Benefits and Costs of the Proposed Prosperity Gold-Copper Mine Project

Report prepared for
Friends of the Nemaiah Valley

By
Marvin Shaffer & Associates Ltd.

February 24, 2009

Table of Contents

Introduction

In its Environmental Impact Statement [EIS] of the proposed Prosperity mine project, Taseko Mines Ltd. [Taseko] states that the purpose of the project is *"to utilize the proven mineral reserve of the Prosperity deposit to create value and opportunity for the people of British Columbia"*. It further states: *"If approved and built, the Project is expected to generate in excess of 5 billion dollars in economic benefit over its anticipated 20+ years of operation"*.[1]

While the review of this proposed project under the federal and British Columbia Environmental Assessment processes will focus on environmental and social impacts, the review must also address whether and to what extent the project would in fact create value and net economic benefits for British Columbians and Canadians as a whole. As stated in the EIS Guidelines/Terms of Reference, *"Environmental assessment promotes sustainable development and contributes to decision-making that can ultimately provide net ecological, economic and social benefits to society"* (emphasis added). The EIS Guidelines explicitly state that in presenting the justification and need, the EIS should provide *"The rationale for the Project, the results and the net expected benefits"*.[2]

A project of this magnitude would inevitably have some adverse environmental and social impact – the loss of natural habitat; impacts on traditional activities, resources and cultural values; an unwelcome intrusion into a remote, highly valued traditional land base. In economic terms there would be the loss of both *use* and *existence values*.[3] Ultimately decision-makers may face a trade-off and have to decide if the net economic benefits would be sufficiently great that they offset the adverse environmental and social impacts. That is why a full understanding of the net economic benefits is critically important.

The purpose of this report is to assess the net benefits that this project may offer. It first reviews the assessment of economic effects presented by Taseko and explains why that assessment overstates the project's net benefits. It then addresses the issues that must be considered in a full and methodologically correct assessment of benefits and costs, and concludes that there is no evidence that the project would generate positive net benefits for society as a whole.

[1] Taseko Mines Ltd., Environmental Impact Statement/Application, March 2009, Volume 1, p.5-1.
[2] Final EIS Guidelines/Application Terms of Reference, January, 2009, p.(vi) and p.1.
[3] Use values refer to environmental attributes and resources, for example fisheries or recreational resources, that people value because of their consumption, direct enjoyment or other interaction with them. Existence values refer to environmental and social or cultural attributes, for example intact ecosystems or places of great cultural significance, that people value for their preservation for present and future generations.

2.0 The critical difference between 'impacts' and 'benefits'

Taseko presents its assessment of the economic effects of the proposed project in Volume 6 of the EIS. It states: *"The purpose of the [economic] assessment, along with the assessment of social issues, is to allow an informed evaluation of social and economic benefits associated with the development of the Project and its costs".*[4] The analysis in the EIS focuses on four key indicators: effects on employment, income, government finance and regional economy.

Employment and income

Taseko bases its assessment of employment and income benefits on an economic impact analysis. It estimates the direct, indirect and induced employment and income that would be generated during construction, operation and mine closure. Taseko calculates that the economic impacts would be substantial and accordingly concludes that the project's effects would be positive and significant. The BC Environmental Assessment Office (EAO) similarly concludes there would be significant benefits, citing the number of jobs and income that would be generated.[5]

There is, however, a fundamental problem with this assessment. Economic impact analysis says nothing about the ***net*** benefits that these impacts would in fact provide. Employment impacts are simply estimates of the total demand for labour generated as a result of a project. Whether and to what extent that demand for labour would give rise to ***net*** benefits depends on what the persons hired would otherwise be doing.

If the persons hired would otherwise have been involuntarily unemployed, the net benefit could indeed be significant. To be clear, the net benefit still would not be measured by the full wages earned, as implied in Taseko's analysis and the EAO's report, but rather by the difference between those wages and the minimum wage at which these persons would willingly work. Nevertheless there could still be a significant net benefit. On the other hand, if the persons hired would otherwise have been employed elsewhere, the net benefit would be more limited. It would equal only the increase in income (or other benefit) that the new jobs offer relative to what the persons hired would otherwise have earned.

The EIS recognizes that an employment impact does not necessarily constitute new employment. It recognizes that the workers could have been employed elsewhere.[6] However, what the EIS and the EAO fail to do is to consider the economic implications of this fact. It provides no estimate of the magnitude of the net benefit that the employment offers; no estimate of the extent to which the estimated income impacts exceed the income that the workers would otherwise have earned, or exceed the value of the activities they would otherwise have been engaged in. Consequently, Taseko's EIS

[4] Taseko Mines Ltd., Environmental Impact Statement/Application, March 2009, Volume 6, p.2-1.
[5] BC Environmental Assessment Office, Prosperity Gold-Copper Project, December 17, 2009, p. 144-145.
[6] Taseko Mines Ltd., Environmental Impact Statement/Application, March 2009, Volume 6, p.2-15.

and the EAO report misrepresent and greatly overstate the net benefits of the employment generated by its proposed project.

Economists generally expect the net benefits from the employment generated by a project to be relatively small compared to the gross wage impact. In his analysis of this issue, highly regarded economist Arnold Harberger argued that even in a severe downturn, one should at most assign a net benefit of 30% of the wages paid, and then only for a few years out. People for the most part have other employment opportunities, especially over the longer term, and it is the incremental income or value in relation to those opportunities that governs the net benefit from employment in a new mine or elsewhere.[7]

Government finance

Taseko's assessment of government financial effects similarly reflects a gross impact, rather than ***net*** benefit analysis. The EIS provides estimates of the income, payroll, consumption and property taxes associated with the mine and the employment and business activity generated by the mine. Like the employment and income impacts, Taseko calculates that there would be substantial taxes generated as a result of the mine and concludes that the project's effects would be significant and positive. The EAO presents the same conclusion.[8]

Again, however, the assessment is fundamentally flawed. Taseko and the EAO make no attempt to estimate the ***net*** benefit governments would derive as a result of these tax impacts. No estimate is made of the extent to which the tax payments would be ***incremental*** – *i.e.,* in excess of what would otherwise have been paid. Furthermore, no estimate is made of the extent to which any incremental revenues would be offset by incremental government expenditures.

As discussed above, it is reasonable to assume that many of the workers hired as a result of the project would otherwise have been employed; consequently, a large proportion of the estimated income, payroll and consumption tax impacts would still have been paid, with or without Taseko's proposed project. Those taxes would not constitute incremental revenues for government. And, whatever incremental revenues were generated by the proposed project, they would be offset to some degree by the incremental expenditures that government and government agencies must incur to meet the incremental health care, education and other service demands resulting from the in-migration induced by the project, and the road maintenance, monitoring and other government services required by the project itself.

This is not to say there would be no incremental revenues for government. Mineral taxes, for example, would be incremental – *i.e.,* they would not have been paid without the mine. Some of the corporate income taxes paid on the mine operations would likely be

[7] A. Harberger, "The Social Opportunity Cost of Labour: Problems of Concept and Measurement as Seen from a Canadian Perspective", Technical Study 15, Canada Employment and Immigration Commission Task Force on Labour Market Development, July, 1981. See also, Treasury Board of Canada Secretariat, Canadian Cost-Benefit Analysis Guide: Regulatory Proposals, 2007, p.4 and p.15.
[8] BC Environmental Assessment Office, Prosperity Gold-Copper Project, December 17, 2009, p. 145.

incremental as well. However, the fundamental point here is that the economic benefit of the mine for government and taxpayers – the incremental revenues and the net benefit after taking incremental expenditures into account – would be substantially smaller than the gross impacts presented by Taseko in the EIS and by the EAO in its report. Impacts and net benefits are simply not the same.

Regional Economy

The assessment of effects on the regional economy focuses on the proportion of the employment and income impacts that would remain within the study region, as well as potential investment and diversification benefits the project could have. While clearly important for understanding the regional population and related impacts, this assessment does not address net economic benefits to regional residents, since much of any incremental income will accrue to in-migrants. Nor, does it address net benefits to British Columbia or Canada as a whole.

3.0 Components and measures of net benefits and costs

A comprehensive, methodologically correct analysis of net benefits and costs requires identifying all of the positive and negative consequences of the project and then assessing the value that the affected individuals or businesses would place on them. By ***value*** economists mean the trade-off people would in principle be willing to make for the different consequences – *i.e.* the maximum amount they would pay or forego to acquire the benefits and the minimum amount they would require in compensation to willingly accept the costs.

There are different ways in which such an analysis can be undertaken, but a standard approach is to analyze how different stakeholders and interests would be affected. Specifically, this involves analyzing the positive and negative consequences or net effect on:

- **The project developer** – the net return the project is expected to realize in excess of the opportunity cost of the funds that are invested;

- **Consumers** – the net benefits that consumers would realize because of the project's impact on the price or quality of what is produced;

- **Economic activity** – the net benefits workers and businesses would realize from the employment that is generated and from the supply of goods and services at prices in excess of their opportunity or incremental cost; and by the same token, the net costs that result from the supply of goods and services at prices less than their opportunity or incremental cost;

- **Government** – the net benefits that taxpayers would realize from incremental tax revenues less incremental government expense;

- **Environment** – the net costs (negative environmental externalities) and benefits (positive externalities), if any, that would result from the emissions and the impacts on habitat, natural resource activities and environmental attributes;

- **Local Community** – the net benefits or costs (the positive and negative social externalities) that would result from impacts on community services, opportunities, activities and cultural values.

One can assume for this project that the developer expects to realize positive net returns. Taseko would not be pursuing it otherwise. However, the net returns are forecast to be relatively modest (with an expected base case 11.7% pre-tax internal rate of return) and subject to considerable uncertainty, depending on the exchange rate, commodity prices and other factors.[9] Overall it does not appear there would be any significant surplus (return in excess of the opportunity cost of the invested capital, given the project risk) earned by the developer.

Also, it is most likely there would be little or no net benefit for consumers of the gold and copper that is produced. The project would not likely affect market prices and therefore would not likely impact the net benefit that Canadian or other consumers derive directly or indirectly from these minerals.

Therefore, the principal consequences that need to be analyzed in a benefit-cost evaluation of this project are the net benefits or costs arising from the effects on: (i) economic activity; (ii) government; (iii) the environment; and (iv) communities.

Methodologically correct measures of benefit or cost

With respect to **economic activity**, the net benefits from the employment impacts are measured by the incremental income (or other benefits) the persons hired as a result of the project would realize in relation to the income they would otherwise earn (or the value of the activities they would otherwise be engaged in). The net benefits for businesses are measured by the incremental net income arising from incremental sales – when goods or services are sold at prices that exceed their incremental or opportunity cost of supply.

Net costs arise when goods and services are supplied at prices *below* their incremental or opportunity cost of supply – *i.e.* where the incremental activity generates a *loss* of net income. In the case of mining projects in British Columbia, such net losses arise from the substantial volumes of electricity that are required in mining and processing activities. BC Hydro's electricity rates reflect the average costs of its existing generating and transmission facilities, not the much higher incremental cost of new supply. The difference between the relatively low rates paid by the mine for the electricity consumed and the much higher incremental costs of new supply BC Hydro must incur to meet new

[9] Taseko Mines Ltd., Pre-Feasibility Study of the Prosperity Gold-Copper Project, Executive Summary, February 25, 2007, p.168.

requirements is a very significant net economic cost of the project – a cost that is borne by all other BC Hydro ratepayers and that must be taken into account in the evaluation.

For **governments**, net benefits are measured by the incremental tax revenues governments receive as a result of the project less the incremental expenditures governments incur. The incremental tax revenues depend largely on the incremental employment and business income that would be earned, as well as mineral and corporate taxes paid by the mine. Incremental expenditures arise from the in-migration that would be caused by the project and the additional services that would need to be provided to support the larger population and the mine itself.

For the **environment** and **local communities**, net benefits or costs are measured by the magnitude of the externalities – impacts that are not paid for or fully compensated.

With respect to air emissions, there would be net costs due to the local air pollutants emitted in mine operations and transport activities. In principle these costs are measured by the compensation required to offset any increased health risks (and associated health care costs) and any adverse resource impacts. There would also be net costs due to the GHG emissions resulting from the project. These are measured by the incremental costs British Columbians would have to incur to offset the mine-related emissions and still meet the total provincial emission targets.

With respect to impacts on natural resources and environmental attributes, there would be net costs arising from the destruction of natural habitat and adverse impacts on resource activities. In principle these net costs are measured by the compensation people would require to fully offset (willingly accept) the residual adverse effects.

Net benefits for local communities would arise to the extent the economic activity generated by the project enhances services and opportunities or provides other such advantages. The measure of that benefit is what the local communities would in principle be willing to pay for them. There could also be significant net costs, in particular for the First Nation communities who may gain little from the economic activity, because of the impacts on traditional lands and the loss of important social and cultural values. The measure of that net cost would in principle be the compensation or offset they would require to willingly accept those project impacts.

Data are not available in the EIS or elsewhere to estimate or assess fully and accurately all of these components of benefits and costs. What the available information does suggest or indicate, however, is discussed in the sections below.

4.0 Economic activity net benefits and costs

Employment

The net benefits from the employment generated by the project, if approved, would depend on the nature of the opportunities the new jobs offer relative to what the affected workers would otherwise be doing. Would they provide employment for people who would otherwise be unemployed; would they provide higher wages or other benefits relative to opportunities elsewhere; or would they simply provide roughly comparable wages and working conditions?

The EIS and EAO report do not directly address this fundamental question. However, the labour market analysis in Volume 6 of the EIS does suggest that for the most part the jobs generated by this project would not provide employment for people who would otherwise be unemployed. The mid to long-term outlook in the labour market, both within the region and more broadly, is for labour shortages as retirements outpace additions to the labour force. The challenge for employers like Taseko is to attract the skilled workforce they need.[10]

There are relatively high rates of unemployment in the region where the project is located, unemployment that may be exacerbated by downturns in forestry and other mine closures. However, the labour market analysis in the EIS points out that on-going unemployment in this region is largely structural in nature. Increases or decreases in employment opportunities tend to affect net migration flows and the size of the regional labour force, moreso than the extent of unemployment. It is the regional labour force and population, not unemployment that the project would mostly affect.[11]

Except possibly for some cyclical benefits from the construction activity that takes place before the economy fully recovers, the primary source of net benefit from the employment offered by the project, particularly in the operating phase, would be above-average wages and the prospect of more stable employment than in other more seasonal and cyclical industries.

The exact magnitude of that net benefit is unclear. Average wages in all industries in Canada are almost half those in the mining sector.[12] However, the workforce for a new mine project would not be drawn from the general labour market. Many would be skilled workers who could otherwise earn premium wages elsewhere. One would expect that Taseko, like any prudent employer, would pay competitive wages but not any more than necessary to attract the workers they need. This suggests there could be some incremental wage benefit from the mine project – but certainly not one equal to the difference between mining and average wages. A mid-range, arguably overly generous assumption is that the net benefits would be some 25% of the mine wage-bill. That would suggest

[10] Taseko Mines Ltd., Environmental Impact Statement/Application, March 2009, Volume 6, p.2-53 to 2-54.
[11] Taseko Mines Ltd., Environmental Impact Statement/Application, March 2009, Volume 6, p.2-51.
[12] Average weekly earnings in all industries were $810 in 2008 as compared to $1527 in the mining industry. (Statistics Canada, Cat. No. 72002-X, Earnings, average weekly, by industry, 2004-2008)

annual benefits from mine operations of $7.6 million[13] – a significant amount but far less than the $30.6 million employment income impact reported in the EIS and repeated in the EAO report.

General Business Activity

The net benefits that businesses would derive from the demand for goods and services generated by the project depend on both the amount of incremental activity that takes place and the profit margins (net income per unit of sales) – that affected businesses earn.

In a well-functioning economy there will be limits to the amount of incremental activity that takes place. Demands for goods and services generated by this project would be met in part by the displacement of purchases by others. Over the longer term, there would expansions of capacity to meet the incremental demands, but that would require investment raising the cost of supply.

It is generally assumed in benefit-cost analysis that over the long term, at least in competitive markets, prices reflect the cost of supply. There won't be significant benefits – net income in excess of the opportunity cost or normal rate of return on the required investments – from the incremental demand.

Electricity Requirements

While one can generally assume prices reflect the cost of supply in competitive markets, the situation can be quite different in markets where prices are not determined by the competitive interplay of demand and supply – where there are subsidies, taxes or price regulation. Of greatest relevance to this project is the impact of price regulation, in particular the regulation of a major input to mining operations – electricity.

In Taseko's 2007 Feasibility Report it was estimated that the mine would require, on average, almost 700 GWh of electricity per year. Based on the cost of electricity at its Gibraltar Mine, Taseko estimates it would pay $37.4/MWh for this power.[14] The incremental cost of electricity for BC Hydro is, however, much higher. The price it paid for new sources of supply in its 2006 Call for energy averaged $88/MWh.[15] It is quite likely that the prices BC Hydro will pay in its 2008 Call will be higher.

Even at $88/MWh, BC Hydro would lose $50 on each incremental MWh of demand for electricity due to the mine project. On an annual basis the loss would be **$35 million**,

[13] Based average annual employment income of $30.6 million as reported in Taseko Mines Ltd., Environmental Impact Statement/Application, March 2009, Volume 6, p.2-20.
[14] Taseko Mines Ltd., Pre-Feasibility Study of the Prosperity Gold-Copper Project, Executive Summary, February 25, 2007, p.144 and 152.
[15] BC Hydro calculated that the average price for firm electricity supply in its F2006 Call contract awards, adjusted for location and other characteristics, was $87.50/MWh. Some of the contracts it entered into were at higher prices. See BC Hydro, Report on the F2006 Call for Tender Process, August 31, 2006.

each year over the life of the mine. That is a significant net cost of this project, a net cost that would be borne by BC Hydro and ultimately all of its customers.

In its report, the EAO stated *"there is no expected cost to future generations except for the loss of Fish Lake and Little Fish Lake"*.[16] That is factually incorrect. There would be a very large, on-going cost to present and future generations from the purchase of electricity at a rate that is less than half the incremental cost of supply. This is not a minor oversight in the EAO report. It is a major failing to recognize the multi-million dollar cost the mine would impose on BC Hydro and its customers.

5.0 Government Net Benefits and Costs

The net benefits to government would depend on the amount of taxes generated by the project that would not otherwise be paid and that are not offset by incremental government expenditures.

As explained earlier, the gross tax estimates in the EIS and EAO report significantly overstate the net benefits to government. Very little, if any, of the payroll and consumption taxes would constitute net benefits for government. For the most part, the persons hired as a result of the project would otherwise have been employed, paying comparable taxes. There would be some incremental income taxes paid as a result of higher wages earned in the mining sector, but these would be relatively modest and are already included in the potential $7.6 million annual employment benefit discussed above. (The wage impacts are measured before tax).

There would be incremental taxes paid in British Columbia as a result of the in-migration of workers due to the project. However, that would be offset in part by the incremental government services the in-migrants and their families require. From a Canadian point of view there would for the most part simply be a redistribution of taxes and government expense. Provincial tax payments and government service costs would increase in B.C. but correspondingly fall in those provinces where the in-migrants would otherwise live.

The main source of incremental net benefit for government would be from the direct corporate income and mineral taxes paid by the mine. These can be significant, but they would not be as high as the figures in the EIS suggest. The average annual corporate income tax reported in the EIS ($23 million per year) ignores the time pattern of taxable profits and tax payments that would be made for the mine.[17] The Feasibility Report estimated that the present value net cash flow (before allowance for any financing costs) would total $260 million over the life of the mine.[18] That is equivalent to approximately $25 million per year on an average levelized basis.[19] On the assumption that the effective

[16] BC Environmental Assessment Office, Prosperity Gold-Copper Project, December 17, 2009, p. 146
[17] Taseko Mines Ltd., Environmental Impact Statement/Application, March 2009, Volume 6, p.2-25.
[18] Taseko Mines Ltd., Pre-Feasibility Study of the Prosperity Gold-Copper Project, Executive Summary, February 25, 2007, p.166.
[19] In other words, a net cash flow of $25 million per year over the life of the mine would generate the estimated project present value net cash flow of $260 million at the 7.5% discount rate used in the Feasibility Study.

tax rate, taking project financing and corporate tax strategies into account, would be less than 30%,[20] that suggests the average levelized tax payments would be less than $7.5 million per year. And, of course, there is no certainty that such payments would be made; that would depend on the financial performance of the mine and the corporate strategies it employs to minimize tax payments.

The mineral taxes reported in the EIS ($6.5 million per year) are also inconsistent with the Feasibility Report. In the Feasibility Report mineral taxes were estimated to total $64 million over the operating life of the mine, or $3.2 million per year both on an average and average levelized basis (taking the timing of the payments into account).

In total, the direct corporate income and mineral taxes paid by the mine might yield up to $10.7 million per year. Together with property taxes, assuming there are no offsetting property related expenses, the incremental benefit could be in the order of $11 million per year. This is a significant amount, but far less than the $35 million cost that the mine will impose each year on BC Hydro.

6.0 Environment net benefits and costs

Emissions

There would be criteria air contaminant and GHG emissions if the project proceeds. The criteria air contaminant emissions could have health or resource effects; some of the emissions would exceed recommended levels (*e.g.*, occupational limits). It is possible that this impact is compensated for in the wages of the workers who would be exposed to the emissions. That would mean they would not constitute an externality as such. However, one would then have to recognize that some of the employment benefit of higher than average earnings is an offset to the working conditions and therefore not an incremental benefit overall.

There would be significant amounts of GHG emissions during construction, operations and mine closure, adding to the provincial inventory of emissions. It is estimated in the EIS that emissions during construction would average 57,408 tonnes of CO_{2e} per year. There would also be almost 30,000 tonnes of emissions in land clearing burning not included in this total. During operations, GHG emissions are estimated to average 52,636 tonnes per year and during mine closure 31,205 tonnes per year.[21]

Unless the mine pays carbon taxes or permit fees in amounts sufficient to offset all of these emissions, these GHG emissions would impose a cost on British Columbians. With fixed provincial total emission targets, any new emissions from one source have to be offset by reductions elsewhere, and British Columbians or other BC industry would have to pay for that.

[20] Taxes paid by the mining industry averaged 28% of profits over the last four years (2004-2007) of corporation financial and taxation statistics reported by Statistics Canada. See Statistics Canada, CANSIM Table 180-0003.

[21] Taseko Mines Ltd., Environmental Impact Statement/Application, March 2009, Volume 4, p. 2-55 and 2-56.

The magnitude of the cost imposed on British Columbians due to the mine emissions depends on the marginal cost of offsetting or reducing GHG emissions in the province and the allocation of emission rights when and if a cap and trade system is introduced. At $50/tonne,[22] the cost imposed on British Columbians could be some $2.8 million per year during construction, $2.6 million per year during operations, and $1.5 million during mine closure. Given the cost of the measures that the province has indicated it is willing to take to reduce GHG emissions,[23] the cost imposed on British Columbians due to the mine emissions could much greater.[24]

Natural resources and environmental attributes

The project would have a wide range of impacts on natural resources and environmental attributes. The EIS recognizes there would be negative impacts on forestry, agriculture and ranching, fishing, hunting, recreation, tourism and trapping-related resources.

The EIS proposes that mitigation measures would be undertaken to minimize the adverse effects and compensation measures undertaken to offset the loss of Fish Lake. The EIS suggests that the residual effects would be minor. Nonetheless, there would be significant residual impacts. For example, even Taseko concedes, in its EIS, that some of the impacts on First Nations would be profound and irreversible:

> *The loss of Fish Lake and disturbances within the mine footprint will result in the loss of an area that has important cultural meaning for many Tsilhqot'in people. This culturality is expressed in the fishing, trapping, hunting, cabins and other traditional use experiences and sites that have attracted people to this area over time. Development of the mine site and TSF [tailing storage facility] will result in the inundation of trapping and hunting areas and the direct loss of Fish Lake itself. Deer, moose, grouse and squirrel are harvested around Fish Lake and these opportunities would be displaced until post-closure (Ehrhart-English 1994). ...*
>
> *The Project will have an adverse effect on cultural heritage values for the Tsilhqot'in people and more specifically members of the Xeni Gwet'in whose families have traditionally occupied the Little Fish Lake area. The magnitude of the effect is difficult to characterize. Although the Xeni Gwet'in's asserted traditional territory has many other areas that support the types of traditional activities at Fish Lake, the one ethnographic*

[22] In the follow-up to his widely reported 2007 study on the economic consequences of climate change, British economist Nicholas Stern estimated that greenhouse reduction targets could be met by abatement measures costing up to 30 euro per tonne, or approximately $50 Cdn. See N. Stern, The Global Deal: Climate Change and the Creation of a New Era of Progress and Prosperity, 2009.

[23] For example, the government has indicated it plans to order the phase-out the Burrard natural gas fired thermal power plant because of its greenhouse gas and other emissions when operated. The cost of that to BC Hydro will amount to over $200/tonne of CO_{2e}.

[24] In its report, the EAO notes the carbon tax and cap-in-trade system that the province is pursuing to address GHG emissions. (BC Environmental Assessment Office, Prosperity Gold-Copper Project, December 17, 2009, pp. 63-63). However, it fails to recognize that unless these measures result in the mine effectively offsetting (or providing the resources to offset) all of its emissions, the mine will impose significant offset costs on others.

> *study conducted on the mine site area did document a consistent pattern of use since 1860 and permanent habitation by one family between 1930 and 1971. The effects will occur once construction activities begin, will continue indefinitely and are considered irreversible because the physical setting, though it may be capable of restoring baseline conditions for traditional activities like hunting and fishing post-closure, will be permanently altered.*[25]

It is beyond the scope of this report to estimate or assess the significance of the residual impacts of the proposed project on natural resources and the environment. There are other studies that address this. However, two important points should be recognized in any assessment of the resource and environmental costs of the project.

First, the costs cannot be measured solely by the loss of specific resource uses. Natural resources are valued in their own right, especially resources that have long traditional and cultural significance. There are existence and bequest values that are important to consider here, and they can far exceed the value of any measurable loss of resource activity.[26]

Second, for those resources subject to prior legal rights, for example an Aboriginal right or a crown tenure, the appropriate measure of the loss is what the holders of these rights would in principle require in compensation to willingly accept the adverse effects. That is generally much different from an analyst's assessment of significance, or adequacy of compensatory measures.

There is no evidence in this case that some of the most significantly affected stakeholders, such as the local First Nations, consider the residual effects minor. To the contrary, the expenses and effort some are taking to oppose the project suggest that resource loss remains very significant, notwithstanding the mitigation and compensation measures proposed by Taseko.

7.0 Community net benefits and costs

There would be both positive and negative community impacts due to the project. Positive impacts would be felt in the commercial centres in the region as a result of the increased economic activity and population inflows. There would be more economic opportunities within the region, property values would be maintained or enhanced, and the larger population would support more amenities and services. Negative impacts could be felt in those same centres because of the pressures on housing, services and infrastructure that a rapid increase in population can cause. There could also be negative impacts at the end of the mine life if there is a population outflow and the amenities and services cannot be sustained.

---

[25] Taseko Mines Ltd., Environmental Impact Statement/Application, March 2009, Volume 8, p. 2-64 and 2-65.

[26] For a discussion of the regulatory and legal significance of existence values see P, Portnoy, "The Contingent Valuation Debate: Why Economists Should Care", *Journal of Economic Perspectives* 78, no.3 (1994): 3-17.

For First Nations communities, there may be some potential for enhanced economic opportunities, although these opportunities remain uncertain.[27] Offsetting that, however, would be the impacts on traditional resources and cultural values. Given the strong First Nations' opposition to the project, it is apparent these impacts, together with the resource losses, are considered to be strongly negative overall.

Again, it is beyond the scope of this report to estimate or assess the magnitude of these positive and negative effects. Ultimately, however, the Panel and regulatory decision-makers will have to consider whether the overall impacts can be considered positive and, even if they are, if they are of such a magnitude that they outweigh the significant net costs of the project. There is no evidence to indicate that they do.

8.0 Overall assessment

In the table below, the economic benefits and costs of the project are summarized. As shown in the table, there would be some employment net benefits, but they would be limited by the fact that labour shortages are expected in the medium to long term and the job opportunities generated by the project are not likely to employ persons who would otherwise be unemployed. The most significant economic effect of the project is markedly negative – the loss BC Hydro would incur in supplying the large amount of electricity required by the mine at rates significantly below the incremental cost of supply.

There are some government net benefits, primarily from the mineral taxes and income taxes paid by the mine. These are significant, but far less than the gross tax impacts presented in the EIS and not at all certain, depending in part on the ultimate economic performance of the mine.

There are environmental costs. The GHGs emitted by the mine would have to be offset in order for British Columbia to meet its overall emission targets. There are as well the resource losses and impacts on the environment, including the loss of Fish Lake, the costs of which could be very significant given the strong opposition to the project by those directly affected.

With respect to the community impacts, there are both positive and negative effects. There is no evidence to suggest, however, that the social impacts are positive overall, or even if they were that they would outweigh the quantified and non-quantified net costs of the project.

[27] In response to Information Requests, Taseko has conceded that it does not monitor Aboriginal employment at its Gibraltar mine and has no intention of monitoring Aboriginal employment at the proposed Prosperity Mine: CEAA Registry Document #1176, available on-line at: http://www.ceaa.gc.ca/050/documents/38566/38566E.pdf.

Impact category	**Measure of Net Benefit or Cost**	**Estimated Annual Value** *($/yr)*
Economic Activity **-employment**	-incremental income	$7.6 million
-business activity	-net loss on electricity purchases	($35 million)
Government	-incremental revenues less expend.	$11 million
Environment **-emissions**	-GHG offset cost	($2.6-2.8 million)
-resource/env. attributes	-in principle, compensation required to willingly accept impact	Not estimated
Community **-enhanced opportunities with increased economic activity and population**	-in principle, willingness to pay for enhanced opportunities	Not estimated
-pop.-related pressure on services and infrastructure	-in principle, compensation demanded to offset cost	Not estimated
-closure-related impacts	-in principle, compensation demanded to offset cost	Not estimated
-impacts on FN communities and cultural values	-in principle, compensation demanded to offset cost	Not estimated

9.0 Conclusion

Contrary to statements in the EIS suggesting this project would generate billions of dollars of net benefits, **the project would appear, based on the available information, to generate significant net costs for British Columbians and Canadians as a whole**.

The estimated costs to BC Hydro and its customers, plus the GHG offset costs imposed by this project total almost $38 million per year. That significantly exceeds the estimated employment and government benefits from the project. **The quantified consequences suggest net costs averaging $20 million per year over the life of the mine.** There would as well be the non-quantified environmental, cultural and social costs, of great concern to the affected First Nations and others.

The only trade-off this project offers is the positive community impacts arising from the increase in regional economic and related opportunities. However, there is no evidence to suggest these are of a magnitude that would offset the very significant costs this project would impose. As stated at the outset, there is no evidence to suggest the project would generate positive net benefits overall.