32 Need for and Alternatives to the Proposed Project

The *Canadian Environmental Assessment Act* (1992) requires that project proponents and responsible authorities consider the purpose of proposed projects undergoing environmental assessment. Consideration of this topic—as well as the need for and alternatives to the proposed KSM Project—is also included in the Application Information Requirements prepared by the British Columbia Environmental Assessment Office (BC EAO 2011).

32.1 Need for and Purpose of the Project

The *need* for a Project is defined as "the problem or opportunity that the proposed project is intended to solve or satisfy," whereas the *purpose* of a proposed project is defined as "what is to be achieved by carrying out the project" (CEA Agency 2007).

32.1.1 Need for the Project

The prosperity of Canada and, more specifically, of BC, is linked to economic development opportunities in the natural resources sector. Economic stimulus from the natural resources sector (including the induced goods and services that are created to support the sector) is estimated to account for 10% of all employment in Canada and close to 20% of the national Gross Domestic Product (GDP; Government of Canada 2012).

Metal mining, as part of extractive industry (including mineral, oil and gas extraction), contributes significantly to the Canadian economy. Since the economic downturn in mid 2008, growth in the extractive industry in Canada and elsewhere in the world has largely been led by demand from China and other parts of Asia, such as India (Mining Association of Canada 2012). In 2010, the extractive industry accounted for 4.4% (CAN$54 billion) of Canada's GDP, of which the mining sector contributed CAN$35.7 billion (Mining Association of Canada 2011a). Mining was nearly 3 times larger than agriculture and 13 times larger than forestry by this measure. In 2011, the contribution of extractive industries fell slightly, to 3.9% (CAN$49 billion) of the GDP, while the mining sector remained relatively stable at a contribution of CAN$35.6 billion.

The potential for metal mining to continue to provide a significant source of economic production in Canada is likely to remain relatively constant in the long term. The recent downturn in Canadian extractive industries as a whole is attributed to concerns over uncertainties regarding Europe, the United States (US), and emerging economies, as well as unstable oil prices; however, this slowdown is viewed as a cyclic dip that will not change the long-term prospects posed by the overall "upward secular Asian growth trend" (Mark Carney, Governor of the Bank of Canada, quoted in Mining Association of Canada 2012). In spite of forecast challenges posed by some economists related to uncertainties regarding continued debt in the US and some European countries, revenue trends from the mining sector are projected to continue, linked to increasing global demand trends (Mining Association of Canada 2012). Provincially, the mining sector in 2010 accounted for about 2% (CAN$4.7 billion) of BC's GDP

(Pricewaterhouse Coopers 2011a). In 2011, gross mining revenues increased 25% over 2010 levels to CAN$9.9 billion, when the price of copper reached a new high (Pricewaterhouse Coopers 2011b). In 2012, linked to the more recent global uncertainty and market downturn—which affected commodity prices such as copper—coupled with rising labour and raw materials costs, gross mining revenues in BC dipped to $9.2 billion (Pricewaterhouse Coopers 2013). Consistent with views of Asian-led growth overall, the analysts' consensus forecast for mineral commodity prices is a rise toward April 2014, with Q2 2014 estimates (for April 24, 2013) of Bloomberg LP for gold at 1,560 $/oz, compared to the spot price for April 22, 2013 of 1,423 $/oz, and for copper at 7,633 $/Mt, compared to the spot price of 6,907 $/Mt for April 22, 2013 (Pricewaterhouse Coopers 2013).

In 2012, both the provincial and federal governments underscored their support for, and commitment to grow natural resources, including the mining sector, in key action plans. In the *Economic Action Plan 2012*, the Government of Canada noted:

> *Our abundant natural resources have always formed the backbone of Canada's economy. They have fostered the development of whole communities and regions from one end of the country to the other and they have helped shaped Canada's character and identity* (Government of Canada 2012).

In the same plan, the Government of Canada further committed to support responsible resource development, invest in Canada's natural resources, and expand trade and open new markets for Canadian businesses (Government of Canada 2012).

Similarly, in British Columbia's (BC's) Mineral Exploration and Mining Strategy, the provincial government stated:

> *British Columbia was built on the strength of our natural resources. And today, with demand for those resources stronger than ever, the province is poised for a new phase of growth, investment and job creation. […] Building on the progress of the past 10 years, we are moving forward to increase investment, expand job creation, develop new economic opportunities, protect the environment and build a better quality of life for future generations* (BC MEM 2012).

The KSM Project is needed to supply precious metals to the global markets while contributing to Canadian and provincial economic growth and stability, as described above. The Proponent is committed to developing the Project in a manner that will contribute to the local, provincial, and national economies, and will create employment opportunities locally, regionally, and beyond.

32.1.1.1 Economic Feasibility

The economic feasibility for the KSM Project was determined based on the data provided in the 2012 Pre-Feasibility Study, which can be found in Appendix 4-C (Tetra Tech-Wardrop 2012). These data employed a conservative approach of using low estimates for factors like commodity prices due to the price fluctuations usually experienced in global metal prices from year to year.

Economic feasibility for the KSM Project was estimated using a series of Lerchs-Grossman (LG) pit shell optimizations using resource models provided by Resource Modeling Inc. (see Appendix 4-C, Tetra Tech-Wardrop 2012). The pit optimizations use mining, processing, water treatment, tailing, general and administrative (G&A) costs, and process metal recoveries. These are derived for each of three separate pit areas, the Mitchell, Sulphurets, and Kerr pits. Resource Modeling Inc. resource models classify the mineralization as Measured, Indicated, and Inferred; only Measured and Indicated categories are used in the pit optimization. Cut-off-grade (COG) is determined using the Net Smelter Return (NSR) in CAN$/t, which is calculated using Net Smelter Prices (NSP). The NSR (net of off-site concentrate and smelter charges and on-site mill recovery) is used as a cut-off item for break-even ore/waste selection. The NSP includes metal prices, US currency exchange rates, and off-site transportation, smelting, and refining charges. The metal prices from travelling averages, and resultant NSPs used are shown in Table 32.1-1.

Table 32.1-1. Metal Prices and Net Smelter Prices

	Metal Price (US$)	NSP (CAN$)
Cu	3.21/lb	2.93/lb
Au	1,244/oz	39.02/g
Ag	22.98/oz	0.649/g
Mo	14.14/lb	9.70/lb

Source: See Appendix 4-C, Tetra Tech-Wardrop (2012).

LG delineated resources are in-situ and use an NSR COG specific to each mining area, but do not include any mining dilution or mining loss. Moose Mountain Technical Services notes that the economic pit limits are based on mining unit costs derived to meet the local conditions for the Project and the specific Project arrangements for waste rock management, water management, environmental, and reclamation within this study, as well as certain input parameters, such as pit slope angles, process recoveries, environmental considerations, and reclamation requirements. All of these components affect the mining quantities and activities to release the specified ore and, as such, affect the economic pit limits.

As can be expected during normal progressive mine optimization stages for all open pit mines, some further refinements may result from additional detailed data acquisition. Future operational cost projections or metal price changes could affect the projected pit limits, ore reserves, and waste quantities. Because of the difficulty in predicting relevant metal prices over such a long project life, the ultimate LG pit limits in this study for Sulphurets and Kerr are selected where an incremental increase in pit size does not significantly increase the pit resource, or an incremental increase in the pit resource results in only marginal economic return. In other words, rather than selecting an economic ultimate pit based on a fixed price case (even if discounted cash flow considerations are included), the ultimate pits for Sulphurets and Kerr are selected where the economic margins drop off. The ultimate pit for Mitchell is selected where the operating cost per tonne of ore for mining one bench lower by open pit method begins to exceed the unit operating cost of mining incrementally higher with a block cave. This establishes the limits to the mineable resource base for the mine design work. Price and cash flow sensitivities can then be performed within a more robust mine plan. The LG pit delineated resource for each pit area is summarized in Table 32.1-2 and Table 32.1-3.

Table 32.1-2. Measured and Indicated Lerchs-Grossman Pit Resources

Pit Area	In-situ Ore (Mt)	NSR (CAN$/t)	Au (g/t)	Cu (%)	Ag (g/t)	Mo (ppm)	Waste (Mt)	Strip Ratio (t:t)
Mitchell	980	30.3	0.656	0.171	3.05	61	1,342	1.4
Sulphurets	310	27.8	0.599	0.226	0.78	52	859	2.8
Kerr	234	32.0	0.253	0.475	1.23	-	476	2.0
Total	1,524	30.1	0.582	0.229	2.31	50	2,677	1.8

Source: See Appendix 4-C, Tetra Tech-Wardrop (2012)
Note: NSR cut-offs for each area are: Mitchell, CAN$9.57; Sulphurets, CAN$10.17; Kerr, CAN$9.61. The NSR cut-off for the Mitchell Block Cave Mine is $15.41, and for the Iron Cap Block Cave Mine, $15.57.

Table 32.1-3. Measured and Indicated Lerchs-Grossman Pit Resources – In-situ Metal

Pit	Au (M oz)	Cu (M lb)	Ag (M oz)	Mo (M lb)
Mitchell	20.7	3,697	96.1	130.8
Sulphurets	6.0	1,544	7.8	35.6
Kerr	1.9	2,444	9.2	0.0
Total	28.5	7,685	113.1	166.4

Source: See Appendix 4-C, Tetra Tech-Wardrop (2012).

32.1.1.2 Revenues

The Project will develop one of the largest gold resources in the world, with proven and probable reserves totalling 38.2 M oz, as well as 9.9 B lb of copper, 191 M oz of silver, and 213 M lb of molybdenum. The Project will supply gold and copper concentrate to overseas markets to support industrial development needs and growth in China, India, and other emerging markets; China alone accounts for an estimated 37% of global copper demand (Deloitte 2012). Other Asian nations and some eastern European nations that have entered the European Union in recent years are also expected to provide a sustained demand base into the future. The large populations of the developing nations create significant demand for consumer products, such as access to electrical power and general improvements in living standards. Plumbing supplies, telecommunications, electrical appliances, automobiles, and air conditioners are typical consumer products that use significant amounts of copper, and as nations develop, the demand for these commodities will increase. Annual copper consumption per capita in the developing nations is very low by comparison to developed countries but, given their large populations, a modest increase in per capita consumption will inevitably result in a large increase overall.

Global mine production is the principal source of world copper supply, with recycling of copper scrap accounting for between only 11 and 13% of the total supply. Mine production in the Americas, Australia, and Indonesia produces about 75% of this copper, with South America, specifically Chile, being the largest contributor at about 40% of global production. Historically, the price of copper has been both volatile and cyclical, a reflection of economic conditions and expectations with respect to future supply and demand. During the 1980s and

1990s, the copper price averaged above US$1.00/lb within a range of US$0.60 to US$1.60. Since the late 1990s, when significant new mine capacity was developed, copper has been in the lower portion of its normal price cycle, until relatively recently. Copper, along with coal, is one of BC's two largest revenue-generating commodities. The price of copper reached a new high in 2011 (averaging US$4/lb), but has seen a decline since (averaging US$3.61/lb in 2012), attributed to investor fears regarding slower growth in China, sluggish economic recovery in the US, and Europe's continuing debt crisis. Copper prices in 2013 have remained relatively stale at around US$3.60/lb. Over the same time, revenues from copper concentrates rose to $1.5 billion in 2012 from $1.3 billion in 2011, associated with shipments of 668,000 t and 787,000 t respectively over the same time (Pricewaterhouse Coopers 2013). By comparison, the Project is anticipated to produce 325,000 t/year of copper concentrate, representing about 40% of current total copper concentrate production for the province (Chapter 4). To support this production, demand for high quality copper and other industrial minerals is anticipated to increase overall in the foreseeable future related to rapid urbanization in countries like China and India (Pricewaterhouse Coopers 2013).

Similarly, global demand for gold has risen nearly 6% year-over-year since 2007, which has driven gold prices up significantly to a peak in 2011, lowering to the spot price on April 22, 2013 of approximately CAN$1,423/oz (Pricewaterhouse Coopers 2013). Gold is anticipate to recover from recent price drops by 2014, followed by a long term increasing trend driven by countries such as China and India (Pricewaterhouse Coopers 2011b, 2013). The appeal of the precious metals market is highlighted by its attractiveness as an investment vehicle. Gold demand in general is apportioned between investment, jewellery, and technology, with India emerging as the strongest performing market, accounting for 30% of total consumer demand (World Gold Council 2012).

Silver prices have also increased, from US$4.50/oz in 2002 to US$35/oz in 2012. Although the demand for silver in 2011 softened slightly, down by 1.5% at 876.6 M oz, continuing to soften into 2012, silver still reached its second highest level since 2000, driven by growth in China and by its ubiquitous use in household goods, technology, the automotive industry, and jewellery. In 2011, Canada was the eleventh top silver producing country in the world (The Silver Institute 2012).

Molybdenum is a common by-product of copper mining. It has the ability to withstand extreme temperatures and has a high resistance to corrosion. Molybdenum is widely used as an alloy agent in stainless steel making. From 1998, molybdenum prices have increased from a low of approximately CAN$3/lb to a recent spot price of approximately CAN$13/lb (International Molybdenum Association 2012). BC is Canada's only exporter of molybdenum, for which revenues fell from CAN$248 million in 2012 to CAN$256 million in 2011 for 13,000 to 11,000 t produced respectively. This drop is associated with the molybdenum price falling over the same time (Pricewaterhouse Coopers 2013).

Although commodity prices may be subject to short-term volatility, it is anticipated that because of increased urbanization around the world (with its concomitant requirements for construction materials and luxury goods), long-term demand for metals will remain robust (Pricewaterhouse Coopers 2012, 2013).

Although mineral commodity prices have seen recent drops, metal mining is anticipated to see decent growth in the long term (Pricewaterhouse Coopers 2013). In a period of stagnant global economic growth, the revenues generated by the KSM Project will contribute to the economic recovery and stability in the Project region, province, and in Canada as a whole, also creating export opportunities consistent with strengthening international investment, as outlined in Canada's *Economic Action Plan 2012* (Government of Canada 2012). The Project will also lead to economic opportunities and other benefits for Aboriginal communities in the area of the Project, such as employment, education, training, and business opportunities. Over the construction and operation phases, the Project will contribute an estimated CAN$24.3 billion to BC's GDP and CAN$1.4 billion in tax revenues to BC. Nationally, the Project will generate approximately CAN$48 billion to Canada's GDP and a total of CAN$9.1 billion in tax revenues during the construction and operation phases. The Project is predicted to result in a significant economic benefit to BC and to Canada as a whole. Resource revenues are the responsibility of the BC government and it is assumed by the proponent that the KSM Project will be evaluated as to whether the tax revenue from it will be shared with potentially affected First Nations.

32.1.1.3 Employment

In addition to positive economic benefits, the Project will provide significant employment, education, and training opportunities to local and regional communities, including Aboriginal peoples. Unemployment rates in some of the communities nearest to the Project—Gingolx (unemployment rate of 47%) and Gitanyow (unemployment rate of 57%), for example—are well above the provincial average of 6%. By creating new employment opportunities, the Project will contribute to the provincial government's strategy for the mining industry (BC MEM 2012) and the *BC Jobs Plan* (Government of British Columbia 2012).

During construction, the economic impact model (Section 20.7-1; Appendix 20-B) predicts a total of approximately 1,497 person-years of direct, indirect, and induced employment for residents of the region, and a total of approximately 31,094 person-years for BC residents. Averaged over the five-year duration of the phase, the average number of jobs over any one year is approximately 272 for the region and 5,653 for BC.

During operation, a total of approximately 21,810 person-years of employment is predicted for residents of the region, and a total of approximately 194,313 person-years for BC residents. Averaged over the 51.5-year duration of the phase, the average number of jobs over any one year is approximately 423 for the region and 3,773 for BC.

32.1.2 Purpose of the Project

The purpose of the KSM Project is to undertake sustainable mineral extraction activities in alignment with the goals of responsible resource development, as stated in the *Economic Action Plan 2012* (Government of Canada 2012), and to foster economic growth and prosperity in BC, as outlined in *British Columbia's Mineral Exploration and Mining Strategy* (BC MEM 2012).

As defined in the World Commission on Economic Development's 1987 Bruntland Report, sustainable development denotes "those paths of social, economic and political progress that meet the needs of the present without compromising the ability of future generations to meet

their own needs" (World Commission on Environment and Development 1987). The Proponent recognizes the interconnectedness of social, economic, and environmental sustainability, and is committed to the safety and well-being of personnel and surrounding communities, environmental stewardship, and community engagement while sustaining a profitable business. The Proponent is also a member of the Mining Association of British Columbia, the first provincial mining association to adopt Towards Sustainable Mining principles, developed by the Mining Association of Canada. Towards Sustainable Mining provides a standard that members must adhere to for good performance in mining, including corporate social responsibility, following and reporting on sustainability performance indicators, and undergoing external verification (Mining Association of Canada 2011b).

The KSM Project is also being developed under strict regulations and best practices guidelines, where performance measures and environmental indicators—such as those relating to wildlife, fisheries, heritage, and water quality—measure and report on the sustainability of the Project. The implementation of standards and objectives is aimed toward maximizing the benefits of the Project while minimizing any costs to environmental and socio-economic systems, so as to ensure responsible resource development.

32.2 Alternatives to the Project

The alternatives to the proposed project are defined as "the functionally different ways to meet the project need and achieve the project purpose" (CEA Agency 2007).

Three alternatives to developing the KSM Project as proposed were identified:

1. not undertaking the Project;
2. changing the location of the Project; and
3. changing the timing of the Project.

These alternatives are considered in Sections 32.2.1, 32.2.2, and 32.2.3.

32.2.1 Not Undertaking the Project

Two justifications for not undertaking the Project according to its stated needs and purpose were identified: 1) finding the Project to be economically, socially, or environmentally unfeasible; or 2) finding that a competing land use deemed more valued and appropriate by the Proponent, government, and/or parties affected by the Project has been put forward.

32.2.1.1 Economic, Social, and Environmental Feasibility

Prefeasibility analysis conducted by Tetra-Tech Wardrop (presented in Appendix 4-C) determined that the KSM Project is technically and economically viable. Key commercial assumptions used in the prefeasibility economic analysis developed for the Project by Tetra Tech-Wardrop (2012) are presented in Appendix 4-C. Information related to economic feasibility is presented above in Section 32.1.1.1. As stated in Section 32.1.1.1, this feasibility is likely to remain sustainable over the Project life based on economic projections, such as predicted growth and development in China and other emerging markets in the long term. Moreover, the Project

itself will contribute beneficial economic opportunities to both local and regional communities in close proximity to the Project through the direct provision of goods and services, induced economic benefits through the establishment of support services to the mining industry, and finally, through increased tax revenues both provincially and federally.

In addition, the information contained in this Application for an Environmental Assessment Certificate/Environmental Impact Statement (Application/EIS) suggests that mining will be an appropriate land use for the area. As discussed in Section 20.3, the objectives of the Cassiar Iskut-Stikine Land and Resource Management Plan (BC ILMB 2000), the Nass South Sustainable Resource Management Plan (BC MFLNRO 2012), and the Official Community Plans for Terrace and Smithers (City of Terrace 2002; Town of Smithers 2009) indicate that resource developments like the KSM Project align with management plans for the area. Beneficial social effects of the Project will also be experienced by local and regional communities in the area, including increased access to high paying job opportunities and targeted education and training opportunities, in particular for Aboriginal peoples.

The key findings of the Application/EIS indicate that the majority of predicted environmental adverse effects are of minor consequence, and able to be mitigated through the implementation of standard operating procedures, best management practices, and monitoring programs to ensure mitigation has been implemented (see Chapter 26, Summary of Proposed Environmental Management Plans, for a review of the environmental management and monitoring plans in place for the Project). Although there are a number of not significant (moderate) effects identified for various assessment topics, including surface water quality, fish and aquatic habitat, wetlands, moose, and mountain goat, extensive mitigation, management, and monitoring measures (Chapter 26), as well as follow-up programs (Chapter 38) have been developed to address these effects (i.e., monitoring the effectiveness of compensation works for fish habitat loss and wetlands, and proactively identifying any adverse effects as a result of the Project for the other assessment areas). Overall, the only significant effects identified for the Project are a potential cumulative residual effect on moose (Chapter 18), primarily driven by the pre-existing context of moose population declines due to pressures external to the Project, and two residual cumulative effects on community well-being specifically for the town of Stewart, BC related to indirect effects of traffic on safety and emissions (Chapter 22). However, as described below, these significance findings only pertain to a particular scenario relating to the level of project development activities in the Project region.

As discussed in Chapter 18, the significance finding for moose is associated with an "unlikely development scenario" in which all currently planned/proposed projects in the regional area proceed, creating more traffic that would result in a higher incidence of vehicle-wildlife collisions. This high development scenario has a lower chance of happening than the "likely development scenario" that is associated with less development and traffic, in which case the effect on moose is predicted to be not significant (moderate). In order to address the uncertainty associated with potential cumulative effects on moose, a follow-up program (Chapter 38) has been devised to monitor and implement adaptive management to address any effects on moose over the life of the Project.

Similar to the situation for moose, the significant effects on well-being for the town of Stewart related to traffic accidents and emissions (noise and exhaust) are only predicted in the "unlikely development scenario" where all potentially planned projects and activities in the region go forward (Chapter 22). In the "likely development scenario", where not all projects and activities go forward, traffic and its indirect emissions and safety effects would be less; in this case it is anticipated that the residual effects on well-being would be not significant (moderate) for emissions, and not significant (minor) for accidents. In addition, the overall residual effects on well-being from the Project (including all potential residual effects for all areas) are anticipated to be not significant (moderate) for the "unlikely development scenario" and not significant (minor) for the "likely development scenario".

On balance—given the favourable economic benefits created by the Project, coupled with the alignment of the Project with existing land use management directives, and environmental and social effects that have largely been addressed through extensive mitigation to avoid, control, reduce and compensate for the predicted residual effects from Project design through to adaptive management and follow-up programs—it is deemed that there are no compelling reasons to halt the development of the Project, as the net benefits are anticipated to outweigh the net costs to economic, human, and environmental systems.

32.2.1.2 Potential Land Use Alternatives

The environmental and economic assessment of the KSM Project indicates that the Project will be able to fulfill its stated need and purpose, resulting in beneficial sustainable and responsible resource development in the region. For this reason, it is the view of the Proponent that mining the KSM deposits is the best use of the property.

32.2.2 Changing the Location of the Project

The proposed KSM Project involves mining the in-situ Kerr, Sulphurets, Mitchell, and Iron Cap deposits. Due to the fixed positions of these ore bodies, mining activities can only be carried out at these locations. The relatively low grades of the ore deposits, the large scale of the Project, and the long distance from extant milling facilities renders the option of transporting ore to an existing milling location technically and economically unfeasible.

The remaining alternatives are to situate the milling facility and the Tailing Management Facility at the Mine Site or at a nearby location. The Tailing Management Alternatives Assessment (Section 33.5 and Appendix 33-B) presents a Multiple Accounts Analysis conducted to select the location of the Processing and Tailing Management Area, containing both the Tailing Management Facility and the Treaty Process Plant. The result of this assessment and supporting sensitivity analyses was that, on all accounts (i.e., environmental, technical, economic, and social performance objectives), the preferred location of the Processing and Tailing Management Area is within the upper tributaries of South Teigen and North Treaty creeks. Chapter 33 presents a detailed discussion of the Tailing Management Facility and other Project alternatives.

32.2.3 Changing the Timing of the Project

The two timing alternatives for developing the KSM Project are: 1) to mine the deposits in the near term as proposed; or 2) to delay Project development until a later date.

The KSM deposits contain significant low-grade gold mineralization, the extraction of which has not been economically feasible until recent increases in gold and other commodity prices. The high initial capital expenditures (CAPEX) involved in the Project need to be recouped within the first few years of the Project in order to reduce the Proponent's economic risk to acceptable levels. The conservative estimates for mineral prices used in the Project economic feasibility assessment (Section 32.1.1.1; see Appendix 4-C, Tetra Tech-Wardrop 2012) make the Project feasible based on the start date and time projections presented in this Application/EIS. Delaying the Project introduces the risk that gold prices will decline, presenting challenges to the Project to recoup CAPEX. Section 33.4 (Mine Production Rates and Development Schedule) presents further information on Project timing. The option of delaying the Project is considered to be too risky in light of commodity price volatility, and therefore, unfeasible. Near-term development is the preferred and only time considered to be viable for executing the Project.

References

1992. *Canadian Environmental Assessment Act*, SC. C. 37.

BC EAO. 2011. *Application Information Requirements*. Approved by the British Columbia Environmental Assessment Office: Victoria, British Columbia.

BC ILMB. 2000. *Cassiar Iskut-Stikine Land and Resource Management Plan*. British Columbia Integrated Land Management Bureau. http://ilmbwww.gov.bc.ca/slrp/lrmp/smithers/cassiar/index.html (accessed April 2010).

BC MEM. 2012. *British Columbia's Mineral Exploration and Mining Strategy*. British Columbia Ministry of Energy and Mines: Victoria, BC.

BC MFLNRO. 2012. *Nass South Sustainable Resource Management Plan*. http://www.ilmb.gov.bc.ca/slrp/srmp/south/nass/index.html (accessed November 2012).

CEA Agency. 2007. *Operational Policy Statement Addressing "Need For," "Purpose Of," "Alternatives to" and "Alternative Means" under the Canadian Environmental Assessment Act*. Canadian Environmental Assessment Agency: Ottawa, ON.

City of Terrace. 2002. *Terrace Official Community Plan: An Update*. June 2002:

Deloitte. 2012. *Tracking the Trends 2012* http://www.deloitte.com/view/en_CA/ca/industries/energyandresources/mining/2faf991e35ad3310VgnVCM3000001c56f00aRCRD.htm (accessed September 2012).

Government of British Columbia. 2012. *Canada Starts Here: The BC Jobs Plan*. Government of British Columbia: Victoria, BC.

Government of Canada. 2012. *Economic Action Plan 2012*. http://www.budget.gc.ca/2012/plan/pdf/Plan2012-eng.pdf (accessed October 2012).

International Molybdenum Association. 2012. *Molybdenum Market Information*. http://www.imoa.info/molybdenum/molybdenum_market_information/molybdenum_market_information.php (accessed January 2013).

Mining Association of Canada. 2011a. *F&F 2011: Fact$ & Figure$ of the Canadian Mining Industry*. West Coast Editorial Associates / Wet Frog Studios: Victoria, BC.

Mining Association of Canada. 2011b. *Towards Sustainable Mining - Home Page*. http://www.mining.ca/site/tsmprogressreport2011/index.html (accessed October 2012).

Mining Association of Canada. 2012. *F&F 2012. Facts & Figures of the Canadian Mining Industry*. http://www.mining.ca/www/media_lib/MAC_Documents/Publications/2013/Facts%20and%20Figures/FactsandFigures2012Eng.pdf (accessed June 2013).

Pricewaterhouse Coopers. 2011a. *Economic Impact Analysis*. Prepared for the Mining Association of British Columbia by Pricewaterhouse Coopers: Vancouver, BC.

Pricewaterhouse Coopers. 2011b. *Forging Ahead: The Mining Industry in British Columbia 2011*. Pricewaterhouse Coopers: Vancouver, BC.

Pricewaterhouse Coopers. 2012. *Mine: The growing disconnect - review of global trends in the mining industry 2012*. Vancouver, British Columbia.

Pricewaterhouse Coopers. 2013. *Stay the Course: the Mining Industry in British Columbia 2012*. http://www.pwc.com/ca/en/mining/publications/pwc-mining-survey-bc-2013-04-en.pdf (accessed June 2013).

Tetra Tech-Wardrop. 2012. *2012 KSM (Kerr-Sulphurets-Mitchell) Prefeasibility Study*. Prepared for Seabridge Gold Inc. by Wardrop Engineering: Vancouver, BC.

The Silver Institute. 2012. *Supply and Demand*. http://www.silverinstitute.org/site/supply-demand/ (accessed January 2013).

Town of Smithers. 2009. *Official Community Plan*. http://www.smithers.ca/uploads/town/pdfs-general/ocp-zoning/ocp-review-2008/Official_Community_Plan_Bylaw_No._1614.pdf (accessed May 2010).

World Commission on Environment and Development. 1987. *Our Common Future (the Brundtland Report)*. Oxford, UK: Oxford University Press.

World Gold Council. 2012. *Demand and Supply Statistics*. http://www.gold.org/investment/statistics/demand_and_supply_statistics/ (accessed January 2013).