 per person in the province.

The increase in GDP leads to an average annual difference in employment of 3.0 thousand. On a full-time equivalent basis, the cumulative difference of 71 thousand workers represents about 57 thousand person years of employment added to the economy. This additional amount suggests that for every 1 person year of employment created directly by New Prosperity an additional 5 person years of employment are created in the province.

Consumer expenditures demonstrate a significant improvement with the undertaking of the project. The average annual difference between the two projections is \$375 million. This increase is a result of the increased employment and disposable income

generated by the project. It should be noted that the average wage paid to the mine workers is much higher than the average wage of employees in the province as a whole, which in part contributes to the additional expenditures.

In addition to its own capital expenditures New Prosperity leads to higher investment expenditures required to produce the additional nearly \$11.0 billion GDP it creates. Residential expenditures are \$33 million and non-residential expenditures – machinery and equipment plus construction – \$101 million higher on average each year over the life of the mine.

The increase in residential investment is a result of the higher employment resulting from the project causing people to move to the province. The province's population is 5.4 thousand persons higher on average during the project. The need to move people to the province is a result of rising retirements over the period associated with the aging of the population. In this case it is necessary to move people into the province to meet provincial employment requirements.

Some of the higher non-residential expenditures are associated with the project's need for sustaining capital, as mentioned above. The remainder is required to increase other firms' production capacity to meet the higher consumer and other expenditures generated by the project.

Industry Impacts

The impacts of the project on the performance of other industries in British Columbia for the major industry categories are shown in Table 4.2. Similar to Table 4.1, this table shows average annual differences from base case values for real GDP and the cumulative value of these differences, but they are measured in \$2002 millions, as it is not possible to accurately convert the numbers to 2007 values. It should be noted that it is also not possible to sum the industry values as they are measured using a Chain-Fisher aggregation approach.

As expected, the mining and forestry industry aggregate, which includes New Prosperity, sees the biggest impact on real GDP – essentially all of the GDP increase is due to New Prosperity. As would be expected the construction industry also sees a noticeable impact resulting from the increased investment expenditures resulting from the project. The manufacturing industry sees no significant gains from the project as it relies heavily on exports, which, excluding the New Prosperity exports, register no increase from base case levels over the period.

The service industries show a significant impact from the project. Transportation and warehousing industry GDP increases directly from transporting New Prosperity mine exports as well as additional activity generated from increased domestic activity. Wholesale and retail trade and finance, insurance, and real estate GDP increases in line with both higher consumer, government, and investment expenditures.

The increase in institutional and government services is largely caused by the higher level of population associated with the project. Additional population requires additional education, health, and government services.

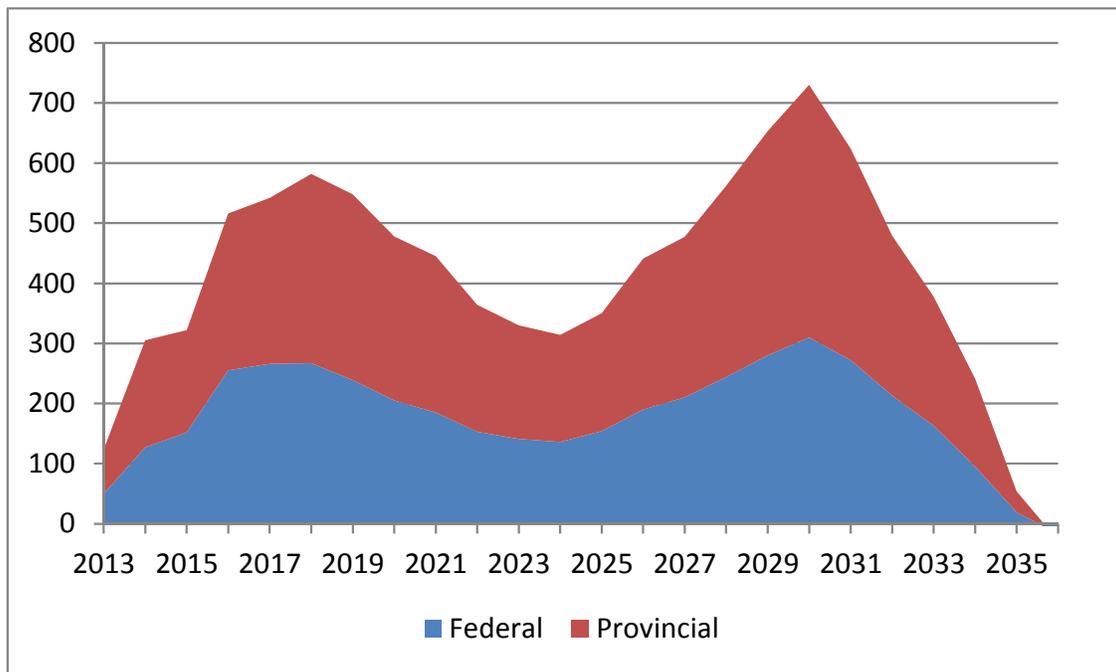
Table 4.2
Impacts on Industry Real GDP, 2013-2036
(Average Annual and Cumulative Difference, \$2002 Millions)

Industry	Average Difference	Cumulative Difference
Agriculture	1	14
Mining & Forestry	95	2274
Construction	27	645
Utilities	8	180
Manufacturing	0	0
Transportation & Warehousing	9	211
Wholesale & Retail Trade	29	707
Finance, Insurance & Real Estate	29	686
Accommodation & Food	5	116
Professional, Scientific & Management Services	12	299
Other Private Services	9	217
Institutional & Government Services	39	939

Fiscal Impacts

The project and its related impacts have a significant impact on government revenues and budget balances. As seen in Table 4.1 and Figure 4.2, both federal revenues – in the province – and provincial revenues rise significantly over the project period with combined revenues reaching about \$730 million at the peak of New Prosperity production. The average difference in revenues is \$180 million and \$230 million, respectively, for the federal and provincial governments.

Figure 4.2
Impact on Government Revenues
(Difference From Base Case, \$2007 Millions)



III. Appendix: The Centre for Spatial Economics

The Centre for Spatial Economics (C₄SE) monitors and forecasts economic and demographic change throughout Canada at virtually all levels of geography. The C₄SE also prepares customized studies on the economic, industrial and community impacts of various fiscal and other policy changes, and develops customized impact and projection models for in-house client use. Our clients include government departments, crown corporations, manufacturers, retailers and real estate developers.

The C₄SE was formed in July 2000 through an initiative of two consulting firms: Strategic Projections Inc. and Stokes Economic Consulting Incorporated. These two firms specialize in demographic and economic research. A key part of this research has been the geographical distribution of demographic and economic activity. The C₄SE was established as a partnership of SPI and SEC to improve the quality of information and research conducted in Canada and to make the information and research available to organizations requiring such information, and to the public as the opportunity arises. The C₄SE draws from a list of academics and research consultants on an as needed basis to minimize overhead costs and to obtain the best researchers for the topic at hand.

The staff of the C₄SE is currently as follows:

- Ernie Stokes - Managing Partner
- Tom McCormack - Partner
- Robert Fairholm - Partner
- Robin Somerville - Partner
- Aaron Stokes - Staff Economist
- Tara Schill - Staff Economist
- Robert Daniells - Staff Economist
- Adam Papp - Staff Economist
- Anthony Sturgeon - Staff Economist

Ernie Stokes, the author of this report, is the Managing Partner of the C₄SE, as well as the President of Stokes Economic Consulting. He has more than 30 years experience as an economic advisor in both the private and public sectors. Ernie has worked both in North America and developing countries. He has a Ph. D. in economics from Queen's University (1979). Prior to establishing Stokes Economic Consulting in 1995 he served as Managing Director, the WEFA Group, Canada (1989 to 1994), as senior economist with the Alberta Energy Company (1987 to 1989), as a senior official with the Canada Department of Finance (1985 to 1987) and as Director of the National Forecasting Group with the Conference Board (1978 to 1984).

Ernie Stokes is currently a member of the B.C. Minister of Finance Forecast Council and the Ontario Minister of Finance Forecast Council.

For more information on the C₄SE see our website: www.c4se.com