

20 Economics

This chapter summarizes economic baseline studies, describes the economic setting of the KSM Project (the Project), and assesses the potential effects of the Project on provincial, regional, and local economies. This includes consideration of predicted employment and income effects, as well as potential business and economic development opportunities. Project contributions to federal and provincial government tax revenues are also estimated. The potential effects on employment considers the opportunities and benefits to Aboriginal and non-Aboriginal communities. Business opportunities and economic development includes the potential for benefits to local businesses and the overall growth and development of the local and regional economy.

20.1 Economic Setting

Description of economics includes economic activity and sectors, population and labour force, and employment and income at the local, regional, and provincial levels. Further details on the economic setting of the Project are provided in the *2012 Economic Baseline Report* ([Appendix 20-A](#)). Social aspects of the existing human environment related to the economic setting are described in the *2012 Social Baseline Report* ([Appendix 22-A](#)).

20.1.1 Study Areas

British Columbia (BC) is included as a study area due to the expected effects of the Project on the provincial economy. Employment and business impacts may occur across the province, both in local northern communities and in southern regions where there is an existing high population and business base, such as the Lower Mainland area.

A regional study area (RSA) is included due to the distinct socio-economic character of northwestern BC and the region's dependency on natural resources for economic development. The RSA includes two administrative regions: the Regional District of Kitimat-Stikine (RDKS), and Electoral Area A of the Regional District of Bulkley-Nechako (RDBN; Figure 20.1-1). The region's reliance on mining and forestry activities distinguishes the RSA from other areas of the province.

The local study area (LSA) is focused on communities located within the RSA and in proximity to the Project (Figure 20.1-2). The communities were also selected by considering the communities' expected roles in Project construction and operation (e.g., labour and supply of goods and services). Communities included in the LSA are municipalities, Nisga'a villages, Indian reserves, and unincorporated settlements. Municipalities include the City of Terrace, Town of Smithers, District of Stewart, Village of Hazelton, and District of New Hazelton. The Nisga'a communities include the villages of Gitlaxt'aamiks (New Aiyansh), Gitwinksihlkw (Canyon City), Laxgalts'ap (Greenville), and Gingolx (Kincolith). Populated Indian reserves include: Gitanyow 1, Telegraph Creek 6 and 6A, Guhthe Tah 12, Dease Lake 9, and Iskut 6. Unincorporated communities in the LSA include Dease Lake, Bell II, Meziadin Junction, and Bob Quinn Lake.

Table 20.1-1 provides the rationale for including each community for this study.

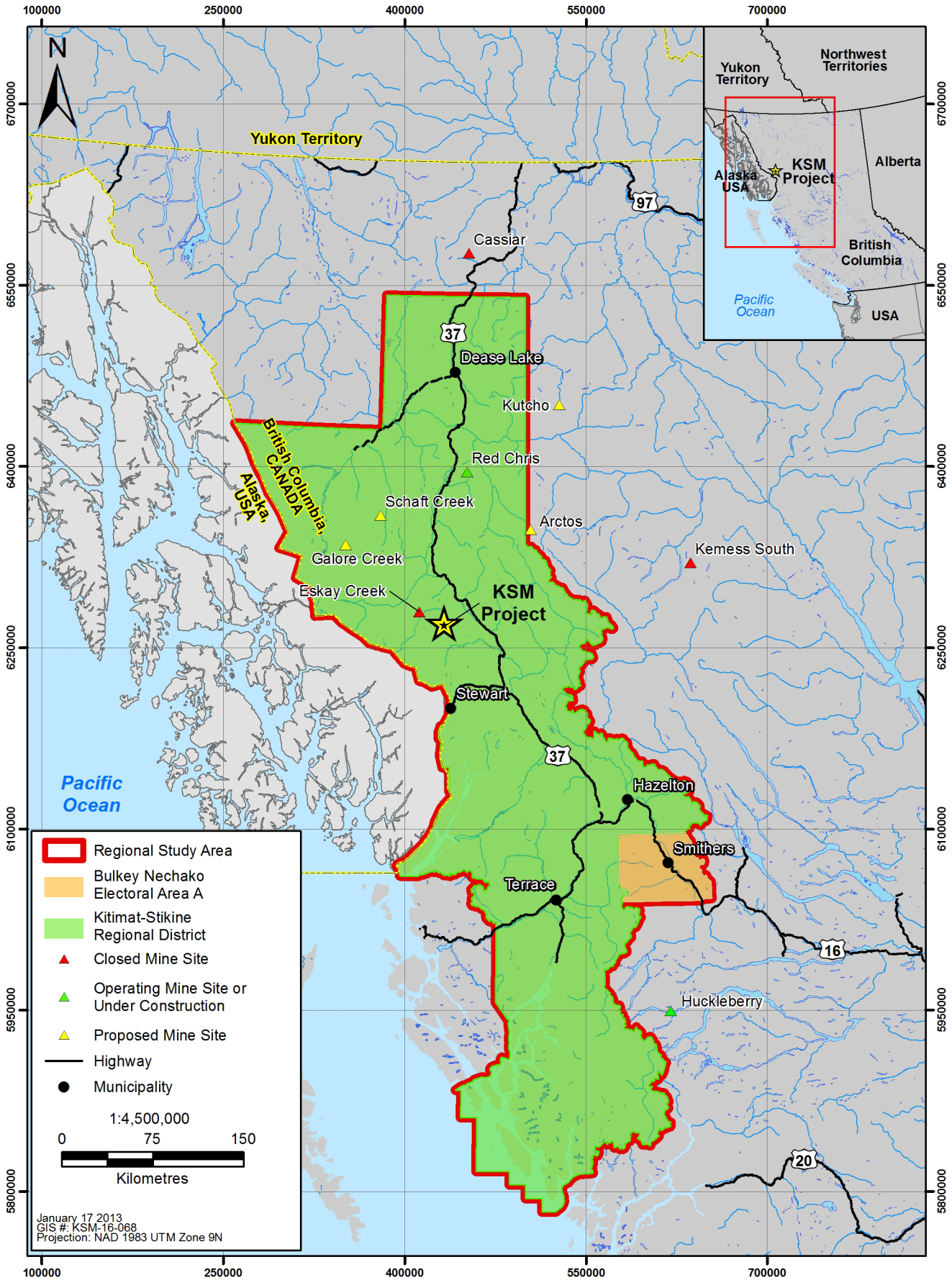
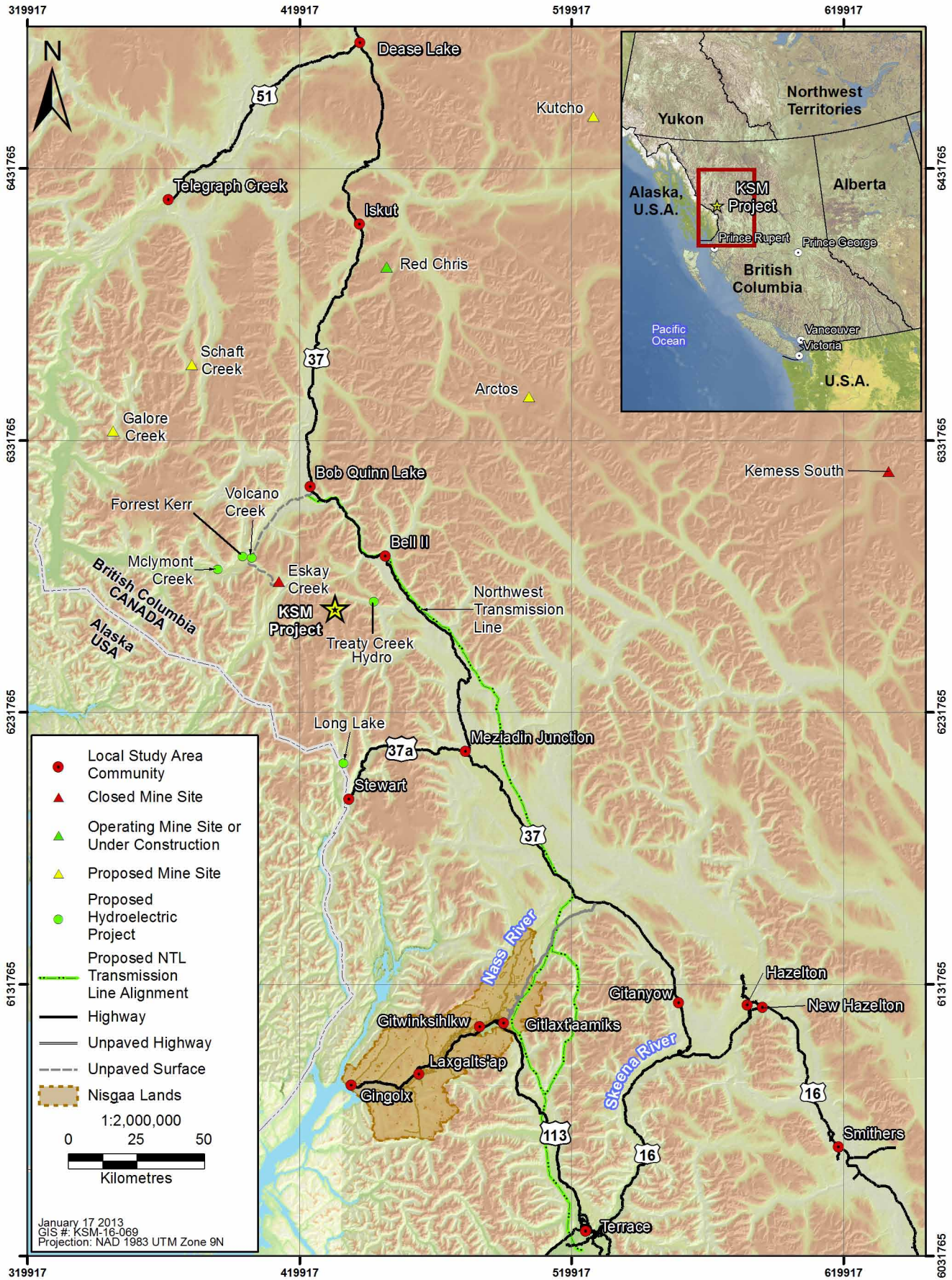


Figure 20.1-1



- Local Study Area Community
- ▲ Closed Mine Site
- ▲ Operating Mine Site or Under Construction
- ▲ Proposed Mine Site
- Proposed Hydroelectric Project
- Proposed NTL Transmission Line Alignment
- Highway
- Unpaved Highway
- - - Unpaved Surface
- Nisgaa Lands

1:2,000,000

0 25 50

Kilometres

January 17 2013
 GIS # KSM-16-069
 Projection: NAD 1983 UTM Zone 9N

Social and Economic Local Study Area Communities

Figure 20.1-2

Table 20.1-1. Definition of Assessment Areas

Study Communities	Rationale
Province	The Project will provide employment, income, Gross Domestic Product (GDP), and tax revenue benefits to the province.
Regional Study Area	
Regional District of Kitimat-Stikine (RDKS) and Electoral Area A of the Regional District of Bulkley-Nechako (RDBN).	The Project will source workers, supplies, services, and other requirements from within northwestern BC. Employment, income, and GDP impacts from the Project are expected across this region.
Local Study Area Communities	
Nisga'a Nation (Gitlaxt'aamiks, Gitwinksihlkw, Laxgalts'ap, and Gingolx)	Nisga'a communities may provide labour, goods, and services for the Project. Certain Project components fall within the Nass Area as defined by the Nisga'a Final Agreement.
Tahltan Nation (Telegraph Creek 6 and 6A, Guhthe Tah 12, Dease Lake 9, and Iskut 6)	The communities of Iskut 6, Dease Lake 9, and Telegraph Creek 6 and 6A (including Guhthe Tah 12) are where the majority of Tahltan members reside and among the closest settlements to the Project. They are expected to be sources of labour, goods, and services (as they were for the closed Eskay Creek Mine).
District of Stewart	Concentrate from the Project will be trucked from the Project site along Highway 37 and 37A to the Port of Stewart and then shipped to overseas markets. Stewart is expected to provide labour and goods and services for the Project.
Gitanyow First Nation (Gitanyow 1)	Gitanyow members may provide labour and services for the Project. The proposed concentrate haul route passes through the Gitanyow traditional territory.
Village of Hazelton, District of New Hazelton	These communities may provide labour, supplies, and service for the Project. The Hazelton area communities are where most of the Skii km Lax Ha and many Gitksan members reside and from which they draw economic activities. Certain Project components fall within or adjacent to an area claimed by the Skii km Lax Ha. The proposed haul route along Highway 37 passes through the Skii km Lax Ha traditional territory.
Town of Smithers and City of Terrace	Smithers and Terrace are the primary service centres for the region. As two of the largest communities in northwestern BC, these communities will likely provide some of the Project's labour, supplies, and services. Smithers and Terrace will also serve as a transportation hub for workers.
Unincorporated communities Dease Lake, Bell II, Meziadin Junction, and Bob Quinn Lake	These communities are expected to be a source of labour, goods and services for the Project. Project traffic will pass by Meziadin Junction and Bell II. The Bob Quinn Lake airport may be used to transport materials and people during Project construction and operation.

20.1.2 Data Collection and Information Sources

Information on the economic setting is based on desk-based research and field interviews undertaken between May 2008 and August 2012. The desk-based research relied on publicly available information, including statistics, and other data from provincial, regional, local, and

Aboriginal governments and organizations. Other data included published and unpublished reports, media analyses, and information from public involvement activities during the environmental assessment. Indicators were determined by the scope of the analysis and the defined study areas. Availability and reliability of information and data were also considered.

Primary research was conducted to fill data gaps that remained after the collation and analysis of existing information and data. Data were gathered through telephone and face-to-face interviews, and focus groups with municipal, regional, provincial, and Aboriginal service providers, community organizations, individuals, and community economic development officers.

20.1.2.1 Data Limitations

Statistical information, particularly for the smaller communities, is often limited. This is caused in part by confidentiality concerns regarding published data in small communities, and in part because information sources typically available for larger centres simply do not exist. In the absence of pre-existing quantitative and qualitative studies, some sections rely on the contextual information for the wider region and anecdotal evidence from community professionals and authorities with first-hand knowledge of the communities. In these cases, attempts have been made to verify opinions and anecdotes through triangulation with other sources and interviews. Remaining contrasting evidence is noted in the text.

20.1.2.2 Quantitative

A variety of local, regional, provincial, and federal data were used to develop this report. These statistics often relied on a common source: Statistics Canada's 2001, 2006, and 2011 census data (Statistics Canada 2002, 2007b, 2012b). For example, BC Stats employs Statistics Canada census data for analysis and projects, as do other provincial, municipal, and academic sources of data. Further, much of the economic data have been aggregated because communities in the LSA are small. The aggregation process may mask differences between the communities. In these cases, it is difficult to cross-check data.

Outdated data are another concern. Data from the 2011 census focused on a narrower range of topics. As a result, 2011 economic-related data are not available, particularly at the community level. There have also been global and national economic changes since 2006 census data were compiled. Therefore, caution must be employed when drawing conclusions about the RSA and LSA communities' current characteristics and outlooks. Additional information sources, such as data from the Institute of Chartered Accountants of BC (ICABC), help address certain gaps, particularly at the regional level, though the data may not be fully comparable to 2006 data (ICABC 2012).

Data inconsistencies also emerge with respect to the regional area of the province, including areas defined by regional districts, municipalities, economic development regions, and land management planning. These various administrative and legal boundaries rarely coincide with one another, and have also changed over time.

Finally, the availability of information varies for each community and is lacking for some communities. For instance, the municipalities of Terrace, Smithers, and Stewart have a good

level of economic-related information compared to unincorporated areas such as Dease Lake, which until recently had no local governing bodies mandated to collect data.

20.1.2.3 Qualitative

To address data gaps and limitations, statistical data were supplemented with information gathered from interviews with key professionals, leadership, residents, and service providers in the communities. Wherever possible, information from interviews was cross-checked for validity and reliability. Efforts have been made to consolidate and verify data from a variety of sources, on a variety of scales, and with a variety of focuses.

As previously noted, there are notable limitations to statistical data, particularly in smaller communities, that would normally be complemented with qualitative data derived from community-based collaborative research involving local community members. All potentially affected Aboriginal groups were invited to participate in the economic baseline study and provided opportunities to review desk-based research. Aboriginal groups elected to participate to varying degrees. Information on the Tahltan Nation and the Skii km Lax Ha is limited to what was available and/or accessible at the time of writing due to the lack of participation in community interviews.

20.1.3 The Provincial Economy

20.1.3.1 Overview

BC comprises 13.3% of the national population and is currently the third most populous province in Canada (Statistics Canada 2012d). The provincial population in 2012 was estimated to be 4,622,573, a 13.4% increase from 2001 (Table 20.1-2; BC Stats 2012f). The total population 15 years of age and over comprised 3,938,472 persons. Population growth in recent decades has been driven largely by immigration, particularly from Asia (BC Stats 2006). Approximately five percent (4.8%) of the provincial population identified as Aboriginal when these data were last reported in 2006 (Statistics Canada 2010).

Table 20.1-2. British Columbia Population (2001 to 2012)

2001	2006	2012	% Change (2001 – 2012)
4,076,264	4,243,580	4,622,573	13.4%

Source: BC Stats (2012f).

BC has historically relied on natural resource industries. Over the course of the last few decades, the provincial economy has increasingly diversified. Although natural resource industries remain important in the local economy, the balance has shifted to include value-added manufacturing and services. Employment in sectors such as forestry, fishing, mining, and oil and gas has mirrored this shift, falling from 3.3% of the provincial labour force¹ in 1990 to 1.8% in 2011 (BC Stats 2012b). However, this trend may be reversing as the number of people employed

¹ Labour force is the total number of persons either employed or unemployed (Statistics Canada 2010).

provincially in natural resources has notably increased in recent years. From September 2011 to September 2012 alone, employment in natural resources increased by approximately 25% (Statistics Canada 2012c).

20.1.3.2 Economic Sectors in British Columbia

BC’s economy is responsible for approximately 12.6% of Canada’s Gross Domestic Product (GDP; BC Stats 2012a), with the goods and services sectors each representing 24% and 76% of provincial GDP respectively (Table 20.1-3). Service demand continues to increase as populations in southern BC grow. In 2011, BC’s employed workforce consisted of nearly 2.3 million workers, of which over 80% was employed in the services sector (Table 20.1-3). Because the KSM Project is a mining operation, the following section focuses on the goods sector, including mining.

Table 20.1-3. Contribution of Resource Industries to the British Columbia Economy, 2011

Sector or Industry	Number of People Employed 2011	Percent of Total Employment 2011	BC GDP 2011 (million \$)*	Percent of Total GDP 2011
Manufacturing	163,900	7.2%	13,562	8.6%
Construction	204,600	8.9%	10,323	6.6%
Mining, Oil and Gas Extraction	24,700	1.1%	4,873	3.1%
Utilities	12,800	0.6%	3,219	2.0%
Forestry and Logging	14,000	0.6%	2,797	1.8%
Agriculture	26,100	1.1%	1,128 (crop and animal production)	0.7%
Fishing, Hunting, and Trapping**	1,900	0.09%	n/a	n/a
Total (Goods Sector)	447,400	19.7%	37,466	23.8%
Total (Services Sector)	1,827,200	80.3%	120,785	76.6%
Provincial Total (all industries)	2,274,700	100%	157,525	100%

*GDP expressed in millions of chained 2002 dollars

**2010 data (2011 data unavailable)

Note: Column totals may not sum due to rounding error and the need to disregard several smaller data categories that were aggregated across industries.

Source: BC Stats (2012a, 2012b).

20.1.3.3 Goods Sector

Both primary extractive and harvesting industries (mining, forestry, fishing, and agriculture) and secondary manufacturing industries (construction, utilities, and food/wood/metal product manufacturing/processing) are components of the goods sector. In 2011, the goods sector provided one in five jobs (approximately 19.7%) in the province (Table 20.1-3), a significant decrease from the 1970s when the sector accounted for one in three jobs. Nevertheless, the sector consistently contributes more to the provincial GDP than its relative share of provincial

employment due to higher levels of efficiency and productivity (e.g., use of machinery and equipment) and a greater number of average hours worked (BC Stats 2010c).

The proportion of the goods sector to provincial GDP has declined since the 1980s. Resource-based industries, however, continue to play an important role in BC's economy and provide an important source of employment, more so in the province's northern communities. Forestry (wood, pulp, and paper) and energy products continue to be the province's main exports, each respectively representing slightly over 30% of total exports in 2011 (BC Stats 2012d). Mining (excluding oil and gas) contributed approximately \$1.09 billion² (0.7% of total GDP) to the provincial GDP in 2011 (BC Stats 2012a). Support activities for mining and oil and gas extraction³ contributed an additional \$683 million⁴ (BC Stats 2012a).

20.1.3.4 Mining

Mining has been an important component of the provincial economy for over 150 years. In recent years, both northwestern and northeastern BC have experienced a significant boom in exploration and mining activities. Strong market demand—particularly from Asia—and buoyant mineral prices have attracted considerable investment in exploration, helping to position BC as potentially a globally important source of production. Despite the localized and frequently isolated nature of mining and exploration activities, the economic effects are felt provincially through direct and indirect job creation, economic spin-offs, and tax revenues (IPGDC and NDIT 2009).

Two recent reviews of the BC mining industry (PricewaterhouseCoopers 2011, 2012) included the participation of at least 40 mining companies (each year) and highlighted an industry rebound from the global slowdown in 2008/2009. Gross mining revenues were \$9.9 billion in 2011, up from \$7.9 billion in 2010, an increase of 25%. This recovery was mainly explained by high mineral prices, in particular coal prices, and increased coal shipments. Net income (before taxes) increased from \$2.2 billion in 2009 to \$3.7 billion in 2010, and remained steady at \$3.7 billion in 2011. This represented a reversal from the \$1.0 billion decrease in net income between 2008 and 2009. Mineral production in BC was worth \$8.6 billion in 2011 (BC MEMPR 2012b). At the end of 2011, there were 10 metal, 11 coal, and 32 industrial mineral mines, as well as hundreds of quarries, in operation across BC. These numbers increased slightly from 2010 totals. Two mines opened and two mines were under construction in 2011. A total of 211 exploration projects were underway throughout BC in 2011, the same amount as there were in 2010, although 44% fewer than in 2009 (BC MEMPR 2012b).

The value of BC mineral production (excluding oil and gas) was approximately \$8.6 billion in 2011, about 20% more than its 2010 value (\$7.1 billion). Coal was the main mineral extracted, representing approximately 66% (\$5.7 billion) of the total value of BC solid mineral production, followed by copper, which accounted for 18% or \$1.5 billion (BC MEMPR 2012a). In 2011, gold production was valued at approximately \$128 million (1.5% of total mineral production)

² Chained 2002 dollars.

³ Numbers for mining support activities alone are not available.

⁴ Chained 2002 dollars.

and silver at \$66 million (0.8% of total mineral production; BC MEMPR 2012a).⁵ While the metals sector exhibited a significant slowdown during 2009 and a subsequent rebound in 2010, coal production and mineral exploration remained strong over 2009 (BC MEMPR 2012a). Mineral exploration expenditures have increased from \$154 million in 2009 to \$463 million in 2011, whereas capital expenditures increased by 135% over 2010, from \$1.25 billion to \$2.94 billion (BC MEMPR 2012b). Projects under construction accounted for almost \$1 billion of the total capital expenditures (PricewaterhouseCoopers 2012).

Employment in BC's mining, oil, and gas industries has trended upwards since 1987; however, there were dips in employment in the early 1990s and in the first few years of the new millennium. In 2003, the industry and support activities employed 13,100 people, rising to 25,400 in 2008. In 2009, 24,200 individuals were employed in the industry, 6% fewer from the previous year, most likely due to the recession, with employment rebounding to 24,700 workers in 2011 (BC Stats 2012b). Approximately 90% of workers in the oil, gas, and mining industries are male (Horne 2009a).

A significant proportion (33%) of mining industry jobs, including miners, drillers, and mining equipment operators, are unique to primary industries. Employment in trades, transportation, and equipment operations was also common (38%). Mineral exploration and manufacturing activity employment (e.g., refining, smelting, processing) more than doubles the total number of jobs in the industry when also taken into account (BC Stats 2010c).

20.1.4 Regional Study Area

20.1.4.1 Overview

The RSA is isolated from major population, government, and business centres within the province, and most communities within the region are generally dispersed and isolated from one another. There are a number of relatively small, predominantly Aboriginal communities, most of which are located along Highway 37 and near Highway 16 (Figure 20.1-2.). The larger centres of Smithers and Terrace provide goods and services to much of the region. Transportation and communication options are limited, and long travel distances are often required to reach service centres.

The RSA has historically relied on primary resource industries for economic and employment opportunities. Today, the mining industry continues to represent an important source of employment in the RSA, supplying an estimated 30% of jobs along the Highway 37 communities in recent years (Bridges and Robinson 2005). There is currently one operating mine in the region: Huckleberry, which produces copper, gold, silver, and molybdenum, and is expected to operate until 2021. There are two mines that have recently closed: Kemess South and Eskay Creek.

⁵ The production value of molybdenum in BC for 2011 is not publically reported.

20.1.4.2 Population

The RSA's population in 2011 was approximately 42,752 (Statistics Canada 2012a). The population has generally declined over the past decade or more, largely due to the loss of jobs, particularly among non-Aboriginal communities. Stewart, for instance, has experienced the greatest decrease in size with its population dropping over 42% between 1996 and 2011 (Statistics Canada 2002, 2012b). The populations of Smithers and Terrace, the RSA's largest centres, have also been declining, albeit at lower rates of 3.9% and 10.1%, respectively⁶.

Overall, the RSA experienced an average drop in population of 13% between 1996 and 2011 (Table 20.1-4), with the rate of decline lessening between 2006 and 2011 (Statistics Canada 2002; BC Stats 2012f; Statistics Canada 2012b). The reduced rate, and potential reversal, of population loss in the region may be due to the level of economic activity in the RSA over the last five years, as well as the anticipated near and mid-term growth due to recent private and government investments in natural resources and utilities.

Table 20.1-4. Regional Study Area Population (1996 to 2011)

	1996	2001 (% change from 1996)	2006 (% change from 2001)	2011 (% change from 2006)	Aboriginal Identity, 2006 (% of population)
RDKS	43,618	40,876 (-6.3%)	38,476 (-7.0%)	37,361 (-2.9%)	12,275 (32%)
Electoral Area A (BNRD) ¹	5,573	5,696 (+2.2%)	5,290 (-7.1%)	5,391 (+1.9%)	470 (9%)
Total Regional	49,191	46,572 (-5.4%)	43,766 (-6.1%)	42,752 (-2.4%)	12,745 (29.1%)
British Columbia	3,724,500	3,907,738 (+4.9%)	4,113,487 (5.3%)	4,400,055 (+7.0%)	196,070 (4.8%)

¹ Geographic area boundaries for both the RDKS and Electoral Area A of the RDBN changed between 1996 and 2011. In order to facilitate comparison, Statistics Canada adjusted the Census population counts as required. Sources: Statistics Canada (1997, 2002, 2007b, 2012a); BC Stats (2011).

20.1.4.3 Aboriginal Population

Aboriginal peoples have a physical, cultural, and historical presence throughout the RSA. The RSA is further typified by a high proportion of Aboriginal (Nisga'a Nation and First Nations) residents in comparison with the rest of the province. Most of the smaller communities, as well as those located along Highway 37 and near Highway 16, are predominantly Aboriginal.

In 2006, over 29% of the RSA identified as Aboriginal (Table 20.1-5). Approximately 32% of the RDKS's population and 9% of Electoral Area A of the RDBN identified as Aboriginal, compared with 4.8% provincially (Statistics Canada 2007b; BC Stats 2010a, 2011). According to the most recent census, the total Aboriginal population residing in the LSA communities was approximately 5,052 (Table 20.1-5). Aboriginal Affairs and Northern Development Canada (AANDC) population data from July 2012 were generally comparable, with the exception of Nisga'a Lands, on which an additional 100 residents were reported (Table 20.1-5).

⁶ Both communities, however, saw slight increases in their population between 2006 and 2011, which could indicate a change in the trend.

Table 20.1-5. Regional Study Area Select¹ Aboriginal Population (2001 to 2011)

Aboriginal Group	Statistics Canada Census				AANDC
	2001	2006	2011	% Change (2001 – 2011)	2012
<i>Nisga'a Nation</i>					
Nisga'a Lands ²	1,919	1,919	1,909	-0.5%	2,014
Total membership (on and off Nisga'a Lands)	-	-	-	-	5,904
<i>Tahltan Nation</i>					
Tahltan communities ³	595	654	427	-28.2%	n/a
Total membership (on- and off-reserve)	-	-	-	-	2,487 ⁵
<i>Gitanyow First Nation</i>					
Gitanyow ¹	369	387	383	+3.8%	382
Total membership (on- and off-reserve)	-	-	-	-	802
<i>Gitxsan Nation</i>					
Gitxsan communities ⁴	2,422	2,751	2,333	-3.7%	2,299
Total membership (on- and off-reserve)	-	-	-	-	6,453
Total	5,305	5,711	5,052	-4.8%	15,646

Notes:

¹ The table focuses on Nisga'a Nation and First Nation communities included in the LSA. The RSA includes a number of other First Nations communities not discussed in this report.

² Nisga'a Lands include four Nisga'a villages: Gitlaxt'aamiks, Gitwinksihlkw, Laxgalts'ap, and Gingolx.

³ The Tahltan Nation comprises the Tahltan Indian Band and Iskut First Nation. Tahltan Nation communities include Telegraph Creek 6 and 6A, Guhthe Tah 12, Iskut 6, and Dease Lake 9.

⁴ Gitxsan reserve communities include Gitwangak, Gitsegukla, Gitanmaax, Glen Vowell, and Kispiox. Certain Skii km Lax Ha members reside in Gitxsan communities.

⁵ The Iskut First Nation discontinued the provision of membership information to AANDC in December 2010.

Total membership is estimated based on reported 2012 Tahltan Indian Band membership (1,782) and the Iskut population as last reported in December 2010 (705). Data not available.

Sources: Statistics Canada (2002, 2007b, 2012b); AANDC (2012a).

Notably, a large proportion of the registered population from Nisga'a Nation and First Nations reside outside of the reserves, including elsewhere in the RSA, the province, or further afield. The total member population of these Aboriginal groups, including both off- and on-reserve, is approximately 15,646 (Table 20.1-5).

In contrast to the overall population decline within the RSA, populations in Aboriginal communities grew at a rate of 1.5% annually between 1994 and 2006 (SNDS 2007a). Since 2006, however, Nisga'a Nation, Gitanyow First Nation, and Gitxsan Nation populations have remained relatively stable, whereas the Tahltan Nation population has experienced a notable decline (Statistics Canada 2012b). Table 20.1-5 provides an overview of population figures and recent trends for these Aboriginal groups.

20.1.4.4 Employment and Income

Employment in logging and mining led to the development of most non-Aboriginal communities in the RSA (BC MOFR 2010). These industries remain important employers today, although public administration and tourism have also grown in recent years. Tourism activities, including guide outfitting, hunting, fishing, heli-skiing, and backcountry recreation opportunities, focus on wilderness opportunities and draw tourists from around the world.

The unemployment rate⁷ in 2006 was estimated at 14% within the RDKS, and 6.3% for the RDBN Electoral Area A compared to the provincial figure of 6% (BC Stats 2009b, 2009d). Collectively, this represented a total unemployed population within the RSA of approximately 2,300 residents (10.2%; (BC Stats 2009b, 2009d). By contrast, in 2011, the North Coast Development Region (NCDR) led the province in employment growth (7.2%), with a surge in new business incorporations, and a substantial jump in the value of commercial and residential building permits (ICABC 2012). Last year’s unemployment rate declined to 8.6% in the NCDR, but remains the highest in the province (see Table 20.1-7).

Although current employment data related to gender are unavailable, a large proportion (72%) of the jobs created in 2011 was accessed by youth. This resulted in a notable decline in the rate of youth unemployment, which at 8.3% is both lower than the northwest’s general rate of unemployment and below the provincial average of 11.5% (Table 20.1-6).

Table 20.1-6. Total and Youth Unemployment Rates, North Coast Development Region (2006 to 2011)

Unemployment Rate (%)							
Region	2006	2007	2008	2009	2010	2011	5-year (2006 to 2011)
NCDR	6.8	8.1	7.8	10.6	10.2	8.6	1.8%
British Columbia	4.8	4.3	4.6	7.7	7.6	7.5	2.7%
Youth Unemployment Rate (% age 19 to 24 years)							
NCDR	11.8	12.8	12.1	15.1	23.8	8.3	-3.5%
British Columbia	6.5	6.1	6.8	11.1	11.3	11.5	5.0%

Source: ICABC (2012).

Residents among Nisga’a Nation and First Nations LSA communities are also involved in resource activities (including mining and mineral exploration), as well as construction and tourism. Public administration is typically a major employer within these communities. Nisga’a Nation and First Nations also pursue a wide range of subsistence activities (including hunting and fishing), which contribute economically, socially, and culturally to their households and communities (BC ILMB 2004).

⁷ Unemployment rate is the percentage of the labour force that is unemployed (Statistics Canada 2010).

Using a composite index⁸ of human economic hardship in the 26 Regional Districts in BC, the province in 2011 ranked the RDKS and RDBN as second and eighth worst respectively (BC Stats 2012e). Annual median earnings in 2005 for all residents over 15 years of age, including part-time and seasonal workers in the RDKS and Electoral Area A of the RDBN, were comparable and approximately the same as for the province as a whole (Table 20.1-7). The RSA exhibits a large discrepancy between male and female incomes, with males in 2005 reporting almost 40% more than the median income of females (Table 20.1-7). Earnings from employment comprised between 77.6% and 81.4% of all income, higher than the provincial rate of 75.1%. The share of total income from government transfers was highest in the RDKS at 13.6% (Table 20.1-7).

Table 20.1-7. Regional Study Area Income Characteristics, 2005

Characteristics	RDKS	RDBN Electoral Area A	British Columbia
People 15 years of age and over with income (#)	27,705	4,025	2,392,805
Annual median earnings	\$25,062	\$24,162	\$24,722
Annual full-time median earnings	\$47,395	\$42,509	\$42,230
• Males	\$59,832	\$47,270	\$48,070
• Females	\$36,538	\$33,960	\$36,739
Composition of total income (%)			
• Earnings	77.6%	81.4%	75.1%
• Government transfers	13.6%	9.9%	10.7%
• Other money	8.8%	8.6%	14.2%

Source: Statistics Canada (2007b).

Note: Numbers may not sum due to rounding errors at source.

20.1.4.5 Economic Sectors and Activity

Economic development within the RSA has largely been driven by the area’s abundant natural resources. The value of mining and mineral activities has been a strong component of this, and sustainable mineral development is supported by local government plans and land and resource management plans (BC ILMB 2000, 2004). The area is sometimes referred to as the “golden triangle.” However, lack of infrastructure, isolated communities, and small populations, as well as long winters and long travel distances, have constrained the extent of this development. Communities within the RSA are also susceptible to both sudden and gradual changes in global commodity markets.

The RSA is considered one of the least economically diversified regions of the province with an average Diversity Index (DI) of 61.3 (Table 20.1-8; Horne 2009b). A DI rating represents the level of economic diversification, with a DI of 100 meaning that the community/region is equally dependent on a wide range of sectors. Stewart and Hazelton exhibit the lowest levels of

⁸ The composite index comprises the proportion of the population age 0 to 64 on Income Assistance (IA), the length of time on IA, the proportion of the labour force receiving Employment Insurance (EI), per capita income, income inequality, and net taxes paid.

economic diversification (Table 20.1-8). As such, communities within the RSA are particularly susceptible to changes in global markets. Stewart is an example of a community that has grown and/or shrunk as a result of trends in the mineral industry (Daum 2010).

Table 20.1-8. Regional Diversity Indices

Region	Diversity Index
Kitimat/Terrace	70
Hazelton	57
Stewart	51
Smithers/Houston	67
Regional average	61.3

Source: Horne (2009b).

In 2006, goods sector industries (including primary industries, construction, and manufacturing) accounted for a large proportion of employment in the RSA (31%) compared to the province (21%; Table 20.1-9). Agriculture and other resource-based industries were particularly important in the RDBN’s Electoral Area A (21%), while manufacturing was the main industry within the RDKS, employing 16% of its total labour force. Collectively, manufacturing was the main source of employment (15.1% of the total RSA labour force), followed in order of importance by business services, health care and social services, retail trade, and agriculture and other resource-based industries (Table 20.1-9).

Table 20.1-9. Regional Study Area Labour Force by Industry (2006)

Industry	RDKS	Electoral Area A	Total	BC
Total experienced labour force over 15	19,340	3,190	22,530	2,193,115
Agriculture and other resource-based industries	8.0%	20.9%	9.8%	4.9%
Construction	6.1%	8.1%	6.4%	7.6%
Manufacturing	16.0%	9.3%	15.1%	8.6%
Wholesale trade	1.7%	1.7%	1.7%	4.2%
Retail trade	10.2%	9.2%	10.1%	11.4%
Finance and real estate	3.0%	3.2%	3.0%	6.2%
Health care and social services	11.2%	9.5%	10.9%	9.7%
Educational services	9.3%	7.0%	9.0%	7.0%
Business services	13.2%	12.2%	13.0%	19.9%
Other services	21.4%	18.8%	21.0%	20.6%

Note: Numbers may not sum due to rounding errors at source.

Source: Statistics Canada (2010).

It is anticipated that figures provided in Table 20.1-9 have changed over the last five years and will continue to change because of ongoing business and investment activity in the northwest. The investment value in the NCDR, for instance, grew by 17.1% between 2010 and 2011, totalling approximately \$44 billion (ICABC 2012).

Construction of BC Hydro’s NTL, as well as the Forest Kerr Hydroelectric Project, is anticipated to be completed by 2014 and stimulate additional investment and project development growth in the region. The expansion of the Prince Rupert Port facilities will also lead to increased regional trading activity. In total, 50 capital projects were in the proposal stage last year in the NCDR, primarily in mining, hydro-electric power, wind, wood waste, and infrastructure development (ICABC 2012).

20.1.5 Local Study Area

20.1.5.1 Nisga’a Nation

Nisga’a Nation comprises approximately 5,900 members (Table 20.1-10; Statistics Canada 2007b; AANDC 2012b). A large proportion of Nisga’a Nation citizens (approximately 2,000) reside in four villages within Nisga’a Lands, along the Nass River, approximately 230 km south of the proposed Project: Gitlaxt’aamiks (New Aiyansh), Gitwinksihlkw (Canyon City), Laxgalts’ap (Greenville), and Gingolx (Kincolith). These are included as LSA communities (Figure 20.1-2). Most of the remainder live in one of the northwest’s regional centres of Terrace or Prince Rupert, or in the City of Vancouver.

Table 20.1-10. Nisga’a Nation Community Populations (July 2012)

Community¹	Community Population 2012	Population on Other Reserves	Population off Nisga’a Lands	Total Registered Population
Gitlaxt’aamiks	858	51	906	1,815
Gitwinksihlkw	182	28	182	392
Laxgalts’ap	566	54	1,110	1,731
Gingolx	408	68	1,491	1,966
Total	2,014	201	3,689	5,904

Note:

¹AANDC population data are provided by an administrator from each community on a monthly basis and are based on total membership on and off Nisga’a Lands.

Source: AANDC (2012a).

Populations in two of the four Nisga’a communities have decreased by between 20% and 37% since 1996 (Statistics Canada 2002; AANDC 2012b). Populations in Gitlaxt’aamiks and Gingolx have both increased relative to 1996, although since 2006 Gitlaxt’aamiks has experienced a more recent decline in population to a total of 758 residents. Gingolx’s population increased over 28% relative to 1996 figures, a notable increase that may partly be attributed to the completion in 2003 of a 28-km road connecting the community for the first time to the other three Nisga’a villages (Table 20.1-11). The median age of residents on Nisga’a Lands in 2011 was 35.6 years, an increase of almost 3 years since 2006 (Statistics Canada 2012a).

The public sector provides the majority of employment in Nisga’a villages. Nisga’a Nation business interests are held by the Nisga’a Commercial Group (NCG) created by Nisga’a Lisims Government (NLG) and headed by an independent board and CEO. The NCG’s tourism arm promotes the surrounding wilderness area through a culture and eco-adventure based operation known as Lisims Backcountry Adventures Inc. (NLG 2011). Other Nisga’a companies include

Nisga’a Fisheries Ltd., which sells salmon to local and other markets; Lisims Forest Resources (LFR), which sells both timber and non-timber products (such as pine mushrooms) to various markets; and telecommunications (enTel Communications Inc.; (NLG n.d.). Fisheries is the most important natural resources industry within Nisga’a Lands. Nisga’a Nation has also received financial and contracting benefits related to the construction and operation of the NTL through Nisga’a Lands (BC Hydro 2012).

Table 20.1-11. Nisga’a Villages Population: Statistics Canada Census (1996 to 2011)

Community	1996¹	2001	2006	2011	% Change (1996 – 2001)
Gitlaxt’aamiks	739	716	806 ²	758	+2.6%
Gitwinksihlkw	231	212	201 ²	184	-20.3%
Laxgalts’ap	598	467	474 ²	378	-36.8%
Gingolx	318	339	341 ²	408	+28.3%
Total	1,886	1,734	1,822	1,728	-8.4%
Total Nisga’a Lands	n/a	n/a	1,919	1,909	-

Notes:

¹ Statistics Canada has adjusted 1996 census data as needed to take into account boundary change that occurred between 1996 and 2001.

² Statistics Canada has adjusted 2006 census data as needed to take into account boundary change that occurred between 2006 and 2011.

n/a = data unavailable.

Sources: Statistics Canada (2007a, 2010, 2012a).

A number of retail and service businesses are also present. In their 2006 Labour Market Census, the Skeena Native Development Society (SNDS) reported that 63 businesses were located in Nisga’a villages (SNDS 2007a). These businesses are summarized in Table 20.1-12.

Table 20.1-12. Businesses Located in Nisga’a Villages (2006)

Nisga’a Villages	Privately Owned	Communally Owned	Artists	Total
Gitlaxt’aamiks	12	11	7	30
Gitwinksihlkw	4	1	No Data	5
Laxgalts’ap	6	4	3	13
Gingolx	5	3	7	15
Total	27	19	17	63

Source: SNDS (2007a).

According to the SNDS’s 2006 Labour Market Census, the total active Nisga’a Nation labour force at that time was 973, with the participation rate⁹ for individual communities ranging from 84% to 95% (Table 20.1-13.). Approximately 58% of the total labour force reported being

⁹ Participation rate is the percentage of the population 15 years of age and over that is either employed or unemployed (Statistics Canada 2010).

employed, with Gitwinksihlkw reporting the highest employment rate¹⁰ (82%) and Laxgalts'ap reporting the lowest (46%). Of those employed, 57% reportedly worked full-time, while 26% were seasonally employed and 17% were employed part-time. Seasonal employment, including pine mushroom picking, forestry, and fishing, was lowest in Gingolx (11%) and highest in Laxgalts'ap (36%; SNDS 2007a).

Table 20.1-13. Nisga'a Nation Participation and Employment Rates (Skeena Native Development Society 2006)

Nisga'a Village	Active Labour Force	Employment Rate (%)	Participation Rate (%)	Unemployment Rate (%)
Gingolx	159	52.8	84.1	47.2
Gitlaxt'aamiks	425	62.6	94.9	37.4
Gitwinksihlkw	104	81.7	94.5	18.3
Laxgalts'ap	285	46.0	92.8	54.0
Total	973			

Source: SNDS (2007a).

In comparison, 2006 census data reported a cumulative active labour force of approximately 665 people in three communities, as labour related data from Laxgalts'ap were not available (Statistics Canada 2007b). Participation in the labour force remained relatively high, ranging from 61% in Gingolx to 74% in Gitwinksihlkw (Table 20.1-14), but was notably lower for each village compared to SNDS data (Table 20.1-13). Participation rates were higher than the provincial average of 65.6%, with the exception of Gingolx. Employment rates were also lower than SNDS figures, and varied from a low of almost 33% in Gingolx to 58% in Gitwinksihlkw (Statistics Canada 2007b).

Table 20.1-14. Nisga'a Nation Labour Force Participation and Unemployment Rates (Statistics Canada 2006)

	Gingolx	Gitlaxt'aamiks	Gitwinksihlkw	Laxgalts'ap	British Columbia
Total population 15 years and over	245	605	155	X	3,394,910
In the labour force	61.2% (150)	66.1% (400)	74.2% (115)	X	65.6% (2,226,380)
Participation Rate	61.2%	66.1%	74.2%	X	65.6%
Employment Rate	32.7%	49.6%	58.1%	X	61.6%
Unemployment Rate	46.7%	26.2%	26.1%	X	6.0%

Note:

X = data suppressed.

Source: Statistics Canada (2010).

¹⁰ Employment rate is the percentage of the population 15 years of age and over that is employed (Statistics Canada 2010).

Estimates of unemployment in the four villages from both sources were substantially above the provincial unemployment rate of 6%. The SNDS, for instance, reported unemployment above 37% for all communities, with the exception of Gitwinksihlkw at 18% (SNDS 2007a). Including all four villages, the SNDS estimated that approximately 400 Nisga'a citizens were unemployed in 2006. By comparison, 2006 census data estimated unemployment around 26% in Gitlaxt'aamiks and Gitwinksihlkw, and over 46% in Gingolx (Statistics Canada 2007b).

A weak economic base and the lack of job opportunities were the most common reasons cited for unemployment. Other reasons cited included a lack of education, skills, and training; seasonally restricted employment; limited local funding; nepotism; and lack of incentive due to dependency on social services (SNDS 2007a).

Almost 65% of employment in Nisga'a Lands is provided by the public sector (SNDS 2007a), mostly for the NLG or one of the village governments. Fishing, the most important natural resource industry locally, employed approximately 11.5% of the labour force. Other natural resource industry employment included forestry (3%) and mining (0.7%).

Key industries in most communities included educational services, health care and social services, agriculture, and other resource-based industries, followed by business services and construction. A variety of other services also dominated the industry landscape, accounting for approximately one-third of the labour force (Statistics Canada 2007b).

Due to data suppression, income and earnings statistics from 2005 are only publically available for the two larger Nisga'a communities of Gitlaxt'aamiks and Gingolx (Table 20.1-15). Total median earnings in these two communities for persons over 15 years old, including full-time, seasonal, and part-time workers, is low; median earnings in Gitlaxt'aamiks (\$14,989) and Gingolx (\$8,721) were considerably lower than the provincial figure of \$25,722 (Statistics Canada 2007b). However, earning figures for those working full-year and full-time were notably better. Full-time median earnings in both Gitlaxt'aamiks and Gingolx were approximately \$39,000, higher than the average for BC's Aboriginal population at \$34,600, and only slightly lower than the broader provincial figure of \$42,230. This suggests that where Nisga'a citizens with full-time employment are doing comparatively well, the broader community may need to rely more on non-wage activities and government sources of income in order to meet household livelihood needs. In 2005, earnings comprised between 60% and 78% of resident's income, with government transfers amounting to over 37% in Gingolx as compared to less than 11% for the province (Table 20.1-15).

20.1.5.2 Tahltan Nation

The Tahltan Nation comprises two bands (Tahltan Band and Iskut First Nation) with members living in three communities within Tahltan territory: Iskut, Telegraph Creek¹¹, and Dease Lake (Figure 20.1-2). The Iskut First Nation is based in Iskut, approximately 80 km south of Dease Lake, with its own chief, council, and administration, and has three reserves totalling 107.9 ha.

¹¹ The community of Telegraph Creek includes Telegraph Creek I6, Telegraph Creek I6A, and Guhthe Tah 12

Table 20.1-15. Earnings and Income Data for Select Nisga'a Communities (2005)

Earnings and Income	Gitlaxt'aamiks		
	Total	Male	Female
Annual median earnings	\$14,989	\$12,192	\$18,022
Annual full-time median earnings	\$38,528	\$44,416	\$35,968
• Earnings as a % of total income	78.1%	82.3%	74.4%
• Government transfers as a % of total income	19.6%	15.9%	22.8%
• Other sources as a % of total income	2.8%	2.9%	2.7%
Earnings and Income	Gingolx		
	Total	Male	Female
Annual median earnings	\$8,721	\$5,958	\$13,119
Annual full-time median earnings	\$39,040	\$39,040	\$38,656
• Earnings as a % of total income	60.4%	61.6%	61.7%
• Government transfers as a % of total income	37.6%	38.4%	36.8%
• Other sources as a % of total income	1.5%	1.3%	1.8%

Source: Statistics Canada (2010).

Note: Numbers may not sum due to rounding errors at source.

The Tahltan Band, with its chief, council, and administration, is based in Telegraph Creek, approximately 120 km southwest of Dease Lake. A large proportion of the population also resides in Dease Lake 9. The Tahltan Band has 11 registered reserves, totalling 1,338.5 ha, four of which are populated, including three reserves in the vicinity of Telegraph Creek (BC MARR 2012).

The Tahltan Band is more populous than the Iskut First Nation and had a total registered population in July 2012 of 1,782 (Table 20.1-16). Notably, only 290 individuals (16%) were living on Tahltan Band reserves, with 1,444 (81%) living off-reserve, and 45 on other reserves (AANDC 2012a). The Iskut First Nation discontinued the provision of information to AANDC in December 2010. On- and off-reserve population for the Iskut First Nation at that time was 705 members (AANDC 2010).

Table 20.1-16. Tahltan Population (July 2012)

Community	Population On-reserve	Population on other Reserves	Population on Own Crown Land	Population on No Band Crown Land	Population Off-reserve	Total Registered Population
Tahltan Indian Band	290	45	3	0	1,444	1,782
Iskut First Nation	n/a	n/a	n/a	n/a	n/a	705 ¹

Notes:

¹ December 2010 data.

n/a = not available.

Source: AANDC (2010, 2012a).

In terms of on-reserve population, the 2007 Tahltan Nation Census reported a total of 651 Tahltan members living on-reserve in Telegraph Creek, Dease Lake, and Iskut (GMG Consulting 2009). This figure aligns with 2006 national census data for the three communities (Table 20.1-16).

According to Statistics Canada, the population in each Tahltan community has decreased since 1996, with the most significant decrease occurring between 2006 and 2011 in all communities (Table 20.1-17). Notably, the 2011 Census reports a total population of 427 persons residing on reserves, compared to 654 residents in 2006, a total decline of almost 30% (Statistics Canada 2012a).

**Table 20.1-17. Tahltan Nation Population
(Statistics Canada 2001 to 2011)**

Community	2001	2006	2011	% Change (1996 – 2011)
Dease Lake 9	66	68	58	-44.2%
Iskut 6	238	335	207	-23.6%
Telegraph Creek 6	63	62	5	-94.8%
Telegraph Creek 6A	20	16	0	-100.0%
Guhthe Tah 12 (Telegraph Creek)	140	173	157	100.0% ¹
Total	527	654	427	-29.9%

¹ A percentage change from zero to any number represents an increase of 100%.
Source: Statistics Canada (2007a, 2010, 2012a).

The median age in Tahltan communities increased over the last 10 years, most notably in Iskut where the median age was 35.8 in 2011, followed by 33.5 in Guhthe Tah 12. The median age on Dease Lake 9 was the lowest at 27.5. This trend contrasts with the national trend in Aboriginal communities, which indicates an overall decrease in the median age (Statistics Canada 2007b). However, the median age in all Tahltan communities where data were available remains below the provincial figure of 41.9 (Statistics Canada 2012b).

Tahltan communities rely primarily on the public sector and natural resource industries for economic opportunities. The primary employers are the Band offices, including administration, health, and social services, as well as the Tahltan Central Council, followed by mining and mineral exploration (SNDS 2007a; Statistics Canada 2008a). Public sector employment in the Stikine Region—which included Dease Lake under former census boundaries—represented 40% of local incomes, with mining and construction representing 11% and 15%, respectively (Horne 2009b).

The traditional territory of the Tahltan Nation is rich in high-quality mineral resources, and industrial development in the area has historically focused on mining (Rescan 2009). As a result, mining has been an important source of employment, including employment at the former Eskay Creek, Cassiar, and Golden Bear mines, as well as the Galore Creek and Red Chris projects. There are several mine projects in the pre-application stage of the environmental assessment process (e.g., Schaft Creek, Kutcho Creek). Although the Galore Creek Project has not been developed, work is ongoing at the site, and the Tahltan have a participation agreement with

NovaGold Resources (NovaGold 2006). The Red Chris Project is under construction. Both projects have the potential to be major direct and indirect employers of Tahltan residents. Ongoing mineral exploration and development associated with other proposed mineral properties have also provided employment to Tahltan residents.

Numbers from both SNDS and Statistics Canada indicated a 2006 active labour force of comparable size at 251 and 260 persons, respectively (Table 20.1-18). Labour force participation rates varied from 56% in Telegraph Creek to 67% in Iskut (Statistics Canada 2007b), whereas SNDS reported notably higher participation rates¹² ranging between 76% and 89% (SNDS 2007a). As a result of population decline, the total number of individuals of labour force age declined between 2006 and 2011, from 425 to 325, while the proportion of the population of labour force age remained the same at 75% (SNDS 2007a; Statistics Canada 2010).

Table 20.1-18. Tahltan Labour Force Characteristics (2006)

Community	Labour Force		Participation Rate		Unemployment Rate	
	Statistics Canada	SNDS	Statistics Canada	SNDS	Statistics Canada	SNDS
Dease Lake 9	30	-	66.7%	-	33.3%	-
Telegraph Creek (Guhthe Tah 12)	70	-	55.6%	-	20.0%	-
Iskut	160	-	67.3%	-	24.2%	-
Tahltan Indian Band	-	131	-	89%	-	28%
Iskut Indian Band	-	120	-	76%	-	13%
Total	260	251				

Source: SNDS (2007a); Statistics Canada (2010).

In comparison, the Tahltan Census reports that 88% of Tahltan residents (18 years of age and over) were employed in 2007, with 48% working full-time, 14% part-time, and 18% seasonally (GMG Consulting 2009). Only 12% of the population reports being unemployed, a rate notably lower than reported for select Tahltan communities for 2006 by Statistics Canada (Table 20.1-19) and the SNDS (2007a).

Table 20.1-19 provides a summary of 2006 participation rates, employment rates, and unemployment rates as reported by Statistics Canada by gender in the Tahltan communities, the RDKS, and in BC. Participation rates in Dease Lake and Iskut were comparable to the RDKS and province, while Telegraph Creek had a lower overall rate. Males had higher rates of participation than females across all Tahltan communities, whereas females had higher employment rates in both Telegraph Creek and Iskut. Employment rates in all communities were lower as compared to the RDKS and the province, which may be due to the seasonal nature of certain employment in the region (Table 20.1-19).

¹² Estimates of labour force participation, employment and unemployment varies between sources (i.e., Statistics Canada and the SNDS) and may be due to differences in data definitions, survey methods, and/or participation in surveys.

Table 20.1-19. Labour Force Characteristics: Select Tahltan Communities, Regional District of Kitimat-Stikine, and the Province of British Columbia (2006)

Location	Participation Rate			Employment Rate			Unemployment Rate		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Dease Lake 9	66.7%	100.0%	60.0%	44.4%	75.0%	40.0%	33.3%	50.0%	0.0%
Iskut	67.3%	76.0%	65.2%	51.0%	48.0%	60.9%	24.2%	36.8%	13.3%
Guhthe Tah 12 ¹ (Telegraph Creek)	55.6%	61.5%	46.7%	44.4%	38.5%	46.7%	20.0%	37.5%	0.0%
RDKS ²	65.0%	69.8%	60.2%	55.8%	58.7%	52.9%	14.1%	15.9%	12.0%
British Columbia	65.6%	70.7%	60.7%	61.6%	66.7%	56.9%	6.0%	5.8%	6.3%

Notes:

¹ The community at Telegraph Creek consists of Telegraph Creek 6, Telegraph 6A, and Guhthe Tah 12. Statistics Canada has suppressed the labour force characteristic for Telegraph Creek 6 and 6A. The data presented in this table are for Guhthe Tah 12.

² In 2006, Dease Lake 9 was not included in the RDKS, but rather was part of the Stikine unincorporated region.

Source: Statistics Canada (2010).

Unemployment rates were notably higher in the Tahltan communities than the RDKS and province. The unemployment rate was highest for Dease Lake 9 (33%), which, in 2006, was more than five times higher than the provincial rate of 6.0%, and more than two times higher than that for the RDKS (Table 20.1-19). Rates of unemployment among males were notably higher than females in all three Tahltan communities. According to the SNDS, Tahltan residents attributed unemployment in their communities to a dependence on seasonal work opportunities, a lack of education and training, a weak economic base, low self-esteem, and a lack of economic planning (SNDS 2007a).

Public sector employment, through the Tahltan and Iskut Band offices, as well as the TCC, is prominent in all three communities. The Iskut First Nation, for instance, provided approximately 46% of jobs within that community in 2006 (SNDS 2007a). Mining and exploration was also a key employer at that time, accounting for 45% of jobs for Tahltan Band members and 25% of jobs for the Iskut Band (SNDS 2007a). Tahltan residents have historically had a high level of participation in the mining industry, with community residents involved in the exploration and/or development of Eskay Creek, Cassiar, Golden Bear, and Galore Creek, as well as others. By comparison, the 2007 Tahltan Census reported 12% of all Tahltan residents as being employed by the mining industry, and an additional 9% in construction (GMG Consulting 2009). Employment in other resource sectors, including forestry and fishing, are not reported. Occupations within the Tahltan communities in 2006 most frequently related to social science, education, and government; trades, transportation, and equipment operations; sales and services; business, finance and administration; and primary industry (Statistics Canada 2007b).

Income and earnings data were reported for Iskut in 2006 (Statistics Canada 2010c). Iskut's¹³ annual full-time median earnings in 2005 were almost \$36,000, below that of both the

¹³ Income information from the 2011 Census was unavailable at the time of writing. 2006 data were only available for Iskut.

province (\$42,230) and the RDKS (\$47,395; Table 20.1-20). However, when comparing total annual median earnings, including part-time and seasonal, the earnings gap diminished considerably. Table 20.1-20 indicates that earnings as a percentage of total income was higher in Iskut (86%) as compared to the RDKS (78%) and the province (75%). However, Iskut received a slightly higher percentage of income from government transfers as compared to the RDKS and the province.

Table 20.1-20. Earning and Income: Iskut, Regional District of Kitimat-Stikine, and British Columbia (2005)

	Iskut	RDKS	British Columbia
Annual median earnings	\$21,952	\$25,062	\$25,722
Annual full-time median earnings	\$35,968	\$47,395	\$42,230
• Earnings (% of total income)	86.3%	77.6%	75.1%
• Government transfers (% of total income)	14.5%	13.6%	10.7%
• Other money (% of total income)	0.4%	8.8%	14.2%

Source: Statistics Canada (2007b).

Note: Numbers may not sum due to rounding errors at source.

20.1.5.3 The Hazeltons

The Hazeltons (the Village of Hazelton and the District of New Hazelton¹⁴) are located approximately 140 km northeast of Terrace and 60 km northwest of Smithers on the Yellowhead Highway 16 where the Skeena River meets the Bulkley River (Figure 20.1-2). The greater Hazelton area includes these two municipalities, as well as three unincorporated communities (South Hazelton, Two Mile, and the Kispiox Valley), and four Gitxsan reserves (Gitanmaax, Hagwilget, Glen Vowell, and Kispiox). The Hazelton area has been home to Gitxsan, Skii km Lax Ha, and Wetsuwet'en First Nations for more than 7,000 years (Village of Hazelton 2008). This section focuses on the Village of Hazelton and the District of New Hazelton, as these are the primary economic and service centres for the smaller communities and broader area.

The populations in both Hazelton and New Hazelton have declined over the last 15 years, consistent with the general trend in the broader RSA (Table 20.1-21). Populations have dropped by approximately one-fifth and one-tenth in Hazelton and New Hazelton, respectively. Collectively, the 2011 population in the Hazeltons was approximately 936, a decrease of over 14% since 2001 (Table 20.1-21). Notably, this trend may have stabilized or reversed in New Hazelton, as the community showed a population increase between 2006 and 2011 of almost 6% (Table 20.1-21).

The Hazelton area includes an additional population base of over 2,400 people, who reside in the neighbouring Gitxsan reserves and unincorporated settlements of South Hazelton, Two Mile, and the Kispiox Valley (AANDC 2012a; Statistics Canada 2012a). The median age has increased by

¹⁴ Data specific to the unincorporated settlement of South Hazelton are aggregated within the data for the RDKS and are not specifically included as part of the LSA communities.

approximately 12 years since 2001 (Statistics Canada 2007a; AANDC 2012a; Statistics Canada 2012a). The median age in Hazelton (47.0) is higher than for both New Hazelton (40.4) and the province (41.9) and the highest for all LSA communities (Statistics Canada 2012a). This result may be partially related to the closure of three local saw mills in recent years, thereby causing individuals to seek employment elsewhere. The proportion of the population identifying as Aboriginal ranged from over 49% in Hazelton to 37% in New Hazelton (Statistics Canada 2010).

**Table 20.1-21. Population in the Hazeltons
(Statistics Canada 2001 to 2011)**

Community	2001	2006	2011	% Change (2001 – 2011)
Hazelton	345	293	270	-21.7%
New Hazelton	750	627	666	-11.2%
Total	1,095	920	936	-14.5%

Source: Statistics Canada (2007a, 2010, 2012a).

The Hazelton area, including local First Nations communities, has historically been reliant on the forestry industry. The area has suffered and unemployment has increased steadily as the forestry sector has declined and several mills in the area closed since the late 1990s (A. Maitland, pers. comm.). More recently, a large part of the economy is accounted for by the transfer of federal funds to local First Nations bands (P. Weeber and B. Faasnidge, pers. comm.).

The Hazeltons today have an increased focus on tourism; however, this is a small economic driver as the tourist season is typically limited to about two and a half months (P. Weeber and B. Faasnidge, pers. comm.). The area offers scenery, wilderness recreation, Native culture, and salmon and steelhead fishing, though available accommodation is limited.

Services in the area are limited; most goods are purchased elsewhere (A. Maitland and B. Smith, pers. comm.). The area has a grocery store, hardware store, tire shop, patchwork supplies, and industrial supplies.

The total potential labour force for both Hazelton and New Hazelton was roughly 750, which is consistent with the relative stability in population over this time frame (Table 20.1-22). In 2006, 530 persons comprised the active labour force. Participation rates of approximately 71% in both New Hazelton and Hazelton were above the provincial and RSA rate of 66% (Statistics Canada 2007b). Employment rates in the two communities showed a greater disparity; New Hazelton had a 57% employment rate as compared to 67% in Hazelton. By comparison, the RSA's employment rate was over 62%.

Labour force participants from Hazelton area communities reported limited full-time work (P. Weeber and B. Faasnidge, pers. comm.; A. Maitland and B. Smith, pers. comm.). Unemployment rates for 2006 in the Hazelton communities varied. Hazelton reported a low unemployment rate of 5% compared to 19% in New Hazelton and 10% for the broader RSA (Section 20.1.3.4).

Table 20.1-22. Labour Force Data for the Hazeltons and British Columbia (2006)

Labour Force	Village of Hazelton			District of New Hazelton			British Columbia		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total Population 15+	275	130	145	475	235	240	3,394,910	1,649,590	1,745,320
In the Labour Force	195	95	100	335	180	155	2,226,380	1,166,660	1,059,725
Participation Rate (%)	70.9%	73.1%	69.0%	70.5%	76.6%	64.6%	65.6%	70.7%	60.7%
Employment Rate (%)	67.3%	65.4%	69.0%	56.8%	53.2%	60.4%	61.6%	66.7%	56.9%
Unemployment Rate (%)	5.1%	10.5%	0.0%	19.4%	30.6%	6.5%	6.0%	5.8%	6.3%

Note: Numbers may not sum due to rounding errors at source.
Source: Statistics Canada (2010).

A variety of different industries act as key employment sources in the Hazelton area, with the mix of industries varying slightly among communities. Industries that were prominent employers across communities in 2006 included agriculture and other resource industries, health care and social services, business services, and other services¹⁵ (Statistics Canada 2010). In order of magnitude, health care and social services, other services, education, and agriculture were important industries in New Hazelton, accounting for approximately 22%, 20%, 18%, and 15%, respectively, of the workforce (Statistics Canada 2007b). Main local employers—accounting for approximately 50% of employment—are government, schools, RCMP, municipality, First Nations, and Northern Health (P. Weeber and B. Faasnidge, pers. comm.). The business services industry accounted for about 24% of the labour force in the Village of Hazelton, followed by health care and social services (22%), manufacturing (15%), and other services (15%).

Tsetsaut Ventures Ltd. is the economic branch of the Skii km Lax Ha and provides contract employment opportunities for Skii km Lax Ha, Gitxsan, and other residents in the Hazelton area. Activities include the support of exploration activities such as the construction and transport of core boxes, as well as providing workers and services for both the KSM and Brucejack projects. In July 2012, Tsetsaut and the Gitxsan Development Corporation (GDC) signed a Cooperation Agreement to facilitate the employment of 25 Gitxsan on construction related to the NTL Project (GDC 2012).

In the Hazelton communities, the annual median earnings of the labour force totalled less than the provincial median of \$25,722 in 2005 (Statistics Canada 2007b). Annual median earnings in New Hazelton and Hazelton were respectively estimated at \$21,712 and \$21,029 (Table 20.1-23).

¹⁵ “Other services,” as defined by the North American Industry Classification System include repair and maintenance, religious, personal care, etc.

Table 20.1-23. Earnings and Income Data for the Hazeltons (2005)

	Hazelton			New Hazelton			British Columbia		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Annual median earnings	\$21,029	\$14,683	\$21,186	\$21,712	\$30,725	\$19,551	\$25,722	\$32,375	\$20,458
Annual full-time median earnings	\$48,787	\$65,310	\$48,756	\$60,271	\$60,295	\$59,077	\$42,239	\$48,070	\$36,739
• Earnings (% of total income)	75.1%	75.4%	77.6%	77.2%	79.0%	76.7%	75.1%	78.5%	69.8%
• Government transfers (% of total income)	16.8%	9.7%	22.8%	17.5%	16.1%	19.9%	10.7%	7.9%	15.0%
• Other money (% of total income)	6.3%	13.5%	0.2%	5.6%	5.8%	5.2%	14.2%	13.6%	15.2%

Note: Numbers may not sum due to rounding errors at source.
Source: Statistics Canada (2010).

By comparison, full-time annual earnings were reported to be relatively high in New Hazelton and Hazelton, respectively reported at \$60,271 and \$48,787 (Table 20.1-23). These levels of income exceeded the \$42,230 in full-time median earnings for BC in 2005. New Hazelton and Hazelton sourced 77% and 75% of their aggregated community income from earnings, which was on par with the province (75%). At roughly 17%, both communities received a relatively large amount of income from government sources as compared to the average for the province as a whole (Statistics Canada 2010).

20.1.5.4 Gitanyow First Nation

The Gitanyow First Nation has three reserves along the Kitwanga River (Figure 20.1-2). The Village of Gitanyow is located on Gitanyow 1 along the Highway 37 corridor and approximately 20 km north of Kitwanga (Gitwangak). Gitanyow 2 is north of Gitwangak, and Gitanyow 3A is located at the south end of Kitwanga Lake. The Gitanyow Hereditary Chiefs' Office is also based on Gitanyow 1.

Approximately 382 members were residing on Gitanyow 1 in 2012 according to AADNC, compared to 383 as reported by Statistics Canada in 2011 (Tables 20.1-24 and 20.1-25). Total Gitanyow membership was over twice this size and comprised 802 individuals, including 386 members residing off-reserve and 34 members residing on other reserves (Table 20.1-24).

Table 20.1-24. Gitanyow Population (2012)

Population On-reserve	Population on other Reserves	Population on Own Crown Land	Population on Non Band Crown Land	Population Off-reserve	Total Registered Population
382	34	0	0	386	802

Source: AANDC (2012a).

**Table 20.1-25. Gitanyow Population
(Statistics Canada 2001 to 2011)**

Community	2001	2006	2011	% Change (2001 – 2011)
Gitanyow 1	369	387	383	3.8%

Source: Statistics Canada (2010, 2012a).

The on-reserve population increased by approximately 3.8% between 2001 and 2011, although it appears to have stabilized between 2006 and 2011 (Table 20.1-26). The average median age has increased by approximately two years over each census period to reach 28.1 in 2011 (Statistics Canada 2012a). This local trend contrasts with national Aboriginal communities, which have indicated an overall decrease in the median age (Statistics Canada, 2007), but is similar to neighbouring Gitxsan as well as Tahltan communities. However, the median age in Gitanyow remains notably below the provincial figure of 41.9 years.

Table 20.1-26. Labour Force Data for the Gitanyow 1 (2001 to 2006)

Labour Force	Gitanyow, 2001			Gitanyow, 2006			British Columbia, 2006		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total Population 15+	145	85	60	275	145	130	3,394,910	1,649,590	1,745,320
In the Labour Force	75	35	40	145	85	60	2,226,380	1,166,660	1,059,725
Participation Rate	46.9%	48.1%	45.5%	52.7%	58.6%	46.2%	65.6%	70.7%	60.7%
Employment Rate	30.6%	22.2%	36.4%	25.5%	27.6%	23.1%	61.6%	66.7%	56.9%
Unemployment Rate	34.8%	53.8%	20.0%	51.7%	58.8%	50.0%	6.0%	5.8%	6.3%

Note: Numbers may not sum due to rounding errors at source.

Source: Statistics Canada (2007a, 2012a).

Similar to trends across northwestern BC, the economy is rooted in primary and secondary industries including forestry, construction, and manufacturing (Statistics Canada 2007b). Forestry has been the main resource industry in the past for the community, but economic impacts following the closing of the mill in Kitwanga have affected the Gitanyow community along with other communities in the area (Gitanyow Hereditary Chiefs 2006).

The total potential labour force size (i.e., residents 15 years of age and over) in Gitanyow was approximately 275 people in 2006 (Table 20.1-26). The 2006 active labour force size, however, was much smaller at 145 persons. Table 20.1-26 provides an overview of labour force characteristics for 2001 and 2006¹⁶. Labour force participation in 2006 was almost 53%, an

¹⁶ Gitanyow employment and unemployment data for 2001 and 2006 are available only for Gitanyow 1. Census 2011 data are unavailable.

increase over the 47% participation rate in 2001, though notably lower than both provincial and RSA figures. By contrast, the employment rate declined between 2001 and 2006 from 31% to almost 26% as the labour force increased.

By comparison, the Gitanyow wilp-based Socio-cultural Needs Assessment reported that 29% of adult wilp members were employed full-time, 6% part-time, and 12% seasonally (Marsden 2010). A notable 46% reported being unemployed, which is in the broad range of unemployment reported in the 2006 census. The remaining 7% were retired or in school.

Major unemployment and reliance on social assistance are prevalent characteristics of the Gitanyow community. The unemployment rate increased notably from 2001 to 2006, particularly among females, with unemployment rates for men reaching up to 10 times higher than provincial figures (Table 20.1-26). Reasons given by community representatives for unemployment were: lack of education, training, and skills; dependency on social assistance; lack of incentive; lack of job opportunities; and a weak local economic base which may be tied to the closing of mines in the region (SNDS 2007a, 2007b). However, it is also likely that high unemployment is a result of the community's strong dependence on the forestry sector in recent decades.

The Gitanyow labour force was diversified across a variety of sectors. Business services and manufacturing each comprised over 13% of the labour force while agriculture and other resource-based industries, construction, retail trade, health care and social services, as well as educational services each accounted for almost 9% of Gitanyow's labour force in 2006 (Statistics Canada 2007b). Almost 22% of the workforce also worked in a number of other services.

By contrast, both the SNDS and Socio-cultural Needs Assessment reported that most of the employed population (54% and 67% respectively) worked in the public sector (SNDS 2007a; Marsden 2010), with the main employers being the Gitanyow Independent School, the health clinic, and the Band office (A. Derrick, pers. comm.). The SNDS reported forestry as the next most important sector with 25% of the workforce. Fisheries and tourism were reported to have 2% of the employed population each, and a variety of other sectors employed 16% of the population. Forestry and mining were similarly reported as the second most important sector in the Socio-cultural Needs Assessment, but comprising only 13% of the employed population (Marsden 2010). Recreation, culture, and sales accounted for 8%, processing and manufacturing another 6%, with both transportation and construction rounding out the final 6%.

Annual full-time median earnings, representing income received as wage or salary, for Gitanyow were \$27,200 in 2005. This is much lower than the median earnings for BC as a whole (\$42,230). Earnings for males (\$30,848) were higher than for females (\$24,896) with earnings representing over 69% of total income (more for males than for females). By comparison, annual median earnings including part-time and seasonal work were slightly over \$10,000 in the community. In contrast with full-time earnings, females earned almost twice as much as males. Government transfers were a major source of income, representing almost 30% of total income, almost three times higher than the amount for BC overall. Information on earnings and income is summarized in Table 20.1-27.

Dease Lake served as the centre for government services in the region until the 1990s. Since the relocation of most services to Smithers, the population of this community has declined

significantly (Bridges and Robinson 2005). The community’s population in 2011 was 303, a 21.1% decline from 2006 (Table 20.1-28). The notable decline since 2006 may be as a result of the Eskay Creek Mine closure in 2008 as well as the global economic downturn in 2008/2009, which slowed down economic activity in the region.

Table 20.1-27. Earnings and Income Data for Gitanyow 1 (2005)

Earnings and Income	Gitanyow 1			BC Total
	Total	Male	Female	
Annual median earnings	\$10,208	\$8,480	\$16,480	\$25,722
Annual full-time median earnings	\$27,200	\$30,848	\$24,896	\$42,230
• Earnings (% of total income)	69.4%	80.8%	66.3%	75.1%
• Government transfers (% of total income)	29.5%	21.4%	37.8%	10.7%
• Other money (% of total income)	1.2%	1.5%	0.9%	14.2%

Source: Statistics Canada (2010).

Note: Numbers may not sum due to rounding errors at source.

Table 20.1-28. Dease Lake Unincorporated Population (2006 to 2011)

Community	2006	2011	% Change (2006 to 2011)
Dease Lake Unincorporated	384	303	-21.1%

Source: Statistics Canada (2012a).

The median age in 2011 for the community was 34.6, much younger than the 41.9 years reported for the province (Statistics Canada 2012a). Almost 39% of the population in 2006 identified as Aboriginal and 61% as non-Aboriginal, as compared to 4.8% of the province and 32% of the RDKS (Statistics Canada 2008a).

The Dease Lake community today is dependent on the resource base of the region. Mining has been the primary industry in the area, with guide-outfitting and wilderness tourism also playing important roles (DeaseLake.net 2006). A number of other businesses have developed around the demands of the resource industries, including the provision of flights, accommodation, and equipment to remote forestry and mining operators (Dease Lake Internet Society 2006). Construction services—including the base office for the TNDC—are also prevalent. Forestry is very limited. Following the transfer of harvest licensing to BC Timber Sales in 2003, the level of activity in the area sharply declined. The area has experienced economic decline in recent years. Contributing factors include the relocation of government services to Smithers, the downturn in the forest industry, and the job losses associated with the closure of the Golden Bear, Cassiar, Eskay Creek, and Granduc mines.

The total potential labour force in Dease Lake in 2011 comprised approximately 230 persons, a 23% decline from the 295 total in 2006 (Table 20.1-29). The active labour force in 2006 comprised approximately 275 persons (Table 20.1-29).

In 2006, the participation rate was over 93% and the employment rate exceeded 88%, an increase over 2001 figures that indicates positive economic activity during this period (Table 20.1-29).

Rates were high for both men and women relative to the province, with men reporting higher participation and employment rates than women. By comparison, the RSA's participation and employment rates were over 66% and 63%, respectively. Unemployment was reported at 5.5%, below provincial and RSA rates in 2006 (6% and 10% respectively) and a notable improvement over the 23% unemployment rate in 2001 (Table 20.1-29).

Table 20.1-29. Labour Force Data for Dease Lake Unincorporated (2001 and 2006)

Labour Force	Dease Lake Unincorporated 2001			Dease Lake Unincorporated 2006			British Columbia 2006		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total Population 15 years+	245	120	130	295	130	165	3,394,910	1,649,590	1,745,320
In the Labour Force	215	110	110	275	135	145	2,226,380	1,166,660	1,059,725
Participation Rate (%)	87.8%	91.7%	84.6%	93.2%	100.0%	87.9%	65.6%	70.7%	60.7%
Employment Rate (%)	67.3%	70.8%	65.4%	88.1%	88.5%	84.8%	61.6%	66.7%	56.9%
Unemployment Rate (%)	23.3%	22.7%	27.3%	5.5%	14.8%	0.0%	6.0%	5.8%	6.3%

Note: Numbers may not sum due to rounding errors at source.
Source: Statistics Canada (2010).

In 2006, construction as well as transportation and warehousing combined to employ a total of 25% of the workforce (Statistics Canada 2008b; BC Stats 2009a). The TNDC employs both Tahltan members and non-Aboriginal staff in various construction, mining, and forestry contracts. Almost 26% of workers were employed in educational services, making it the largest single sector of employment. Other sectors, each comprising 9% of the workforce, included public administration and support; health care and social assistance; and professional, scientific, and technology services. Employment directly related to mining accounted for less than 4% of the workforce (Statistics Canada 2010).

The average earnings among full-time workers were approximately \$47,000 in 2005, which compares favourably with both the province and RDKS, whereas total median earnings (including part-time and seasonal workers) at \$36,000 was notably higher than both the regional and provincial figures (Table 20.1-30; Statistics Canada 2008b). Employment income accounted for 94% of total earnings, with government transfer payments contributing the additional 6% (Statistics Canada 2008b). Both figures compare favourably relative to regional and provincial estimates (Table 20.1-30). Approximately 9% of households were classified as low-income (BC Stats 2009a, 2010b).

Table 20.1-30. Earnings and Income Data for Dease Lake Unincorporated, the Regional District of Kitimat-Stikine, and British Columbia (2005)

Earnings and Income	Dease Lake Unincorporated	RDKS	British Columbia
Annual median earnings	\$36,035	\$25,062	\$25,722
Annual full-time median earnings	\$46,798	\$47,395	\$42,230
• Earnings (% of total income)	93.7%	77.6	75.1
• Government transfers (% of total income)	5.6%	13.6	10.7
• Other Money (% of total income)	0.7%	8.8	14.2

Source: Statistics Canada (2010).

Note: Numbers may not sum due to rounding errors at source.

20.1.5.5 Stewart

The District of Stewart is located on the west coast of BC, opposite Alaska's Misty Fjords Park, at the end of the Portland Canal and Highway 37A (Figure 20.1-2). It was established in 1898 as a mining town, when prospectors arrived in search of placer gold, and over the years has served as a regional centre for gold and silver mining. An important regional and provincial port, Stewart is both the current and proposed destination for mineral products from various mining projects in northwestern BC and the Yukon to international destinations.

Stewart's population has fallen dramatically in the past 20 years (Table 20.1-31), coinciding with the closure of the Granduc and Premier mines (Bridges and Robinson 2005), and exacerbated by the downturn in forestry. The population declined by approximately 42%, or 362 residents, between 1996 and 2006, the largest drop among LSA communities. Notably, the trend appears to have stabilized between 2006 and 2011 (Table 20.1-31; Statistics Canada 2012b).

Table 20.1-31. District of Stewart Population (2001 to 2011)

Community	2001	2006	2011	% Change (2001 –2011)
Stewart	661	496	494	-42.4%

Source: Statistics Canada (2010, 2012a).

The median age of the community increased as the population declined, indicating that younger residents moved out of the community over this period. The median age in 2001 was 36.2 years, increasing to 43.0 years in 2011, higher than the provincial figure of 41.9 years (Statistics Canada 2012b). Stewart's population comprised the lowest proportion of Aboriginal residents (10%) in the RDKS (Statistics Canada 2012a).

Stewart has experienced economic recession in recent years and many residents have had to leave the area in search of work. Its economy is one of the least diversified in the province (Horne 2009b). However, the community remains more diverse than most other LSA communities along Highway 37/37A due to its location as a gateway to Alaska. Consequently,

tourism is gaining strength as an economic sector, attracting both Canadian and American tourists (A. Danuser and S. McFee, pers. comm.).

Mining has played a role in Stewart's economic life since it was settled and continues to do so today. The Huckleberry Mine supports limited employment within the community, particularly transportation related, as companies are involved in hauling ore/concentrate from mills to the Port of Stewart. The Eskay Creek Mine was also an important economic contributor and employer until its closure in April 2008 (Rescan 2009). In recent years, the summer season has seen an especially large increase in mining exploration, and Stewart has benefitted from its associated economic effects. Exploration has spurred the creation of a number of local drilling companies, expediting firms, and heavy equipment rentals. In terms of forestry and logging, the early 1990s saw up to 500 truckloads of logs being unloaded on a daily basis near port facilities (E. Drew, pers. comm.). Although the community's economy has suffered in recent years, a turnaround is potentially underway. It is likely that the NTL and Long Lake Hydro projects (both currently under construction), as well as increased mineral demand, will help northwestern BC economically, and that these benefits will be felt within the community. Anticipated upgrades to Stewart Bulk Terminals, as well as the development of the Stewart World Port and renewed exploration at the Granduc Mine site, will further benefit the community.

Today, Stewart continues to act as an export centre for raw logs, albeit to a nominal extent. Community retail services and facilities in Stewart include a hardware store, restaurant, gas station, gift shop, bakery, general store, and hotel. The bank closed in 2009. Loss of services is a major concern for the community (A. Danuser and S. McFee, pers. comm.).

Stewart Bulk Terminals, a privately owned facility, serves as the shipment facility for ore concentrate from regional mines to international destinations. The Port of Stewart is the northernmost ice-free port in North America, with terminals that have the capacity to service large international freighters (District of Stewart n.d.). The Huckleberry Mine and Yukon Zinc's Wolverine Mine truck their concentrate through Stewart to the port. It is also the proposed destination for a number of proposed mining projects, including Galore Creek, Red Chris, Schaft Creek, Kutcho, and the KSM Project (Stewart-Hyder ICC. 2008).

Stewart's potential labour force in 2011 was approximately 405 people, a slight increase from the 385 reported in 2006 (Statistics Canada 2010). By comparison, its active labour force was 305 and 390, in 2006 and 2001 respectively. The community's 2006 employment and participation rates, at 73% and 79% respectively, improved over 2001 figures and were notably higher than provincial and RSA averages (Table 20.1-32; Statistics Canada 2007b).

Stewart reported an unemployment rate of 8% in 2006, considerably lower than the 2001 rate of 24% and slightly higher than the provincial average of 6% (Table 20.1-32). In contrast, the RSA's unemployment rate was 10%. All unemployed individuals were male. Notably, the 2006 labour force was both smaller and more likely to be employed than in 2001, suggesting that those without work left the community to seek employment opportunities elsewhere.

Table 20.1-32. Labour Force Data for Stewart (2001 and 2006)

Labour Force	Stewart 2001			Stewart 2006			British Columbia 2006		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total Population 15 years+	455	225	225	385	190	195	3,394,910	1,649,590	1,745,320
In the labour force	390	200	190	305	175	130	2,226,380	1,166,660	1,059,725
Participation Rate (%)	74.5%	77.8%	71.2%	79.2%	92.1%	66.7%	65.6%	70.7%	60.7%
Employment Rate (%)	56.6%	51.9%	59.6%	72.7%	81.6%	64.1%	61.6%	66.7%	56.9%
Unemployment Rate (%)	24.1%	31.0%	18.9%	8.2%	11.4%	0.0%	6.0%	5.8%	6.3%

Notes: Numbers may not sum due to rounding errors at source.

Source: Statistics Canada (2007a, 2010).

The Huckleberry Mine and regional forestry activities continue to provide limited employment for residents. Logging activities and associated employment have reportedly slowed over the past few years, while increased employment opportunities have become available in summer months with mineral exploration activities throughout northwestern BC (A. Danuser and S. McFee, pers. comm.). The transportation sector employs a number of residents, including a few jobs with local trucking companies involved in transport of ore, concentrate, and logs. Stewart Bulk Terminals offers a limited number of jobs. Tourism has also become an important local industry.

Stewart has an industrial labour force, with industrially related occupations accounting for around half of local employment in 2006. This includes transportation equipment operators (10%); trades helpers, construction, and transportation labourers (10%); occupations unique to forestry, mining, oil and gas, and fishing (10%); heavy equipment operators, crane operators, and drillers (8%); mechanics (5%); construction trades (3%); and primary production labourers (3%; BC Stats 2009c). Key industries for employment in 2006 were business services (17%), construction (12%), and resource-based industries (12%), followed by health and social services (8%; Statistics Canada 2010).

Annual median earnings of Stewart's labour force were \$26,223 (Statistics Canada 2007b), which was above the provincial median of \$25,722. Full-time median earnings amounted to \$38,190 annually, below the provincial full-time median of \$42,230 (Table 20.1-33). Notably, male median and full-time median earnings were, on average, twice as high as female earnings. On average, earnings comprised 81% of total income, while government transfers accounted for an additional 11%. In total, earnings constituted a larger portion of income in Stewart than provincially (75%; Table 20.1-33).

Percent income dependencies for Stewart in 2006 included the public sector 52%, mining and mineral processing 8%, construction 7%, tourism 7%, fishing 4%, and forestry 3%. The public sector dependency is the highest in the province. Notably, industry importance has changed considerably in the last decades, with income dependence on mining dropping from 43% in 1991 to 8% in 2006. Likewise, income from forestry dropped from 25% in 1996 to 3% in 2006 (Horne 2009b).

Table 20.1-33. Earnings and Income Data for Stewart (2005)

Earnings and Income	District of Stewart			BC Total
	Total	Male	Female	
Annual median earnings	\$26,223	\$41,780	\$19,521	\$25,722
Annual full-time median earnings	\$38,190	\$60,556	\$34,125	\$42,230
• Earnings (% of total income)	81.3%	92.0%	67.3%	75.1%
• Government transfers (% of total income)	11.0%	6.6%	17.4%	10.7%
• Other money (% of total income)	7.8%	3.8%	13.4%	14.2%

Source: Statistics Canada (2010).

Note: Numbers may not sum due to rounding errors at source.

20.1.5.6 Smithers

Smithers is located within the Bulkley Valley Regional District along Highway 16, approximately halfway between Prince Rupert and Prince George (Figure 20.1-2). Smithers is the regional service centre for the Bulkley Valley, given its strategic location along the routes of both Highway 16 and the Canadian National Railway. Smithers experienced the smallest overall population decrease amongst the LSA communities, dropping in 2006 but essentially returning to 2001 population levels by 2011 (Table 20.1-34). Population in 2011 was 5,404, a decrease of less than 4% since 1996.

Table 20.1-34. Smithers Population (Statistics Canada 1996 to 2011)

Community	2001	2006	2011	% Change (1996 – 2011)
Smithers	5,414	5,217	5,404	-3.9%

Source: Statistics Canada (2010, 2012a).

As with other LSA communities, the median age has increased since 2001, from 33.3 to 37.2 years, though it is the second lowest amongst LSA communities and remains below the provincial average of 41.9 (Statistics Canada 2010c, 2012a). In 2006, almost 15% of the Smithers population identified as Aboriginal, as compared to 29% for the RSA (Statistics Canada 2010).

Smithers is a regional service centre for the Bulkley Valley and for the area to the north and west. Indicative of this service role, Smithers provides a range of commercial, business, administrative, recreational, and cultural services not typically found in communities of this size (Town of Smithers 2010). There has been increased economic diversification over recent years, although the town continues to be dominated by the forestry and public service sectors. Smithers' economy was historically built on the primary resources sectors. Forestry continues to be the leading resource sector, followed by mining and agriculture. The town is currently home to the only remaining saw mill within the RSA. It has also been home to many regional mining employees and services (including the Huckleberry and former Eskay Creek and Kemess South mines) and the staging point for charter services to mines and mineral exploration sites throughout northwestern BC. The regional tourism sector is also growing, largely based on wilderness and backcountry recreational activities (Town of Smithers 2010).

Since the relocation in the 1990s of government services for northwestern BC from Dease Lake to Smithers, the community’s participation in public administration and governance has increased. Health and education are also important, and the community fulfills regional needs in these areas. Professional and scientific positions are more prevalent in Smithers than in much of the region, including Terrace. In general, the labour economy is well diversified and able to provide a wide range of services (BC Stats 2007).

The active labour force in 2006 was 2,830 with a participation rate of 71%, higher than the provincial and RSA averages of 66%, though a slight decrease from the community’s 2001 participation (Table 20.1-35). Similarly, the community’s 65% employment rate was higher than rates for both the province (62%) and RSA (63.5%). Participation and employment rates were generally higher among males. The 2006 unemployment rate in Smithers (8.5%, or approximately 240 people) was higher than that of the province (6%), though lower than the RSA’s 10%, and marked no major change from 2001. Unemployment was more prevalent among women than men (Table 20.1-35).

Table 20.1-35. Labour Force Data for Smithers (2001 and 2006)

Labour Force	Smithers 2001			Smithers 2006			British Columbia 2006		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total Population 15 years +	3,235	1,695	1,540	3,975	1,890	2,080	3,394,910	1,649,590	1,745,320
In the Labour Force	2,735	1,425	1,310	2,830	1,495	1,340	2,226,380	1,166,660	1,059,725
Participation Rate (%)	74.7%	82.3%	68.1%	71.2%	79.1%	64.4%	65.6%	70.7%	60.7%
Employment Rate (%)	67.7%	73.3%	62.6%	65.2%	73.0%	58.2%	61.6%	66.7%	56.9%
Unemployment Rate (%)	9.3%	10.6%	8.1%	8.5%	7.4%	9.3%	6.0%	5.8%	6.3%

Note: Numbers may not sum due to rounding errors at source.
Source: Statistics Canada (2007a, 2010, 2012a).

The provision of services, from health care to business, constitutes the largest area of employment, representing approximately 59% of jobs (Statistics Canada 2007b). Within the service sector, retail trade and food/accommodation account for a large number of jobs, reflecting Smithers’ role as a service centre. Primary resource extraction, including agriculture, accounts for over 11% of total employment, up from 6.5% in 2001 (Statistics Canada 2010). Secondary use of resources, including manufacturing and construction, represents an additional 11%. The largest proportion of forestry-related employment is in manufacturing industries (7.1%; BC Stats 2007).

Smithers was reported to have an annual median income level of approximately \$25,000 in 2006, which was on par with the province (Table 20.1-36). Annual earnings for those who worked full-time all year approximated \$42,200. Males’ earnings exceeded provincial averages, while females’ earnings were lower (Statistics Canada 2007b). The community exhibits a large

discrepancy between the earnings of males and females, with males reporting median earnings of almost 38% more than females (Table 20.1-36). Earnings from employment constituted 79% of all income, and government transfers accounted for 12% (Statistics Canada 2010).

Table 20.1-36. Smithers Income Characteristics (2005)

Characteristics	Smithers	British Columbia
Annual median earnings	\$25,005	\$25,722
Annual full-time median earnings	\$42,207	\$42,230
• Males	\$52,331	\$48,070
• Females	\$32,641	\$36,736
Composition of total income (%)		
• Earnings	79.2%	75.1%
• Government transfers	12.1%	10.7%
• Other money	8.8%	14.2%

Source: Statistics Canada (2010).

Note: Numbers may not sum due to rounding errors at source.

20.1.5.7 Terrace

With an estimated reported population of 11,486 in 2011 (Statistics Canada 2012b), Terrace is the largest of the LSA communities and an important service centre for trade and public administration in northwestern BC. Since 1996, the community’s population declined by over 10%; however, this trend appears to have stabilized as Terrace experienced a population increase of approximately 166 persons between 2006 and 2011 (Table 20.1-37).

Table 20.1-37. Terrace Population (2001 to 2011)

2001	2006	2011	% Change (2001 – 2011)
12,109	11,320	11,486	-10.1%

Note:

To facilitate comparison between census years, population counts for Terrace have been adjusted by Statistics Canada to account for boundary changes between the 1996 and 2001 censuses.

Source: Statistics Canada (2007a, 2010, 2012a).

Terrace’s median age increased to 38.8 years in 2011, consistent with the regional trend (Statistics Canada 2007a, 2012a). In spite of this increase, the median age remains below the provincial median of 41.9 (Statistics Canada 2012a). At the time of the previous census (2006), over 21% of Terrace’s population identified as Aboriginal, notably higher than both Smithers and Stewart, though lower than the 29% figure for the RSA (Statistics Canada 2012a).

Terrace is a resource-based economy, relying heavily on forestry employment and, to a lesser extent, the provision of mining and other services for the region. Terrace’s role as a service centre is supported by infrastructure such as Northwest Regional Airport, Northwest Community College (NWCC), and Mills Memorial Hospital. Historic economic drivers for Terrace were forestry, fishing, and mining. However, the community is now diversifying to include more white-collar work (Invest BC 2012). The community serves as a regional centre for business, retail, medical,

and government services, as well as a hub for highway, rail, and air transportation (Invest BC 2012). Six percent of incomes in Terrace were dependent on mining in 2006 (Horne 2009b).

The potential labour force of the community, as indicated by the population over 15 years of age, represented three-quarters of the overall population (i.e., approximately 8,840 individuals). This falls short of the provincial average of 83.5% (Table 20.1-38). Terrace reports a participation rate of 68.6%, indicating that around 6,000 residents are formally part of the labour force, with 62.3% reporting employment, similar to provincial rates (Table 20.1-38). The unemployment rate in Terrace was 9.3% in 2006 (Table 20.1-38).

Table 20.1-38. Labour Force Data for Terrace (2001 and 2006)

Labour Force	Terrace 2001			Terrace 2006			British Columbia 2006		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total Population 15 years+	6,910	3,650	3,255	8,735	4,285	4,445	3,394,910	1,649,590	1,745,320
In the Labour Force	5,555	2,935	2,620	5,995	3,035	2,960	2,226,380	1,166,660	1,059,725
Participation Rate (%)	70.5%	76.2%	64.9%	68.6%	70.8%	66.6%	65.6%	70.7%	60.7%
Employment Rate (%)	61.0%	64.7%	57.3%	62.3%	64.3%	60.4%	61.6%	66.7%	56.9%
Unemployment Rate (%)	13.5%	15.1%	11.8%	9.3%	9.2%	9.1%	6.0%	5.8%	6.3%

Note: Numbers may not sum due to rounding errors at source.
Source: Statistics Canada (Statistics Canada 2007a, 2010).

Nearly half of the labour force in Terrace is made up of management, professional, technical, and highly skilled occupations (TEDA). The goods-producing sectors employ a large portion of Terrace residents, as do the retail and other services industries (Table 20.1-39). There was a decline in the number of people employed in most sectors, with the exceptions of farming, utilities, general merchandise stores, finance and insurance, administrative support and waste management services, educational services, health care and social services, accommodation and food services, food services and drinking places, and public administration (Table 20.1-39).

Annual median earnings from all employment were reported at \$25,771, which was almost identical to the provincial average (Table 20.1-40). Annual median earnings for those who worked full-time all year were \$45,957, over \$3,500 greater than the provincial average. Both male and female median earnings in Terrace slightly exceeded the provincial averages. The city exhibits a large discrepancy between male and female incomes, with males reporting median incomes of 33% more than females (Table 20.1-40).

Table 20.1-39. Number of Terrace Labour Force Employed by Industry Sector (2001 and 2006)

Industry Sector (NAICS)	2001	2006	% Change
Total labour force	6,425	5,995	- 6.7
Industry - not applicable	195	105	- 46.2
All industries (Experienced LF)	6,230	5,890	- 5.5
111-112 Farms	20	70	250.0
113 Forestry and logging	205	180	- 12.2
114 Fishing, hunting and trapping	-	-	-
1151/2 Support activities for farms	-	-	-
1153 Support activities for forestry	105	85	- 19.0
21 Mining and oil and gas extraction	15	-	- 100.0
22 Utilities	40	45	12.5
23 Construction	335	335	-
31-33 Manufacturing	575	405	- 29.6
311 Food manufacturing	15	10	- 33.3
321 Wood product manufacturing	340	125	- 63.2
322 Paper manufacturing	60	50	- 16.7
41 Wholesale trade	165	110	- 33.3
44-45 Retail trade	935	800	- 14.4
441 Motor vehicle and parts dealers	140	80	- 42.9
445 Food and beverage stores	210	130	- 38.1
448 Clothing and clothing accessories	75	55	- 26.7
452 General merchandise stores	100	220	120.0
48-49 Transportation and warehousing	405	310	- 23.5
51 Information and cultural industries	160	145	- 9.4
52 Finance and insurance	200	215	7.5
53 Real estate and rental/leasing	75	50	- 33.3
54 Prof'sonal, scientific and tech. serv.	220	190	- 13.6
55 Mgmt. of companies/enterprises	-	10	-
56 Admin and support, waste mgmnt srv.	165	195	18.2
61 Educational services	565	640	13.3
62 Health care and social assistance	745	785	5.4
71 Arts, entertainment and recreation	145	110	- 24.1
72 Accommodation and food services	540	575	6.5
721 Accommodation services	170	95	- 44.1
722 Food services and drinking places	370	475	28.4
81 Other services (excl. public admin.)	270	215	- 20.4
91 Public administration	350	405	15.7

Source: BC Stats (2012c).

NAICS = North American Industry Classification System.

Table 20.1-40. Terrace Income Characteristics (2005)

Characteristics	Terrace	British Columbia
Annual median earnings	\$25,771	\$25,722
Annual full-time median earnings	\$45,957	\$42,230
• Males	\$55,129	\$48,070
• Females	\$36,468	\$36,736
Composition of total income (%)		
• Earnings	76.9%	75.1%
• Government transfers	12.7%	10.7%
• Other money	10.5%	14.2%

Source: Statistics Canada (2010).

Note: Numbers may not sum due to rounding errors at source.

20.2 Historical Activities

Historical economic and natural resource development activities have contributed to the current regional and local economic setting. This historical activity relates to natural resource endowments and resource extraction activities, available transportation, and the relative isolation of the LSA communities.

The challenges of transportation in northern BC have historically played a prominent role in development. The mountainous topography hindered development of transportation networks due to the need to stay within valleys. This served to contribute to isolation, as travel between communities took longer and was more difficult than in less mountainous areas. The sense of isolation in northern BC is further exemplified by the location of major urban centres in the extreme south of the province (Halseth et al. 2004). The development of the transportation network in northwestern BC, including road, rail, and port facilities, has supported an economy focused on exporting its natural resource to southern and international markets.

Forestry, fishing, and coal mining were the large drivers of the economy of northwestern BC through the 1950s to the 1980s. The BC government followed a policy of industrial resource development that historically saw rapid community growth (Halseth et al. 2004). Within the RSA, this established a local economy and an experienced labour force based in natural resource extraction.

Another driver of change to northern BC's communities is the location of resources. A given community is typically not economically diverse, resulting in high sensitivity to the demand for a given resource. Examples can be found in the slowdown of mining and fishing activities and the increase in oil and gas activity, resulting in the decline of some communities and prosperity and growth for others (Halseth et al. 2004).

Within the RSA, the economic setting has been affected by a downturn in the forestry industry over the past 10 years, as currently the majority of sawmills and pulp mills in the region are closed. Additionally, the closure of mines in the area, such as Eskay Creek and Golden Bear, has affected the resource sector. The economies of the LSA communities continue to be largely resourced-based and have a continued focus on supporting these sectors in the region.

The current socio-economic setting of Aboriginal communities has evolved from historical policy and practice that did not focus on Aboriginal inclusion in economic opportunities and from heavy reliance on resource industry development for livelihood (Northwest Tribal Treaty Nations 2010). The development of fishing and forestry created reliance on these industries over traditional land use activities. The decline in the forestry and fishing industries since the 1980s has negatively impacted Aboriginal communities, as reflected by high unemployment rates.

As noted in the previous section, the economy in northwestern BC has become more diversified in recent years. Other industries that have become important to the region include energy (including hydroelectric power) and tourism. In some communities, employment levels have increased in the public service, sales and service, tourism, transportation, and mineral exploration sectors. Some significant employment sectors in Aboriginal study communities include sales and service, mineral exploration, labour, and government administration.

20.3 Land Use Planning Objectives

The Cassiar Iskut-Stikine Land and Resource Management Plan (CIS LRMP; BC ILMB 2000), which overlaps with the western portion of the LSA, defines specific land and resource management objectives. The LRMP framework aims to balance environmental, economic, and social objectives by facilitating greater economic certainty for local development while maintaining lifestyle opportunities. The specific economic-related goals and objectives of the Cassiar Iskut-Stikine LRMP pertaining to sustainable development and healthy and sustainable communities are listed in Table 20.3-1. In addition to these goals and objectives, general management directions have been defined for a number of area-specific Resource Management Zones. These goals and objectives speak to the management of mineral and energy resources, hunting, trapping, guide outfitting, fishing, recreation and tourism, and timber resources, among others.

The CIS LRMP aims to enhance certainty for industry and promote investment to create local employment and business opportunities (BC ILMB 2000). Exploration and development of mineral deposits are permitted activities throughout the majority of the plan area, providing they occur in concordance with all relevant acts and in consideration of social, economic, and environmental interests.

The Nass South Sustainable Resource Management Plan (SRMP; BC MFLNRO 2012) also provides guidance on permitted land use activity in an area that overlaps with the LSA. The Nass South SRMP's main function is to address sustainable management issues concerning land, water, and resources in the southern portion of the Nass Timber Supply Area (TSA). However, the plan also aims to facilitate a wide variety of economic opportunities while conserving high-value cultural and environmental resources. Resource use and permitted development activities include mineral resource activity, timber harvesting, commercial recreation and tourism, guide outfitting, hunting, fishing, trapping, and cultural land uses. Limited reference is made to mineral exploration and development in the Nass South SRMP beyond that such activity, along with related road development, is permitted in all zones (except parks and protected areas), providing the necessary regulatory approval processes and conditions are satisfied.

Table 20.3-1. Cassiar Iskut-Stikine Land and Resource Management Plan: Economic-related Goals and Objectives

Goals	Objectives
<i>Healthy and sustainable communities</i>	<ul style="list-style-type: none"> • Opportunities for skill development and job training. • Jobs for local people. • Entrepreneurial capacity. • Adequate healthcare. • A safe and secure environment. • A wide range of recreation opportunities. • Local benefits from resource development and extraction. • Communication and cooperation between native and non-native communities.
<i>Sustainable development</i>	<ul style="list-style-type: none"> • A diversified economic base. • Job opportunities for local people. • Healthy, sustainable, well balanced use of resources. • Development that respects local cultures and lifestyles. • Development that provides optimal returns to local communities and the province. • Access to technology and capital. • Infrastructure to support local economic potential. • Minimum environmental footprints from all sectors. • Generate local financial capacity to support ongoing development.

Among the LSA communities, Official Community Plans (OCPs) have been developed for the Town of Smithers and the City of Terrace. For Smithers, the policies that speak directly to economic development include the following (Town of Smithers 2010):

- **Policy 8.1:** Council endorses the 1998 Community Economic Development Strategy as a guiding framework to support economic development in Smithers and will work to achieve the recommendations of that strategy.
- **Policy 8.2:** The current broad-based and diverse economy in Smithers is a particular strength, and it is unusual for a northern community. Retaining and strengthening this diversity is a guiding principle for economic development in Smithers, and Council will give careful consideration and support to business activities, which strengthen the diversity of economic activities.
- **Policy 8.4:** Regional and provincial government offices in Smithers are an important part of economic diversity, and Council will make all efforts to ensure provincial government services are retained or expanded as much as possible.
- **Policy 8.5:** Council recognizes the economic foundation provided to the community by resource industries, notably forestry, agriculture, and mining, and supports all efforts for these industries to become viable, sustainable and environmentally sensitive components of the local and regional economy.
- **Policy 8.6:** Council supports business initiatives, which provide added value to resources and supports development of compatible value-added secondary manufacturing businesses within Smithers' industrial areas.

- **Policy 8.7:** Smithers supports the enhancement of the regional airport and rail service.
- **Policy 8.9:** Smithers will continue to enhance its role as the regional centre for retail and wholesale business.

Terrace has adopted a set of objectives, under its recently revised OCP, focusing on economic development and diversification, social well-being, local culture, and reducing its environmental footprint. Key economic objectives include (City of Terrace 2011):

- supporting the development of additional commercial and industrial lands;
- developing a diversified local and regional economy through the promotion of commercial, service, technological, and industrial opportunities, as well as partnerships with other municipalities and First Nations groups;
- promoting tourism to the city and region; and
- investing in the transportation network infrastructure to maintain the city's role as a regional hub and service centre.

20.4 Spatial and Temporal Boundaries

20.4.1 Spatial Boundaries

The spatial boundaries for the economic effects assessment were selected based on the extent of the economic supply, demand, and production systems that may be affected by the Project. Because of employment and expenditures of the Project, there are expected to be community-level effects primarily related to local employment and business opportunities, regional effects related to further-reaching business supply and service arrangements, and broad provincial-level economic impacts. The spatial boundaries of the effects assessment are defined as follows:

- **Provincial study area:** The province of BC as a whole is considered as it relates to the impacts on the provincial economy and natural resource development.
- **RSA:** The RSA is defined as the northwestern BC region that includes the RDKS and Electoral Area A of the RDBN (Figure 20.1-1).
- **LSA:** The LSA communities include the Nisga'a villages (Gitlaxt'aamiks, Gitwinksihlkw, Laxgalts'ap, and Gingolx); the Tahltan communities of Telegraph Creek (Telegraph Creek 6 and 6A, and Guhthe Tah 12), Iskut 6, and Dease Lake 9; Gitanyow 1; Hazelton and New Hazelton (where most of the Skii km Lax Ha and many Gitksan members reside); the District of Stewart; the Town of Smithers; the City of Terrace; and the unincorporated communities of Dease Lake, Bell II, Meziadin Junction, and Bob Quinn Lake (Figure 20.1-2).

20.4.2 Temporal Boundaries

The temporal boundaries of the economic effects assessment include four phases:

- construction phase (5 years);
- operation phase (51.5 years);

- closure phase (3 years); and
- post-closure phase (250 years).

20.5 Valued Components

Determination of economic valued components (VCs) involved several steps, including:

- review of the Application Information Requirements (AIR);
- review of the issues identified by stakeholders and the public from consultation activities;
- socio-economic interviews with individuals within the communities; and
- engagement with Aboriginal groups.

VCs were identified based on consideration of the information and issues communicated by the Nisga'a Nation, First Nations, local communities, government agencies, and the public during the consultation conducted as part of Project planning and in support of the environmental assessment. Consultation activities focused on those communities that comprise the LSA (Section 20.1.1), although potential regional and provincial-level issues were also taken into account. Professional judgement was used to focus the assessment on relevant economic VCs. The selected economic VCs are consistent with the VCs identified in the Application Information Requirements (AIRs) issued in January 2011 by the BC Environmental Assessment Office.

20.5.1 Valued Components Included in Assessment

The AIR requires the estimation of employment, capital costs of the Project, and government tax revenues (e.g., income tax, sales tax, revenues, and rural property tax). Project information is also to include a breakdown of the types of jobs provided. Indirect and induced employment, income, revenue generation, and GDP effects are to be predicted. As also specified by the AIR, the assessment is to evaluate and understand how the local and regional economic priorities and activities interact with the Project. The evaluation is also to be based on the perceptions and concerns of local populations and Aboriginal communities.

Local communities have expressed an interest in the employment opportunities and economic growth that may occur as a result of the Project. There are expected to be a number of opportunities available for businesses within the LSA, as well as across the RSA and province, to provide goods and services directly to the Project. There are also expected to be indirect opportunities for both Aboriginal-owned and non-Aboriginal-owned businesses to sell to suppliers within the RSA and for local business development as a result of workers spending their incomes.

The employment opportunities that are made available to Aboriginal peoples within the LSA, including the equity of employment compared to the non-Aboriginal population, is of interest to government and Aboriginal groups. The Project also has the potential to provide specific opportunities for Aboriginal-owned businesses. Aboriginal communities have expressed an interest in the potential for the economic effects of the Project to result indirectly in the further development of commercial services and infrastructure provided in local communities.

The VCs selected for assessing the potential impacts of the Project on economics are: 1) employment and income; and 2) business opportunities and economic development. Employment and income includes the potential effects on direct, indirect, and induced employment, personal and household income, GDP, and government tax revenues. The potential effect on employment also considers the opportunities and benefits to Aboriginal communities. Business opportunities and economic development includes the potential for benefits to local businesses, including Aboriginal-owned businesses, and the overall growth and development of the local and regional economy. The rationale for the inclusion of these VCs is outlined in Table 20.5-1.

Table 20.5-1. Identification and Rationale for Economic Valued Component Selection

Valued Component	Identified by*				Rationale for Inclusion
	AG	G	P/S	O	
Employment and Income	X	X	X		The Project is expected to result in direct and spin-off employment, income, and GDP impacts. The AIR requires estimation of employment, capital costs of the Project, and government revenues; indirect and induced employment, income, revenue generation, and GDP effects are also to be predicted. Aboriginal groups and local communities have expressed an interest in the employment opportunities of the Project.
Business Opportunities and Economic Development	X	X	X		The goods and services required by the Project are expected to result in opportunities for local businesses, including Aboriginal-owned businesses. The Project has the potential to contribute broadly to the economic development of LSA communities, the RSA, and the province.

Notes:

AG = Aboriginal Group
G = Government
P/S = Public/Stakeholder
O = Other

20.5.2 Valued Components Excluded from Assessment

No issues identified through the scoping process have been excluded from the economic effects assessment. A number of potential effects have been identified that, although having economic aspects, are mainly due to the Project’s affect on the ability of tenure holders (e.g., holders of commercial recreation licences) to access their tenures, as well as potential effects on the quantity of resources that may adversely affect businesses that rely on the use of the land. Concern has been expressed by tenure holders regarding the potential adverse effects of the Project on the local wilderness tourism industry. Aboriginal groups have also expressed concern for the potential for adverse effects on commercial fishing, commercial mushroom harvesting, trapping, hunting and fishing outfitters/guide businesses, and other commercial activities based on the use of the land. Economic activity directly associated with land and resources is addressed as part of land use (Chapter 23).

20.6 Scoping of Potential Economics Effects

The Project will result in considerable employment and expenditures on supplies and services. This is expected to result in direct and spin-off (indirect and induced) economic impacts that include employment gains, increases in personal income, and increases in overall economic value-added (GDP). The Project will also contribute to government tax revenues from the resulting personal income tax, corporate profit tax, and sales tax. The Project will also pay rural property tax and revenues (BC mineral tax). Businesses that are direct and indirect suppliers to the Project are also expected to benefit from the Project, as are businesses that provide goods and services to workers and their families. These impacts will potentially occur within the LSA and RSA, as well as across the province and Canada.

Currently, there is a relatively high level of unemployment within Aboriginal communities. The engagement and meaningful participation of economically disenfranchised segments of the population is important in the achievement of economic development within the LSA and across the region. The Project has the potential to provide substantial employment and income opportunities for Nisga'a Nation and First Nation communities, as well as Nisga'a Nation- and First Nation-owned businesses.

The potential effects of the Project on the two economic VCs—1) employment and income, 2) and business opportunities and economic development—are presented in the following sections. The interactions between the Project and these two VCs is through the Project activities of direct employment and procurement of goods and services (Tables 20.6-1 to 20.6-3). These two Project activities include all employment and procurement associated with the individual Project areas listed in Tables 20.6-1 and 20.6-2 ([Appendix 20-D](#)). These sections contain descriptions of the methods used to determine the potential effects for each VC.

20.6.1 Construction

Construction expenditures are estimated to occur over a five-year period, starting in 2014 and ending in 2019. For the construction phase, total direct capital investment by the Project will be approximately \$5.26 billion, of which about \$4.61 billion is expected to be direct expenditures in Canada (Table 20.6-4). The majority of capital expenditures are expected to be sourced within BC, followed by Alberta, Ontario, and, to a lesser extent, Quebec. The remaining expenditures are sourced internationally.

Direct on-site Project employment is estimated to be an average of approximately 314 person-years for the first year of construction in 2014, increasing to a peak of 2,260 person-years in 2018 (Table 20.6-5). Total direct Project employment over the five-year period is estimated to be approximately 7,450 person-years in BC and 9,314 person-years for all of Canada. The specific origins of the construction workers is not yet known, but they will likely come from a variety of communities within the LSA and the RSA, as well as from across the province and elsewhere. The majority of construction employment is expected to be sourced within BC, with lesser amounts from the other provinces.

Table 20.6-1. Potential Effects from Project on Employment and Income

Project Region	Project Area	Change in Employment	Change in Income and Value-added
Mine Site	Camp 3: Eskay Staging Camp Camp 7: Unuk North Camp Camp 8: Unuk South Camp Coulter Creek Access Road Mitchell Operating Camp McTagg Rock Storage Facility (RSF) McTagg Twinned Diversion Tunnels (MTDT) McTagg Power Plant Mitchell Rock Storage Facility (RSF) Camp 4: Mitchell North Camp (for MTT construction) Mitchell Ore Preparation Complex (Mitchell OPC) Mine Site Avalanche Control Iron Cap Block Cave Mine Mitchell Pit Mitchell Block Cave Mine Mitchell Diversion Tunnels (MDT) Upper Sulphurets Power Plant Mitchell Truck Shop Water Storage Facility (WSF) Camp 9: Mitchell Initial Camp Camp 10: Mitchell Secondary Camp Water Treatment and Energy Recovery Area Sludge Management Facilities Sulphurets Laydown Area Sulphurets-Mitchell Conveyor Tunnel Sulphurets Pit Kerr Rope Conveyor Kerr Pit Camp 2: Ted Morris Camp Explosives Manufacturing Facility Temporary Frank Mackie Glacier Access Route Camp 1: Granduc Staging Camp		
Processing and Tailing Management Area	Mitchell-Treaty Twinned Tunnels (MTT) Construction Access Adit Mitchell-Treaty Saddle Area		

(continued)

Table 20.6-1. Potential Effects from Project on Employment and Income (completed)

Project Region	Project Area	Change in Employment	Change in Income and Value-added
Processing and Tailing Management Area (<i>cont'd</i>)	Camp 6: Treaty Saddle Camp		
	Camp 5 : Treaty Plant Camp		
	Treaty Operating Camp		
	Treaty Ore Preparation Complex		
	Concentrate Storage and Loadout		
	North Cell Tailing Management Facility		
	East Catchment Diversion		
	Centre Cell Tailing Management Facility		
	South Cell Tailing Management Facility		
	Treaty Creek Access Road		
	Camp 11: Treaty Marshalling Yard Camp		
	Camp 12: Highway 37 Construction Camp		
	Off-site Transportation	Highway 37 and 37A	
Workforce and Procurement	Employment	X	X
	Procurement of Goods and Services	X	X

Note: X = interaction between component and effect.

Table 20.6-2. Potential Effects from Project on Business Opportunities and Economic Development

Project Region	Project Area	Change in Business Activity	Change in the Economy
Mine Site	Camp 3: Eskay Staging Camp		
	Camp 7: Unuk North Camp		
	Camp 8: Unuk South Camp		
	Coulter Creek Access Road		
	Mitchell Operating Camp		
	McTagg Rock Storage Facility (RSF)		
	McTagg Twinned Diversion Tunnels (MTDT)		
	McTagg Power Plant		
	Mitchell Rock Storage Facility (RSF)		
	Camp 4: Mitchell North Camp (for MTT construction)		
	Mitchell Ore Preparation Complex (Mitchell OPC)		
	Mine Site Avalanche Control		
	Iron Cap Block Cave Mine		

(continued)

Table 20.6-2. Potential Effects from Project on Business Opportunities and Economic Development (completed)

Project Region	Project Area	Change in Business Activity	Change in the Economy
Mine Site (cont'd)	Mitchell Pit Mitchell Block Cave Mine Mitchell Diversion Tunnels (MDT) Upper Sulphurets Power Plant Mitchell Truck Shop Water Storage Facility (WSF) Camp 9: Mitchell Initial Camp Camp 10: Mitchell Secondary Camp Water Treatment and Energy Recovery Area Sludge Management Facilities Sulphurets Laydown Area Sulphurets-Mitchell Conveyor Tunnel Sulphurets Pit Kerr Rope Conveyor Kerr Pit Camp 2: Ted Morris Camp Explosives Manufacturing Facility Temporary Frank Mackie Glacier Access Route Camp 1: Granduc Staging Camp		
Processing and Tailing Management Area	Mitchell-Treaty Twinned Tunnels (MTT) Construction Access Adit Mitchell-Treaty Saddle Area Camp 6: Treaty Saddle Camp Camp 5: Treaty Plant Camp Treaty Operating Camp Treaty Ore Preparation Complex Concentrate Storage and Loadout North Cell Tailing Management Facility East Catchment Diversion Centre Cell Tailing Management Facility South Cell Tailing Management Facility Treaty Creek Access Road Camp 11: Treaty Marshalling Yard Camp Camp 12: Highway 37 Construction Camp		
Off-site Transportation	Highway 37 and 37A		
Workforce and Procurement	Employment Procurement of Goods and Services	X X	X X

X = interaction between component and effect.

**Table 20.6-4. KSM Project Capital and Operating Expenditures
in Canada, 2014 to 2071**

Year	Annual Average Expenditures (Million Constant Dollars)		
	Construction	Operation	Total
2014	\$213.4	-	\$213.4
2015	\$662.6	-	\$662.6
2016	\$949.6	-	\$949.6
2017	\$991.6	-	\$991.6
2018	\$1,114.4	-	\$1,114.4
2019	\$681.1	-	\$681.1
2020	-	\$851.6	\$851.6
2021	-	\$732.9	\$732.9
2022	-	\$751.5	\$751.5
2023	-	\$781.5	\$781.5
2024	-	\$742.4	\$742.4
2025	-	\$667.8	\$667.8
2026	-	\$738.5	\$738.5
2027	-	\$669.0	\$669.0
2028	-	\$655.3	\$655.3
2029	-	\$687.2	\$687.2
2030-2039	\$49.8	\$5,656.5	\$5,706.2
2040-2049	\$1,461.1	\$7,366.2	\$8,827.2
2050-2059	\$1,304.4	\$6,628.5	\$7,932.9
2060-2069	\$255.6	\$6,137.8	\$6,393.5
2070-2071	\$21.1	\$1,190.3	\$1,211.3
Total	\$7,704.8	\$34,256.9	\$41,961.7

Note:

The input data were provided at the prefeasibility study-level of estimation. A 1:1 exchange rate is assumed in converting the costing information in US dollars to Canadian dollars. All values reported here are in constant 2012 Canadian dollars. The capital and operating costs have been estimated to a +25/-10% level of accuracy.

Procurement of the required goods and services from within the RSA and elsewhere in the province, as well as from suppliers across Canada and internationally, is expected to result in positive economic impacts on these businesses and contribute to an increase in provincial and national employment, income, GDP, and government tax revenues. Project-related employment will provide a source of income to be spent within local and home communities. Overall, the employment and business opportunities associated with the Project are expected to make positive contributions to the economic development of the LSA communities, the RSA, BC, and Canada as a whole.

Table 20.6-5. KSM Project Capital and Operating Employment, 2014 to 2071

Year	Annual Average Employment (Person-years)		
	Construction	Operation	Total
2014	314	-	314
2015	1,048	-	1,048
2016	1,923	-	1,923
2017	2,059	-	2,059
2018	2,260	-	2,260
2019	1,710	-	1,710
2020	-	1,066	1,066
2021	-	1,061	1,061
2022	-	1,075	1,075
2023	-	1,074	1,074
2024	-	972	972
2025	-	979	979
2026	-	977	977
2027	-	967	967
2028	-	937	937
2029	-	865	865
2030	-	866	866
2031	-	866	866
2032	-	866	866
2033	-	866	866
2034	-	866	866
2035	-	866	866
2036	-	866	866
2037	-	866	866
2038	-	866	866
2039	124	875	999
2040	142	893	1,035
2041	200	897	1,097
2042	284	913	1,197
2043	292	913	1,205
2044	292	913	1,205
2045	224	1,194	1,418
2046	254	1,197	1,451
2047	292	1,208	1,500
2048	402	1,226	1,628

(continued)

Table 20.6-5. KSM Project Capital and Operating Employment, 2014 to 2071 (completed)

Year	Annual Average Employment (Person-years)		
	Construction	Operation	Total
2049	446	1,238	1,684
2050	446	996	1,442
2051	446	1,263	1,709
2052	446	1,263	1,709
2053	281	1,263	1,544
2054	199	1,252	1,451
2055	199	1,265	1,464
2056	199	1,278	1,477
2057	199	1,286	1,485
2058	199	1,286	1,485
2059	199	1,286	1,485
2060	143	1,264	1,407
2061	28	1,262	1,290
2062	6	1,219	1,225
2063	6	1,185	1,191
2064	6	1,185	1,191
2065	6	1,176	1,182
2066	6	1,108	1,114
2067	6	926	932
2068	6	901	907
2069	6	872	878
2070	6	726	732
2071	-	666	666
Total	15,304	54,162	69,466

20.6.2 Operation

The Project is predicted to be in operation for approximately 51.5 years, beginning in 2020 and ending in 2071. Operating expenditures are estimated to be initially \$852 million in 2020, thereafter varying from as low as approximately \$570 million/year to a high of \$780 million/year¹⁷ (Table 20.6-4). Total direct spending by the Project is estimated to be approximately \$34.3 billion over the life of the mine. The majority of direct Project expenditures are expected to occur within BC. Alberta, Ontario, Quebec, and the rest of Canada are all expected to receive smaller shares of direct operating expenditures, depending on the requirements of the purchases.

¹⁷ Operation expenditures include sustaining capital, mainly consisting of expenditures to replace equipment that has reached the end of its useful life.

During operation, there will also be construction work associated with the move to underground mining (block caving), expected to start in the year 2039 and continuing for a number of years. Capital expenditures associated with the move to underground mining total approximately an additional \$3.1 billion in Canada (Table 20.6-4). For the purposes of the economic effects assessment, all employment and capital expenditures associated with the move to underground mining are included as part of operation.

Direct employment is predicted to be approximately 1,066 person-years for the first year of operation in the year 2020, remaining at that approximate level for four years, then decreasing moderately to 865 by 2029 and remaining near that level for approximately 10 years (Table 20.6-5). Employment is expected to increase again starting in the year 2040, reaching a peak total of approximately 1,709 in 2051 and 2052; this increase is mainly attributed to a move to underground mining. Total employment is projected to then decrease moderately until the estimated end of operation in 2071. Direct Project employment over the 51.5-year mine life, excluding the construction component for the move to underground mining, is predicted to total approximately 35,205 person-years in BC and 52,537 person-years for all of Canada, excluding the relatively small foreign worker component. For the underground mining construction component, direct Project employment is estimated to total approximately 4,621 person-years in BC and 5,811 person-years for all of Canada.

The origins of the workforce for operations are not yet known, although it is likely that a greater proportion of workers will come from LSA communities and within the RSA than during construction. On average, it is predicted that approximately 65% of operation workforce will be BC residents, with the remainder being from other provinces in Canada. It is expected that only a relatively minor component of the operation labour force will be from outside of Canada (an estimated 3% of the total direct workforce), those being individuals with specialized skillsets and qualifications.

During operation, there are expected to be substantial economic benefits through employment and through businesses directly and indirectly supplying to the Project. There will be opportunities to local businesses, including Aboriginal-owned businesses. This, in turn, is expected to contribute positively to employment, income, GDP, and government tax revenues. The long duration of operation will support the economic development of LSA communities and the RSA. In particular, with the long duration of operation the Project has the potential to substantially enhance the work experience, education, and skill levels of the regional workforce, including both Aboriginal and non-Aboriginal workers, contributing to long-term economic development.

During operation, there is the potential for Project employment and production levels to change in response to market conditions. If LSA and RSA communities become economically dependent on the Project, these communities may be vulnerable to any downturns in the market. If this occurs, there is the potential for adverse effects due to a change in the economy. Aboriginal groups have expressed concern regarding the economic risks of a Project shut-down or abandonment after construction is complete and/or operation has begun.

20.6.3 Closure

Mine decommissioning and reclamation of various mine site, processing, and tailing management facilities, as well as the ongoing operation and maintenance of a number of Project components (i.e., camps, rock storage and water storage facilities, tunnels, power plant, water treatment, sludge management facility, and the Treaty Creek access road) during closure, will provide employment and business opportunities. Specific estimates of direct employment and expenditures during this phase of the Project are not yet available because closure is very distant in the future; however, total capital expenditures associated with decommissioning are estimated at approximately \$132 million (see Section 27.10.1). Detailed engineering design will be completed at a point in time closer to closure. However, as direct project expenditures and employment will be much less than during operation, an overall loss of employment, income, GDP, and government tax revenues at closure is predicted. This loss of employment and reduction in expenditures to suppliers has the potential to further result in indirect and induced employment and income loss. LSA communities that have become economically dependent on the Project during operation may experience adverse effects during closure, although there will be continued employment and procurement by the Project that otherwise would not occur.

20.6.4 Post-closure

During post-closure there will be reclamation of additional mine site facilities, but with the majority of activities focused on the ongoing operation and maintenance of the Project components that are to remain (i.e., a camp, rock storage and water storage facilities, tunnels, power plant, water treatment, sludge management facility, and the Treaty Creek access road). As with closure, specific estimates of direct employment and expenditures during this phase of the Project are not yet available because post-closure is very distant in the future. Detailed engineering design will be completed at a point in time closer to post-closure. Associated procurement expenditures and direct employment by the Project will provide employment and business opportunities, but as with closure these opportunities will be much more limited than during operation.

20.7 Potential for Residual Effects for Economics

Residual economic effects are evaluated with respect to potential effects on: 1) employment and income; and 2) business opportunities and economic development. The potential effects on employment and income include changes to employment, personal income, and GDP, as well as government tax revenues mainly from increases in income tax, sales tax, corporate profits tax, revenues, and rural property tax. Potential effects on business opportunities and economic development include changes in business activity, with businesses becoming suppliers to the Project and providing goods and services to workers and their families, and changes in the economy, with the overall growth and development of the local and regional economies.

These residual effects are expected to be positive for the construction, operation, closure, and post-closure phases of the Project; however, the reduction in total employment and procurement expenditures during closure and post-closure compared to operation will result in a loss of employment, income, and business opportunities by comparison. The Project is expected to contribute broadly to the economic development of LSA communities, the RSA, and the province.

20.7.1 Economic Impact Modelling

20.7.1.1 Modelling Approach

An economic impact model was used to estimate the direct, indirect, and induced economic benefits of the Project:

- Direct impacts are impacts associated with employment and expenditures directly by the Project, and the resulting effects on industries directly contracted to supply the goods and services used by the Project.
- Indirect impacts are impacts associated with all industries in the supply chain that are ultimately supplying the goods and services used by the industries directly supplying the Project. Indirect impacts include all transactions to the beginning of the supply chain.
- Induced impacts are impacts associated with workers spending their incomes on goods and services; this includes those directly and indirectly employed because of the Project.

The model used, DYNATEC, is based on Statistics Canada's Input-Output Model of the economies of Canada and the provinces, but incorporates dynamic and non-linear simulations of the likely effects. The current version of the DYNATEC model uses the 2007 dataset of Statistics Canada's Input-Output Model, enhanced with data from various sources dating from 2007 to 2010. The core of the model operates at a level of aggregation consisting of 476 commodities and 117 industries. For the Project, both open and closed versions of the model were run. The open model is used to estimate indirect effects (effects from inter-industry purchases of goods and services), while the closed version is used to estimate induced effects (effects from spending resulting after-tax household income, primarily from wages and salaries, taking into account the propensity to save).

In addition to the model's ability to simulate the dynamic nature of the economy, a key characteristic is its ability to provide estimates of the distribution of the effects by Census Division (CD) within a province. The model does this through a mathematical allocation that takes into account the characteristics of existing industries and businesses within each CD, current economic structures and supplier relationships, and employment and skill-base profiles. As well as also being able to estimate the economic impacts of the Project not just in BC but across Canada, this is a significant benefit of using the DYNATEC model over the BC Input-Output Model (BCIOM).

The economic modelling was conducted for each year of construction (estimated to occur from the year 2014 to 2019), for each year of operation from the year 2020 to 2029, then for 10-year blocks from 2030 to 2069, and for the 2-year period of 2070 to 2071 when operation is expected to end.

The output statistics of the economic impact modelling include:

- employment;
- personal income (wages and salaries, supplementary labour income, and mixed income);

- Gross Domestic Product; and
- government tax revenues (from personal income tax, corporate profit tax, and sales tax).

The detailed results of the economic impact modelling are provided in the *2012 Economic Model Report* ([Appendix 20-B](#)). The model results were subject to an independent third-party peer review conducted by PricewaterhouseCoopers LLP, the results of which are provided in [Appendix 20-C](#). PricewaterhouseCoopers LLP concluded that the *2012 Economic Model Report* ([Appendix 20-B](#)) satisfies the requirements of the AIR with regard to conducting a study that reports on job creation and broad projections of economic impacts as they relate to the proposed construction and operation of the KSM Project.

20.7.1.2 Economic Impact Model Results

The Project is predicted to result in substantial economic benefits to BC and Canada as a whole for well over a 60-year period ([Appendix 20-B](#)). A summary of the key economic impacts is provided in Table 20.7-1.¹⁸

Table 20.7-1. Summary of Economic Impacts of the KSM Project for Construction and Operation

Year	Employment (Person-years)	GDP (Million Constant Dollars)	Tax Revenue (Million Constant Dollars)		
			Federal	Provincial	Total
Construction					
BC	31,094	\$3,445.6	\$408.4	\$182.8	\$591.3
Canada	55,248	\$6,020.8	\$731.6	\$344.5	\$1,076.0
Operation					
BC	194,313	\$20,846.8	\$2,808.0	\$1,265.2	\$4,073.2
Canada	395,868	\$41,673.7	\$5,368.4	\$2,641.1	\$8,009.6

Source: 2012 Economic Model Report ([Appendix 20-B](#)).

Notes: Project-related employment includes the sum of direct, indirect, and induced employment. Operation employment includes construction for underground mining (pit caving).

During construction, there will be an estimated average of 1,800 direct (on-site) jobs (full-time equivalent, FTE). For indirect jobs, there will be an estimated average of about 2,510 (FTE) jobs in BC and 4,770 in Canada (including BC). Additionally, the number of induced jobs (from workers spending their incomes) will average approximately 4,410 (FTE) across Canada, with approximately 2,220 of those in BC. Direct KSM Project spending for goods and services in the province is estimated at approximately \$3.5 billion. Total GDP generated in BC by the Project (direct, indirect, and induced) will be approximately \$3.4 billion, and \$6.0 billion for all of Canada (Table 20.7-1). Total tax revenue (federal and provincial) is estimated to be approximately \$591 million from economic activity in BC and \$1.08 billion for all of Canada.

¹⁸ For the construction phase of the Project, economic impact modeling assumed a phase duration of 5.5 years as apposed to the 5 years specified for the effects assessment (Section 20.4.2). Similarly, all reporting and summarization of results that are dependent on the duration of the construction phase assumes 5.5 years. This means the results as reported may be conservative.

For operation, it is estimated that there will be an average of 1,040 jobs (FTE) on site annually, with an average of an additional 1,840 indirect jobs in BC and 3,780 indirect jobs in Canada (including BC). Induced jobs in BC will average approximately 1,110 (FTE) during operation, with approximately 2,680 jobs in Canada (including BC). GDP generated in BC by the Project (direct, indirect, and induced) is estimated at about \$405 million/year, and \$809 million/year for all of Canada (Table 20.7-1). Total GDP generated over the life of the Project is estimated at \$42 billion for Canada, and total average annual tax revenues (federal and provincial) of about \$79 million is estimated from economic activity in BC and \$155 million for all of Canada.

Input-output models are considered highly useful tools for macroeconomic analysis and remain one of the best ways to meaningfully estimate broad-scale economic effects of a project. It should be noted that the economic impact model results are based on recent knowledge of the labour force and economy reflecting the economic structure, level of capital, infrastructure, and technology. Thus, the model is not able to take into account changes in these that may occur over time or, in addition, the effects of specific Project-related mitigation or benefit enhancement measures related to training, employment, and procurement. For this reason, the estimates from the economic impact modelling can be viewed as being based on a “status quo” picture of the economy and may be a conservative estimate of economic impacts from the Project. Actual economic impacts, particularly at the regional and local levels, may be higher once Project mitigation and benefit enhancement measures that influence economic performance are applied.

20.7.2 Change in Employment

Direct employment on the Project during construction and operation is predicted to result in substantial beneficial effects. As estimated by the economic impact model (Section 20.7-1; [Appendix 20-B](#)), this will in turn result in indirect and induced employment benefits. A summary of the Project-specific change in employment in relation to the current size of the labour force is provided in Table 20.7-2.

Table 20.7-2. Project Employment Effects

	Experienced Labour Force (2006)	Total Project-related Employment (person-years, FTE)	Annual Average Project-related Employment	
			Total (persons, FTE)	Proportion of 2006 Labour Force (%)
Construction				
RSA	22,530	1,497	272	1.21%
BC	2,193,115	31,094	5,653	0.26%
Canada	16,861,180	55,248	10,045	0.06%
Operation				
RSA	22,530	21,810	423	1.88%
BC	2,193,115	194,313	3,773	0.17%
Canada	16,861,180	345,868	6,716	0.04%

Sources: Active labour force statistics from Statistics Canada (2007b). Other data are derived from estimates of the 2012 Economic Model Report ([Appendix 20-B](#)).

Notes: Project-related employment includes the sum of direct, indirect, and induced employment. Operation employment includes construction for underground mining (pit caving). FTE = fulltime equivalent.

During construction, a total of approximately 1,497 person-years of direct, indirect, and induced employment is predicted for RSA residents, and a total of approximately 31,094 person-years for BC residents (Table 20.7-2). Averaged over the five-year duration of the phase, the average number of jobs over any one year is approximately 272 for the RSA and 5,653 for BC, or 1.21% and 0.26% of the 2006 experienced labour force in those regions.

During operation, a total of approximately 21,810 person-years of employment is predicted for RSA residents, and a total of approximately 194,313 person-years for BC residents (Table 20.7-2). Averaged over the 51.5-year duration of the phase, the average number of jobs over any one year is approximately 423 for the RSA and 3,773 for BC, or 1.88% and 0.17% of the 2006 experienced labour force in those regions.

Currently, unemployment levels vary widely across LSA communities, though in the regional centres of Stewart, Terrace, and Smithers they are relatively close to the provincial average of 6%. Estimates of unemployment in Aboriginal communities vary significantly but are typically high, ranging between approximately 20% and 73% depending on the community (Statistics Canada 2007, 2008). Within the LSA communities, the labour force totals approximately 11,400, with approximately 1,500 unemployed (2006 statistics; Section 20.1.4). Specifically with respect to the Aboriginal communities included in the LSA, the labour force totals approximately 1,400 with a total number of unemployed of about 600. Thus, it can be concluded that the results of the economic impact model are reasonable compared to the available labour force and the number of unemployed, and that all (or more) of the predicted Project-related employment within the RSA could be realized by residents of the LSA communities.

Construction associated with mine projects typically requires a relatively large number of trained and skilled workers over a short period of time, who are predominantly brought in from outside the region (e.g., use of a mobile construction workforce, where workers move from one heavy engineering construction project to another). Because of the employment requirements, the share of those employed locally directly by the Project is expected to be relatively modest. Most construction work packages would likely be undertaken by contactors and businesses located outside the local region, due to the specialized construction experience and expertise needed. However, it is expected that those contractors hired from outside the region would, in turn, hire local people as labourers and equipment operators to undertake non-skilled construction. Operation brings longer-term employment opportunities and affords a greater opportunity for training and skills development to increase the share of employment that is local.

It is expected that the Proponent will make specific and concerted efforts to effectively engage the local and Aboriginal workforce. This is reflected in the identified mitigation (Section 20.7.2.1) and includes aspects of worker training, recruitment, and retention. There are a number of challenges a mine project faces in attracting, hiring, and retaining Aboriginal workers, including qualifications and skill level, job experience, and cultural and community needs, that can compete with job requirements (e.g., rotational shift work; Conference Board of Canada 2012). However, there are approaches as outlined in Section 20.7.2.1 to help ensure that Aboriginal workers are meaningfully employed by the Project.

At the end of production, as the Project moves into closure, there will continue to be beneficial employment effects, but there will be a loss of total direct employment during the transition from

operation. Decommissioning, reclamation, and ongoing operation/maintenance activities during closure and post-closure will provide employment opportunities, although these specific workforce requirements have yet to be determined. There are also expected to be a relatively small number of jobs associated with long-term environmental engineering, monitoring, and management.

20.7.2.1 Mitigation for Change in Employment

Management practices, monitoring, and adaptive management, as well as enhancement measures will be implemented to mitigate and enhance the potential Project effects on employment. This includes a Labour Recruitment and Retention Strategy, a Procurement Strategy, a Workforce Training Strategy, and a Workforce Transition Program.

The objective of the Labour Recruitment and Retention Strategy is to maximize employment benefits within the LSA communities, the RSA, and the province as a whole. This will include a focus on the engagement of Aboriginal workers for direct employment by the Project. It is anticipated that the Labour Recruitment and Retention Strategy will consist of the following.

- Recruitment:
 - communication activities within LSA communities to provide advance notification of employment opportunities and expectations, hiring schedules, and skill/certification requirements;
 - development of a Workforce Sourcing Plan for internal Project use to obtain a clear articulation of Project workforce requirements and schedule, an understanding of the labour market and potential sources of labour (regionally, provincially, and nationally), and a strategy to source labour;
 - development of employment policies and programs that consider the needs of workers from regional and Aboriginal communities;
 - development of co-operative working relationships with regional post-secondary educational institutions to facilitate worker preparedness for Project positions (see Workforce Training Strategy below); and
 - commitment to attempt to develop benefit agreements with Nisga’a Nation and First Nations potentially affected by the Project.
- Retention:
 - clearly defined and delivered workplace benefits and commitments;
 - provision of internal training and career development opportunities;
 - creation of a work environment of openness, respect, and support, including Aboriginal culture awareness training;
 - recognition of employee performance;
 - creation of a safe working environment;
 - provision of on-site recreational facilities and activities for workers;
 - flexibility for cultural and familial commitments and responsibilities of workers;
 - provision of financial management and life skills training opportunities for workers;

- pre-screening of workers for drug and alcohol use;
- implementation of zero-tolerance policies for drug and alcohol use, including clear communication and commitment to the policies by workers; and
- provision of an Employee Assistance Program.

The overall objective of the Procurement Strategy is to encourage the involvement of local and regional businesses in the Project to maximize benefits within the RSA. It is to enhance opportunities for businesses to benefit directly and indirectly from the Project. It is anticipated that the Procurement Strategy will consist of the following.

- development of a Procurement Information System accessible to local and regional businesses with information on such topics as qualification requirements, health and safety requirements, current and future supply opportunities, quality and business conduct expectations, and required technical standards;
- communication of procurement practices, requirements, and upcoming opportunities to local and regional suppliers through a variety of mechanisms (e.g., local presentations, print notifications);
- promotion of the formation and/or expansion of local and regional suppliers by providing opportunities for long-term contracts, where feasible, and consideration for local and regional business capabilities in defining contract scope;
- cooperation with local economic development agencies and educational institutions to assist them in encouraging local business development (e.g., sponsor courses or workshops on business development and contract tendering) and the development of supplier networks;
- development of an Inventory of Suppliers (including information on the types of goods and services provided, capacity, and capabilities) accessible by procurement personnel to the Project, as well as the EPCM and primary contractors;
- development of a Supplier Prequalification List for which suppliers are pre-screened for meeting standard supplier requirements (e.g., health and safety, management systems);
- in selecting suppliers, encouraging the procurement of goods and services from local and Aboriginal-owned suppliers, where such goods and services are competitive in terms of quality and price; and
- encourage suppliers to maximize their respective use of local and Aboriginal-owned businesses, with a preference shown in procurement decisions for suppliers that can demonstrate a commitment to maximizing local and Aboriginal content.

The objective of the Workforce Training Strategy is to maximize work experience, education, and skill levels of the regional workforce, as well as to develop the workforce to meet the needs of the Project. The Nisga'a Nation and First Nations communities will be engaged to participate in the development of programs specifically targeted at the training of Aboriginal workers, based on the level of interest and demand. Overall, it is anticipated that the Workforce Training Strategy will consist of the following:

- support the development of worker training programs provided through external education and training facilities by communicating Project workforce hiring schedules and skill/certification requirements and by developing strategic partnerships with post-secondary education institutions to deliver appropriate training within the RSA; and
- provide in-house training and career development opportunities, including worker training programs as part of worker recruitment and on-the-job training programs to enhance worker job expertise and to promote internal worker advancement.

Education, training, and employment opportunities will be made available to Aboriginal peoples within the LSA. Seabridge is working with, and has contributed to, Aboriginal mine training organizations to provide sector-related skills and training to Aboriginal peoples. Seabridge is also working with educational institutions in the LSA and RSA on potentially offering scholarships and bursaries to Aboriginal and non-Aboriginal students. Hiring practices will follow BC and federal legislation and regulations with a focus on hiring LSA and RSA residents, where possible, in consultation with local Aboriginal groups and LSA communities.

The Labour Recruitment and Retention Strategy and the Procurement Strategy apply to construction, operation, closure, and post-closure phases of the Project. For construction, Project activities will be overseen and managed by an Engineering, Procurement, and Construction Management (EPCM) contractor. Although the Proponent will not have direct control of labour practices during construction, the EPCM will be expected to adhere to the defined strategies. Seabridge or its operator will directly implement the strategies for operation, closure, and post-closure, including preceding work to prepare for operation.

The Workforce Training Strategy applies principally to operation, including preceding work to prepare for the start of operation. For construction, many positions require specialized training and experience in heavy engineering construction, and typically involve a mobile workforce drawn from other regions; furthermore, the shorter time period for construction reduced the potential role of training and education in developing a local workforce.

The Workforce Transition Program will be developed and implemented prior to closure. The objective of the program will be to help workers secure suitable employment elsewhere and, thus, minimize adverse effects of employment loss. This will be achieved mainly through assisting employees in identifying job opportunities that require complementary skills and opportunities to retrain to take advantage of the demands of trades and professions that exist at the time of closure and post-closure. It is anticipated that elements of the Workforce Transition Program will include:

- development of materials that will enable workers to: a) identify the skills that they acquired and used throughout their employment on the Project, b) match skills to alternative industries and positions, and c) articulate and present skills and experience effectively in personal resumes and other job search materials to target those alternative industries and positions;
- development of a job bank listing local and regional job opportunities suitable for previous Project workers;

- creation of an inventory of available workers and their skills/experience to be made available to external Human Resources officials;
- support of employees' job searching skills development through workshops and information about job search facilities and assistance; and
- coordination with post-secondary training institutions to promote the development of specific retraining initiatives in response to the industry demand at the time of Closure and level of interest of Project workers.

Together, the Labour Recruitment and Retention Strategy, Procurement Strategy, Workforce Training Strategy, and Workforce Transition Program are designed to enhance the employment benefits through all phases of the Project, as well as mitigate adverse effects associated with the loss of employment in the transition from operation to closure.

20.7.2.2 Potential for Residual Effects

Direct, indirect, and induced changes in employment as a result of the Project are expected to result in residual effects on one economic VC—employment and income. Table 20.7-3 identifies these potential interactions.

20.7.2.3 Employment and Income: Potential Residual Effects due to Change in Employment

For construction and operation, there is predicted to be a residual positive change in employment as estimated by economic impact modelling (Table 20.7-2; [Appendix 20-B](#)). The Project mitigation for the change in employment (Section 20.7.1.1) is focused on enhancing the benefits and maximizing Project-related employment within the RSA and LSA communities, as well as across the province. This includes expected positive employment effects for members of Nisga'a Nation and First Nations within the LSA. With mitigation, which is not accounted for by the economic impact model, it is expected that benefits to LSA and RSA residents will be greater than those estimated by modelling (Table 20.7-2). In sum, the Project is expected to result in positive residual effects on employment and income as a result of a change in employment within the LSA, RSA, and BC, as well as elsewhere in Canada.

With closure and post-closure, unemployment could increase within the RSA and LSA communities if alternative employment is not available. This may result in an adverse effect. However, the magnitude and duration of this effect is dependent upon the conditions present at the time of closure and post-closure, including the overall economic climate and the availability of alternative employment opportunities with other businesses and projects. Implementation of the Workforce Transition Program will help workers prepare for the new job opportunities that are available and is expected to minimize the number of the Project workers that become unemployed, particularly over the longer term. In addition, Project-related employment during operation will provide the workforce with on-the-job training, skills, and experience that are expected to be highly marketable, thus positioning workers to be highly competitive for employment. With the identified mitigation, a residual adverse effect on employment and income due to a change in employment during closure and post-closure is not predicted.

Table 20.7-3. Potential Residual Effects on Economic Valued Components due to Change in Employment

Valued Component	Timing Start	Project Area(s)	Component(s)	Description of Effect due to Component(s)	Type of Project Mitigation	Project Mitigation Description	Potential Residual Effect	Description of Residuals
Employment and Income	Construction and Operation	Workforce and Procurement	Employment; Procurement of Goods and Services	Project employment and expenditures result in direct, indirect, and induced employment. Employment opportunities for the LSA and Aboriginal workforce.	Management Practices; Monitoring and Adaptive Management; Enhancement	Labour Recruitment and Retention Strategy; Procurement Strategy; Workforce Training Strategy	Yes	The Project will have beneficial effects on direct, indirect and induced employment, including employment of LSA residents in Aboriginal and non-Aboriginal communities.
Employment and Income	Closure and Post-closure	Workforce and Procurement	Employment; Procurement of Goods and Services	A reduction in Project employment and expenditures could result in a loss of employment.	Management Practices; Monitoring and Adaptive Management	Workforce Transition Program	No	n/a

20.7.3 Change in Income and Value-added

Direct, indirect, and induced business expenditures and employment generated by the Project will contribute to household income and GDP (value-added) throughout BC (Table 20.7-4). Similarly, the Project will result in government tax revenue, mainly as personal income tax, corporate profit tax, sales tax, revenues, and rural property tax (Table 20.7-5). The estimated income, GDP, and government tax revenues (personal income tax, corporate profit tax, and sales tax) contributed by the Project during construction and operation are detailed in [Appendix 20-B](#).

Table 20.7-4. Project Income and Gross Domestic Product Effects

	Median Full-time Earnings (2005 \$)	Project-related Income		Current GDP (2011 billion \$)	Project Contribution to GDP	
		Average Worker Income (\$)	Proportion of 2005 Median Full-time Earnings (%)		Average Annual GDP (million \$/year)	Proportion of 2009 GDP (%)
Construction						
RSA	\$46,775	\$99,132	212%	-	\$34	-
BC	\$42,230	\$79,115	187%	\$217.7	\$626	0.29%
Canada	\$41,404	\$72,839	176%	\$1,762.4	\$1,095	0.06%
Operation						
RSA	\$46,775	\$93,838	201%	-	\$51	-
BC	\$42,230	\$66,716	158%	\$217.7	\$405	0.19%
Canada	\$41,404	\$63,661	154%	\$1,762.4	\$809	0.05%

Sources: Median full-time earning (2005) statistics from Statistics Canada (2007b). Current GDP (2011) for British Columbia and Canada is as reported by BC Stats (2012a). Other data are derived from estimates of the economic impact modelling ([Appendix 20-B](#)).

Note: Average Project-related worker income estimated as total personal income divided by total employment (direct, indirect, and induced). GDP impacts exclude any direct Project operating profits. Current GDP statistics are not published at the sub-provincial level.

Table 20.7-5. Government Tax Revenue Effects of the Project

	Canadian Government Tax Revenue (million \$)	Provincial Tax Revenue (million \$)	Total Government Tax Revenue (million \$)
Construction			
BC	\$408.4	\$182.8	\$591.3
Canada	\$731.6	\$344.5	\$1,076.0
Operation			
BC	\$2,808.0	\$1,265.2	\$4,073.2
Canada	\$5,368.4	\$2,641.1	\$8,009.6

Note: Government tax revenue effects include personal income tax, corporate profit tax (other than that of the KSM Project), and sales tax.

Sources: 2012 Economic Model Report ([Appendix 20-B](#)).

A summary of Project-related changes to income and GDP in comparison to current average incomes and GDP is provided in Table 20.7-4. During construction, the average Project-related income (direct, indirect, and induced) is predicted to be approximately \$99,132/year for RSA residents, \$79,115/year for BC residents, and \$72,839/year for Canadian residents. This is

between 1.8 and 2.1 times the median full-time earnings for workers in 2005. The higher average Project-related income at the RSA level is reflective of the higher proportion of regional employment that is expected to be direct and indirect at the regional level, involving relatively higher-paying jobs associated with heavy engineering construction, as opposed to induced income that is more reflective of relatively lower-wage retail and service sector employment.

During operation, the average Project-related income (direct, indirect, and induced) is predicted to be approximately \$93,838/year for RSA residents, \$66,716/year for BC residents, and \$63,661/year for Canadian residents. This is between 1.5 and 2.0 times the median full-time earnings for workers in 2005. Again, the higher average Project-related income at the RSA level is reflective of the higher proportion of regional employment that is expected to be direct and indirect, related to the mining sector, opposed to induced income that is more reflective of relatively lower-wage retail and service sector employment.

Thus, during both construction and operation, the direct, indirect, and induced income effects of the Project are strongly positive, substantially higher than current average earnings within the RSA and LSA communities. This is particularly true where there is Project-related employment of Aboriginal peoples, where average earnings are lower than the average for the population as a whole (e.g., median full-time earnings for Gitanyow was approximately \$27,200, for Tahltan \$36,000, and for Nisga'a \$38,500 in 2005; Section 20.1.4).

The annual average contribution of the Project to GDP during construction is approximately \$34 million/year within the RSA, \$626 million/year within BC, and \$1.095 billion/year for all of Canada (Table 20.7-4). The average annual Project contribution to GDP represents approximately 0.29% of current (2011) provincial GDP and 0.06% of current (2011) Canadian GDP. The annual average contribution of the Project to GDP during construction is approximately \$51 million/year within the RSA, \$405 million/year within BC, and \$809 million/year for all of Canada (Table 20.7-4). The average annual Project contribution to GDP represents approximately 0.19% of current (2011) provincial GDP and 0.05% of current (2011) Canadian GDP.

As detailed in Table 20.7-5 (also see [Appendix 20-B](#)), the predicted government tax revenues (personal income tax, corporate profit tax other than that of the Project, and sales tax) generated as a result of the economic activity are also substantial. During construction, this consists of total tax revenue of approximately \$183 million to the Government of BC and \$732 million to the Government of Canada, with approximately \$162 million combined going to the other provinces. During operation, this consists of total revenue of approximately \$1.27 billion to the Government of BC and \$5.37 billion to the Government of Canada, with approximately \$1.38 billion combined going to the other provinces.

In addition to these tax revenues, during operation the Proponent is estimated to pay:

- the BC mineral tax (based on net current Project proceeds and net revenues) of an average of approximately \$39.2 million/year for a total of approximately \$2.35 billion over the life of the mine to the Government of BC; and
- rural property tax of an average of approximately \$1.55 million/year for a total of approximately \$85.0 million over the life of the mine.

During closure and post-closure, it is expected that there will continue to be beneficial income, GDP, and government tax revenue effects, although the impacts will be substantially less than during operation. Decommissioning, reclamation, and ongoing operation/maintenance activities during closure and post-closure will provide income and business opportunities, although these specific requirements have yet to be determined.

20.7.3.1 Mitigation for Change in Income and Value-added

Management practices, monitoring and adaptive management, and enhancement measures will be implemented to mitigate the potential Project effects. This includes a Labour Recruitment and Retention Strategy, a Procurement Strategy, a Workforce Training Strategy, and a Workforce Transition Program, as described in Section 20.7.2.1, to enhance the income and value-added benefits to the RSA and LSA communities.

20.7.3.2 Potential for Residual Effects

Direct, indirect, and induced changes in income, value-added (GDP), and government tax revenue as a result of the Project are expected to result in residual effects on both economic VCs—employment and income, and business opportunities and economic development. Table 20.7-6 identifies these potential interactions.

20.7.3.3 Employment and Income: Potential Residual Effects due to Change in Income and Value-added

For construction and operation, the Project mitigation for the change in income and value-added (Section 20.7.3.1) is focused on enhancing the benefits associated with employment and procurement of goods and services within the LSA communities and the RSA, as well as across the province. This includes expected positive effects on the personal incomes of members of the Nisga'a Nation and First Nations within the LSA. The Project is expected to result in a positive residual effect on employment and income as a result of a change in income and value-added within the LSA, RSA, and BC, as well as elsewhere in Canada.

With closure and post-closure, there is expected to be a loss of employment and reduction in the value of goods and services procured by the Project. This may result in an adverse effect in personal and household income. However, the magnitude and duration of this effect is dependent upon the conditions present at the time of closure and post-closure, including overall economic conditions and the availability of alternative employment and business opportunities. Implementation of the Workforce Transition Program will help workers prepare for the new job opportunities that are available and is expected to minimize the loss of personal and household income. As previously noted, Project-related employment during operation will also provide the workforce with on-the-job training, skills, and experience that are expected to be highly marketable, thus positioning workers to be highly competitive for employment—this will further reduce the likelihood of income loss. Businesses are expected to be adaptive to changes in market conditions and seek out new opportunities. With the identified mitigation, a residual adverse effect on employment and income due to a change in income and value-added during closure and post-closure is not predicted.

Table 20.7-6. Potential Residual Effects on Economic Valued Components due to Change in Income and Value-added

VC	Timing Start	Project Area(s)	Component(s)	Description of Effect due to Component(s)	Type of Project Mitigation	Project Mitigation Description	Potential Residual Effect	Description of Residuals
Employment and Income	Construction and Operation	Workforce and Procurement	Employment; Procurement of Goods and Services	Project employment and expenditures result in direct, indirect and induced personal income, GDP, and government tax revenues. Income opportunities for the LSA and Aboriginal workforce.	Management Practices; Monitoring and Adaptive Management; Enhancement	Labour Recruitment and Retention Strategy; Procurement Strategy; Workforce Training Strategy	Yes	The Project will have beneficial effects on direct, indirect and induced personal incomes, GDP, and government tax revenues, including income to LSA residents in Aboriginal and non-Aboriginal communities.
Employment and Income	Closure and Post-closure	Workforce and Procurement	Employment; Procurement of Goods and Services	A reduction in Project employment and expenditures could result in a loss of personal income, GDP, and government tax revenues.	Management Practices; Monitoring and Adaptive Management	Workforce Transition Program	No	n/a
Business Opportunities and Economic Development	Construction and Operation	Workforce and Procurement	Employment; Procurement of Goods and Services	Spending of income from direct and indirect employment results in induced income benefits and additional opportunities for businesses.	Management Practices; Monitoring and Adaptive Management; Enhancement	Procurement Strategy; Labour Recruitment and Retention Strategy	Yes	The Project will have beneficial effects on businesses selling goods and services to workers spending their incomes.

20.7.3.4 Business Opportunities and Economic Development: Potential Residual Effects due to Change in Income and Value-added

During construction and operation, the spending of personal income from direct and indirect Project-related employment is predicted to result in additional opportunities for businesses as these workers look to spend their incomes. This results in induced impacts on income and GDP ([Appendix 20-B](#)). Businesses that are directly and indirectly supplying the Project, or that are benefitting from induced economic effects, may also look to investing and expanding operations to take advantage of new opportunities. The Procurement Strategy (described in Section 20.7.2.1) is designed to help ensure that procurement expectations are transparent, consistent, and well-understood by potential suppliers; this, in turn, is expected to enhance the benefits to businesses within the LSA and RSA. The change in income and value-added as a result of the Project is predicted to result in a beneficial residual effect on business opportunities and economic development.

20.7.4 Change in Business Activity

There will be opportunities for businesses in the RSA and LSA communities to directly and indirectly supply the Project. This will contribute to the economic growth, diversification, and overall advancement of economic development in the region. Of particular importance will be the opportunities that are afforded to Aboriginal-owned businesses. These opportunities are not only associated with supplying the Project, but also with a range of service and retail demands that are expected to increase within the RSA and LSA communities. Indirectly, the expected increase in local business activity will likely bring about an increase in capital investment. This, in turn, may result in an increase in business productivity and competitiveness, further enhancing local business capabilities.

The extent of the effects on business activity is expected to vary by Project phase. During construction, the relatively short duration, schedule, and specialized requirements of the Project will likely mean that there will be substantial sourcing of goods and services from across the province and elsewhere in Canada. This prediction is supported by the results of the economic impact modelling ([Appendix 20-B](#)). Local businesses are expected to benefit where they are currently competitive in offering the required goods or services, or where the necessary investments and changes in business practices can be readily made. During operation, the share of benefits to LSA and RSA businesses is expected to increase because of the longer duration of this phase, during which time local business relationships can become more fully developed. The types of purchases for which local businesses are typically most suited to provide to mine projects include, but are not limited to, expediting services, bus services, trucking, camp catering, security, and road and building maintenance. The Project effects on business activities within LSA communities will depend, ultimately, on actions taken by the local businesses to pursue specific opportunities and enhance current business capacities.

With closure and post-closure, a loss of business opportunities is expected, potentially resulting in a decrease in the prosperity of LSA communities. The extent of the changes experienced by businesses within the LSA and RSA will depend on a number of factors, including the size of supplier contracts, the overall condition of the economy at the time of closure, business flexibility and adaptability, and the presence of other businesses opportunities (e.g., demands for goods and

services by other local projects). There will be local business opportunities associated with closure and post-closure activities, focusing on removal of infrastructure, site reclamation, and environmental engineering, monitoring, and management; however, an estimate of the employment and expenditures of closure and post-closure is not yet available.

20.7.4.1 Mitigation for Change in Business Activity

Management practices, monitoring and adaptive management, and enhancement measures will be implemented to mitigate the potential Project effects on business activity. This includes a Procurement Strategy, as described in Section 20.7.2.1, which is designed to assist businesses in taking advantage of the opportunities to directly and indirectly supply the Project. It will be important for local businesses to understand procurement requirements and expectations. This includes a specific focus on Aboriginal-owned and non-Aboriginal-owned businesses in LSA communities.

20.7.4.2 Potential for Residual Effects

Changes in business activity as a result of the Project are expected to result in residual effects on both economic VCs—employment and income, and business opportunities and economic development. Table 20.7-7 identifies these potential interactions.

20.7.4.3 Employment and Income: Potential Residual Effects due to Change in Business Activity

During construction and operation, the change in business activity within the RSA and LSA communities is predicted to result in a change in both the level and type of employment, which will alter the industry-specific employment and income profile of the communities. The effects on employment and income at the RSA and provincial level have been estimated by the economic impact model and previously described (Section 20.7.1; [Appendix 20-B](#)). In sum, the change in business activity as a result of the Project is predicted to result in a beneficial residual effect on employment and income.

20.7.4.4 Business Opportunities and Economic Development: Potential Residual Effects due to Change in Business Activity

For construction and operation, the Project is predicted to enhance business activity within the RSA and LSA communities. Opportunities will be provided for local businesses to provide goods and services to the Project, which will likely result in an increase in business diversity, capacity, capabilities, and competitiveness over the longer-term. Mitigation for the change in business activity (Section 20.7.4.1) is focused on enhancing the local benefits through the Procurement Strategy. This includes enhancing opportunities to Nisga'a Nation- and First Nations-owned businesses within the LSA. The Project is expected to result in a positive residual effect on change in business activity.

Table 20.7-7. Potential Residual Effects on Economic Valued Components due to Change in Business Activity

Valued Component	Timing Start	Project Area(s)	Project Component(s)	Description of Effect due to Component(s)	Type of Project Mitigation	Project Mitigation Description	Potential Residual Effect	Description of Residuals
Employment and Income	Construction and Operation	Workforce and Procurement	Procurement of Goods and Services	Involvement of LSA and RSA businesses in supplying the Project may alter the employment and income profile of communities.	Management Practices; Monitoring and Adaptive Management; Enhancement	Labour Recruitment and Retention Strategy	Yes	The change in business activity is expected to alter the employment and income profile of the RSA and LSA communities.
Business Opportunities and Economic Development	Construction and Operation	Workforce and Procurement	Procurement of Goods and Services	Project expenditures result in opportunities for businesses to supply the Project.	Management Practices; Monitoring and Adaptive Management; Enhancement	Procurement Strategy; Labour Recruitment and Retention Strategy	Yes	The Project is expected to contribute to economic growth, investments, and the development of businesses.
Business Opportunities and Economic Development	Closure and Post-closure	Workforce and Procurement	Procurement of Goods and Services	Loss of Project expenditures is expected to result in loss of business opportunities.	None	n/a	No	n/a

With closure and post-closure, there will be opportunities for LSA and RSA businesses to provide the goods and services necessary for infrastructure removal, site reclamation, ongoing operation and management of facilities, and environmental monitoring and management. However, these opportunities will be more limited, and with the loss of operation expenditures local businesses will need to adapt and seek out other opportunities that may be present at the time of closure. Transition and pursuit of new economic opportunities is an inherent part of business. Overall, with the long-term operation, the Project is expected to contribute to local businesses being more competitive, enhancing their capabilities and know-how to be successful. In sum, a residual adverse effect on change in business activity during closure and post-closure is not predicted.

20.7.5 Change in the Economy

As discussed in Section 20.1.3, the RSA has historically relied on primary resource industries for economic and employment opportunities. Other sectors that have become important to the region include energy (including hydroelectric power), fishing, public administration, and tourism. Today, the mining and forestry sectors continue to represent important sources of employment.

The economies of the LSA communities are generally resourced-based, although economic diversity varies between communities. In some communities, employment levels have increased in the sales and service, tourism, transportation and exploration sectors. Some significant employment sectors in Aboriginal communities include retail sales and service, tourism, construction, mineral exploration, fishing, health and social services, and government administration.

The Project is expected to make a substantial contribution to the economic development of the RSA by adding to the employment and income base of communities. The Project may result in a number of overall changes to the characteristics of the economy within the RSA and LSA communities. Specifically, through:

- direct and indirect economic effects, supporting the development and expansion of local industrial service and supply businesses;
- induced economic effects, supporting the development and expansion of local retail and service businesses;
- supporting an increase in the overall income (and savings) of individuals and households; and
- broadening the business base and diversity of local economies by increasing the local demand for a variety of goods and services.

The development of the KSM Project is consistent with the overall economic goals and objectives as defined by the applicable land and resource management plans in the RSA (Section 20.3). Specifically, this includes those described by the CIS LRMP (BC ILMB 2000) and the Nass South SRMP (BC MFLNRO 2012). Overall, these plans support development of a diversified economic base that includes mineral resource development. The OCPs for Terrace and Smithers also speak to the objective of further diversifying the economies of those communities as supported, in part, by the economic foundation provided by mining and other resource industries (Section 20.3).

During operation, there is the potential for a change in the local economy if there is a Project slow-down or shut-down in response to changes in global market conditions. If LSA communities

become economically dependent on the Project, these communities may be vulnerable. If this occurs, there is the potential for an adverse economic effect.

During closure and post-closure, a loss of Project employment and expenditures is expected that may result in an adverse effect on LSA and RSA economies to the extent that they are dependent on the Project. As with other economic effects previously discussed, the nature of the changes will depend on a number of factors, including the overall condition of the economy at the time of closure and post-closure, the flexibility and adaptability of the economy, and the presence of other business opportunities. An increase in the base and diversity of the economy within the RSA and LSA communities is expected to lessen any adverse effect.

20.7.5.1 Mitigation for Change in the Economy

Management practices, monitoring and adaptive management, and enhancement measures will be implemented to mitigate the potential Project effects for change in the economy. This includes a Labour Recruitment and Retention Strategy, Procurement Strategy, and Workforce Training Strategy that, collectively, are predicted to enhance local benefits and development of economies within the RSA and LSA communities. A Workforce Transition Program will mitigate adverse effects on local economies during closure and post-closure. This mitigation is as described in Section 20.7.2.1.

20.7.5.2 Potential for Residual Effects

Changes in the economy as a result of the Project are expected to result in residual effects on one economic VC—business opportunities and economic development. Table 20.7-8 identifies these potential interactions.

20.7.5.3 Business Opportunities and Economic Development: Potential Residual Effects due to Change in the Economy

The Project is expected to contribute to LSA and RSA development and broadening of the economic base. This beneficial effect will occur through a combination of the effects as assessed in Sections 20.7.2, 20.7.3, and 20.7.4. The Project is predicted to result in a positive residual effect on change in the economy.

Project slow-downs or shut-downs in response to changing global market conditions may adversely affect LSA and RSA economies. No specific management measure has been identified to mitigate this potential effect. Changes in market conditions, resulting in changes to business activity, employment, and income, are a possibility common to all sectors of the economy. The degree to which a local community may be adversely affected will depend on the current strength of other economic sectors, the number of residents involved in Project-related employment, and whether or not the vulnerability of these communities happens to be exposed by a weak overall economy at the time. With respect to the Project, it is not expected to be standard operating practice to make substantial changes to staffing or operating practices in response to short-term downturns in the market; rather, it is important to hold a longer-term view to remain committed to the Project's workforce and suppliers, and the expertise and experience that is brought to the Project. A residual adverse effect on change in the economy due to Project slow-downs or shut-downs during operation is not predicted.

Table 20.7-8. Potential Residual Effects on Economic Valued Components due to Change in the Economy

Valued Component	Timing Start	Project Area(s)	Project Component(s)	Description of Effect due to Component(s)	Type of Project Mitigation	Project Mitigation Description	Potential Residual Effect	Description of Residuals
Business Opportunities and Economic Development	Construction and Operation	Workforce and Procurement	Employment; Procurement of Goods and Services	The Project has the potential to contribute broadly to the economic development of the RSA and LSA communities	Management Practices; Monitoring and Adaptive Management; Enhancement	Labour Recruitment and Retention Strategy; Procurement Strategy; Workforce Training Strategy	Yes	The Project is expected to contribute to RSA and LSA community development and broadening of the economic base
Business Opportunities and Economic Development	Construction and Operation	Workforce and Procurement	Employment; Procurement of Goods and Services	Project slow-downs or shut-downs in response to changing global market conditions may adversely affect LSA and RSA economies	None	n/a	No	n/a
Business Opportunities and Economic Development	Closure and Post-closure	Workforce and Procurement	Employment; Procurement of Goods and Services	Loss of Project employment and expenditures may result in an adverse effect on LSA and RSA economies	Management Practices; Monitoring and Adaptive Management	Workforce Transition Program	No	n/a

With closure and post-closure, there will be a drop in Project-related employment and income within the RSA and LSA communities. The Workforce Transition Program, as described in Section 21.7.2.1, is expected to mitigate adverse effects associated with the loss of direct employment. In addition, over the estimated 51.5-year operation of the Project, an increase in the development and diversity of local economies is predicted. It is also likely that there will be other Project opportunities at that time to provide alternative employment and income. Local economies will need to change, but are expected to be adaptable and resilient. In summary, a residual adverse effect on change in the economy during closure and post-closure is not predicted.

20.8 Significance of Residual Effects for Economics

Four kinds of residual economic effects associated with the development of the Project are identified. Two of these residual effects are predicted for employment and income (changes in employment, and changes in income and value-added), and two are predicted for business opportunities and economic development (changes in business activity, and changes in the economy).

20.8.1 Residual Effect Descriptors for Economics

The definitions for the residual effect descriptors for economics are provided in Table 20.8-1. Key descriptors for the assessment of potential effects on economic VCs are magnitude, geographic extent, duration and frequency. Reversibility and context are also described for each residual effect, but are of less importance for determining the significance of effects on economic VCs. Magnitude is defined with respect to the size of the effect relative to typical or usual historic changes in the economy. Geographic extent distinguishes between effects limited to individuals or households, the community level (including Aboriginal and non-Aboriginal communities), across the region, and across or beyond the province. Duration is defined from short-term (effects that last one year or less) to far future (effects that last more than 70 years). Frequency distinguishes between one-time, sporadic, regular, or continuous effects on the economy (Table 20.8-1).

20.8.2 Residual Effects Assessment for Employment and Income

As summarized in Table 20.8-2, the Project is predicted to have a number of beneficial residual effects on employment and income during the construction and operation phases.

20.8.2.1 Change in Employment

The Project is predicted to have a beneficial effect on direct, indirect, and induced employment during construction and operation (Table 20.8-2). This is expected to include employment of Aboriginal peoples and residents from the LSA communities. For construction, the effect is assessed as being low in magnitude, beyond regional in extent, and of medium duration, being continuous through the duration of construction. The effect is described as similar for operation, but of longer duration, being continuous throughout operation. The effect is predicted to have a high probability of occurrence, with a high level of confidence in the assessment. The effect of the Project on change in employment is predicted to be **not significant (moderate)**.

Table 20.8-1. Definitions of Significance Criteria for Economics Residual Effects

Timing (What phase of the Project is the effect associated with?)	Magnitude (negligible, low, medium, high)	Geographic Extent (local, landscape, regional, beyond regional)	Duration (short-term, medium-term, long-term, far future)	Frequency (once, sporadic, regular, continuous)	Reversibility (reversible short-term, reversible long-term, or irreversible)	Context (resilience and/or unique attributes) (low, neutral, high)	Probability (low, medium, high)	Confidence (low, medium, high)	Significance (Not Significant: minor, moderate; Significant: major)	Follow-Up Monitoring (Not required, required)
Construction	Negligible. There is no detectable change from baseline conditions.	Individual/Household. The effect is limited to individuals, families and/or households.	Short term. The effect lasts approximately 1 year or less.	Once. The effect occurs once during any phase of the Project.	Reversible short-term: An effect that can be reversed relatively quickly.	Low. The valued component is considered to have little to no unique attributes and/or there is high resilience to imposed stresses.	Low. An effect is unlikely but could occur.	Low (< 50% confidence). The cause-effect relationship between the Project and its interaction with the environment is poorly understood; data for the Project area may be incomplete; uncertainty associated with synergistic and/or additive interactions between environmental effects may exist. High degree of uncertainty.	Not Significant (minor). Residual effects have no or low magnitude, individual/household geographical extent, short or medium-term duration, and occur intermittently, if at all. There is a high level of confidence in the conclusions. The effects on the VC are indistinguishable from background conditions (i.e., occur within the range of historic variation). Land use management objectives will be met. Follow-up monitoring is optional.	Not required, required
Operation	Low. The magnitude of effect differs from the average value for baseline conditions, but is within the range of historic variation.	Community. An effect extends to the Local Study Area community level.	Medium term. The effect lasts from 1 to 11 years.	Sporadic. The effect occurs at sporadic or intermittent intervals during any phase of the Project.	Reversible long-term: An effect that can be reversed after many years.	Neutral. The valued component is considered to have some unique attributes, and/or there is neutral (moderate) resilience to imposed stresses.	Medium. An effect is likely but may not occur.	Medium. (50 – 80% confidence): The cause-effect relationship between the Project and its interaction with the environment is not fully understood, or data for the Project area are incomplete: moderate degree of uncertainty.	Not Significant (moderate). Residual effects have medium magnitude, individual/household, community or regional geographic extent, are short-term to chronic (i.e., may persist into the far future), and occur at all frequencies. Residual effects on VCs are distinguishable at the population and/or community level. Ability of meeting land use management objectives may be impaired. Confidence in the conclusions is medium or low. The probability of the effect occurring is low or medium. Follow-up monitoring of these effects may be required.	Not required, required
Closure	Medium. The magnitude of effect differs from the average value for baseline conditions and approaches the limits of historic variation.	Regional. The effect extends across the Regional Study Area.	Long term. The effect lasts between 12 and 70 years.	Regular. The effect occurs on a regular basis during any phase of the Project.	Irreversible. The effect cannot be reversed.	High. The valued component is considered to be unique, and/or there is low resilience to imposed stresses.	High. An effect is highly likely to occur.	High. There is greater than 80% confidence in understanding the cause-effect relationship between the Project and its interaction with the environment, and all necessary data are available for the Project area. There is a low degree of uncertainty.	Significant (Major). Residual effects have high magnitude, regional, or beyond regional geographic extent, are chronic (i.e., persist into the far future), and occur at all frequencies. Residual effects on VCs are consequential (i.e., structural and functional changes in populations and communities are predicted). Ability to meet land use management objectives is impaired. Probability of the effect occurring is medium or high. Confidence in the conclusions can be high, medium, or low. Follow-up monitoring is required.	Required
Post-closure	High. The magnitude of effect is predicted to differ from baseline conditions so that there will be a detectable change beyond the range of historic variation (i.e., change of state from baseline conditions).	Beyond Regional: The effect extends possibly across or beyond the province.	Far Future: The effect lasts more than 70 years.	Continuous. An effect occurs constantly during any phase of the Project.						

Table 20.8-2. Summary of Residual Effects on Employment and Income

Description of Residual Effect	Project Component(s)	Timing of Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Context	Likelihood of Effects		Significance Determination	Follow-up Monitoring
									Probability	Confidence Level		
The Project will have beneficial effects on direct, indirect and induced employment, including employment of LSA residents in Aboriginal and non-Aboriginal communities.	Employment; Procurement of Goods and Services	Construction	Low	Beyond Regional	Medium	Continuous	Reversible short-term	Neutral	High	High	Not Significant (Moderate)	Not Required
	Employment; Procurement of Goods and Services	Operation	Low	Beyond Regional	Long	Continuous	Reversible short-term	Neutral	High	High	Not Significant (Moderate)	Not Required
The Project will have beneficial effects on direct, indirect and induced personal incomes, GDP, and government tax revenues, including income to LSA residents in Aboriginal and non-Aboriginal communities.	Employment; Procurement of Goods and Services	Construction	Low	Beyond Regional	Medium	Continuous	Reversible short-term	Neutral	High	High	Not Significant (Moderate)	Not Required
	Employment; Procurement of Goods and Services	Operation	Low	Beyond Regional	Long	Continuous	Reversible short-term	Neutral	High	High	Not Significant (Moderate)	Not Required
The change in business activity is expected to alter the employment and income profile of the RSA and LSA communities.	Employment; Procurement of Goods and Services	Construction	Low	Regional	Medium	Continuous	Reversible short-term	Neutral	High	Medium	Not Significant (Moderate)	Not Required
	Employment; Procurement of Goods and Services	Operation	Low	Regional	Long	Continuous	Reversible short-term	Neutral	High	Medium	Not Significant (Moderate)	Not Required
Overall Residual Effect	All		Low	Beyond Regional	Long	Continuous	Reversible short-term	Neutral	High	High	Not Significant (Moderate)	Not Required

The change in business activity is also expected to alter the employment profiles of the RSA and LSA communities during construction and operation (Table 20.8-2). For construction, the effect is assessed as being low in magnitude, regional in extent, and of medium duration, being continuous through the duration of construction. The effect is described as similar for operation, but of longer duration, being continuous throughout operation. The effect is predicted to have a high probability of occurrence, with a medium level of confidence in the assessment. The effect of Project-related change in business activity on change in employment is predicted to be **not significant (moderate)**.

Monitoring of direct Project employment by the proponent is recommended during construction and operation. This should include not only total annual direct employment, but a breakdown of employment according to location of residence (community, region, and/or province) and whether Aboriginal or non-Aboriginal. Information on job type or category would also be useful to track. This will permit analysis and monitoring of the effectiveness of the mitigation programs and accomplishments with respect to the hiring of residents from the RSA and LSA communities.

20.8.2.2 Change in Income and Value-added

The Project is predicted to have a beneficial effect on direct, indirect, and induced personal income, GDP, and government tax revenues during construction and operation (Table 20.8-2). This is expected to include income to Aboriginal peoples and residents of the LSA communities. For construction, the effect is assessed as being low in magnitude, beyond regional in extent, and of medium duration, being continuous through the duration of construction. The effect is described as similar for operation, but of longer duration, being continuous throughout operation. The effect is predicted to have a high probability of occurrence, with a high level of confidence in the assessment. The effect of the Project on change in income and value-added is predicted to be **not significant (moderate)**.

The change in business activity is also expected to alter the income profiles of the RSA and the LSA communities during construction and operation (Table 20.8-2). For construction, the effect is assessed as being low in magnitude, regional in extent, and of medium duration, being continuous through the duration of construction. The effect is described as similar for operation, but of longer duration, being continuous throughout operation. The effect is predicted to have a high probability of occurrence, with a medium level of confidence in the assessment. The effect of Project-related change in business activity on change in income and value-added is predicted to be **not significant (moderate)**.

In this situation, monitoring of income generated by the Project is not required. Income information is difficult to obtain and has a number of restrictions associated with its use (e.g., protection of confidentiality). Monitoring of employment (Section 20.8.2.1) does provide similar information that can serve as a useful measure of Project achievements.

20.8.3 Residual Effects Assessment for Business Opportunities and Economic Development

As summarized in Table 20.8-3, the Project is predicted to have a number of beneficial residual effects on business opportunities and economic development during the construction and operation phases.

20.8.3.1 Change in Business Activity

The Project is predicted to contribute to the economic growth, investments, and development of local businesses during construction and operation (Table 20.8-3). For construction, the effect is assessed as being low in magnitude, regional in extent, and of medium duration, being continuous through the duration of construction. The effect is described as similar for operation, but of longer duration, being continuous throughout operation. The effect is predicted to have a high probability of occurrence, with a medium level of confidence in the assessment. The beneficial effect of the Project on change in business activity is predicted to be **not significant (moderate)**.

The change in employment and income is also expected to have beneficial effects on businesses selling goods and services to workers spending their incomes during construction and operation (Table 20.8-3). For construction, the effect is assessed as being low in magnitude, regional in extent, and of medium duration, being continuous through the duration of construction. The effect is described as similar for operation, but of longer duration, being continuous throughout operation. The effect is predicted to have a high probability of occurrence, with a high level of confidence in the assessment. The effect of Project-related change in employment and income on change in business activity is predicted to be **not significant (moderate)**.

Because of the importance of ensuring that there are opportunities for local businesses, including Aboriginal-owned businesses, to benefit by becoming suppliers to the Project, procurement should be monitored. This should include a breakdown of the number and value of Project purchases according to location of supplier (community, region, and/or province) and whether an Aboriginal or non-Aboriginal business. Information on type or category of goods and services provided would also be useful to track. This will permit analysis and monitoring of the effectiveness of the mitigation programs and accomplishments with respect to the benefits to local businesses.

20.8.3.2 Change in the Economy

The Project is predicted to contribute to RSA and LSA community development and broadening of the economic base during construction and operation (Table 20.8-3). For construction, the effect is assessed as being low in magnitude, regional in extent, and of medium duration, being continuous through the duration of construction. The effect is described as similar for operation, but of longer duration, being continuous throughout operation. The effect is predicted to have a high probability of occurrence, with a medium level of confidence in the assessment. The beneficial effect of the Project on change in the economy is predicted to be **not significant (moderate)**.

Monitoring of economic development as a result of a change in the economy from the Project is not required.

Table 20.8-3. Summary of Residual Effects on Business Opportunities and Economic Development

Description of Residual Effect	Project Component(s)	Timing of Effect	Magnitude	Extent	Duration	Frequency	Reversibility	Context	Likelihood of Effects		Significance Determination	Follow-up Monitoring
									Probability	Confidence Level		
The Project will have beneficial effects on businesses supplying the Project and selling goods and services to residents and businesses.	Employment; Procurement of Goods and Services	Construction	Low	Regional	Medium	Continuous	Reversible short-term	Neutral	High	High	Not Significant (Moderate)	Not Required
		Operation	Low	Regional	Long	Continuous	Reversible short-term	Neutral	High	High	Not Significant (Moderate)	Not Required
The Project is expected to contribute to economic growth, investments, and the development of local businesses.	Employment; Procurement of Goods and Services	Construction	Low	Regional	Medium	Continuous	Reversible short-term	Neutral	High	Medium	Not Significant (Moderate)	Not Required
		Operation	Low	Regional	Long	Continuous	Reversible short-term	Neutral	High	Medium	Not Significant (Moderate)	Not Required
The Project is expected to contribute to LAA and RSA development and broadening of the economic base.	Employment; Procurement of Goods and Services	Construction	Low	Regional	Medium	Continuous	Reversible short-term	Neutral	High	Medium	Not Significant (Moderate)	Not Required
		Operation	Low	Regional	Long	Continuous	Reversible short-term	Neutral	High	Medium	Not Significant (Moderate)	Not Required
Overall Residual Effect	All		Low	Regional	Long	Continuous	Reversible short-term	Neutral	High	Medium	Not Significant (Moderate)	Not Required

20.9 Potential Cumulative Effects for Economics

Residual effects due to the KSM Project were found for the VCs employment and income, and business opportunities and economic development. Specifically, the predicted Project-specific residual beneficial effects include employment (including employment of Aboriginal peoples and LSA residents), business sales of goods and services, personal income, GDP, and government tax revenues. The Project is also predicted to contribute to economic growth, investment, and the development of local businesses, as well as the further development and broadening of the economic base of the RSA and LSA communities. Each of these residual effects has the potential to act cumulatively with the effects of other projects and activities within the RSA.

20.9.1 Scoping of Cumulative Effects

The economies of the communities in northwestern BC are largely resource-based and have a focus in supporting the mining and forestry sectors. More recently, there has been an increase in economic diversity (Sections 20.1.3 and 20.1.4). Other industries, such as energy (including hydroelectric power) and tourism, are becoming more important. Potential cumulative economic effects of the KSM Project include changes in employment, income, business activity and economic development. There are expected to be community-level effects primarily related to local employment and business opportunities, regional effects related to further-reaching business supply and service arrangements, and broad provincial-level economic impacts.

20.9.1.1 Spatial Linkages with Other Projects and Human Actions

The spatial boundaries for the economic cumulative effects assessment is based on the RSA used for the economic effects assessment (Figure 20.1-1). There are a relatively large number of past and present and reasonably foreseeable projects (mainly mines) in northwestern BC that have provided or could potentially provide additional employment and expenditures in the region, as well as other income-generating land use activities. These projects and activities may interact spatially with the KSM Project effects on the economies of local communities and the region. Projects and activities considered to have a spatial linkage with the KSM Project fall within the RSA (Figure 20.9.1), and include:

- Eskay Creek Mine;
- Granduc Mine;
- Johnny Mountain Mine;
- Kitsault Mine (closed);
- Snip Mine;
- Sulphurets Project;
- Swamp Point Aggregate Mine;
- Forrest Kerr Hydroelectric;
- Long Lake Hydroelectric;
- Northwest Transmission Line (NTL);

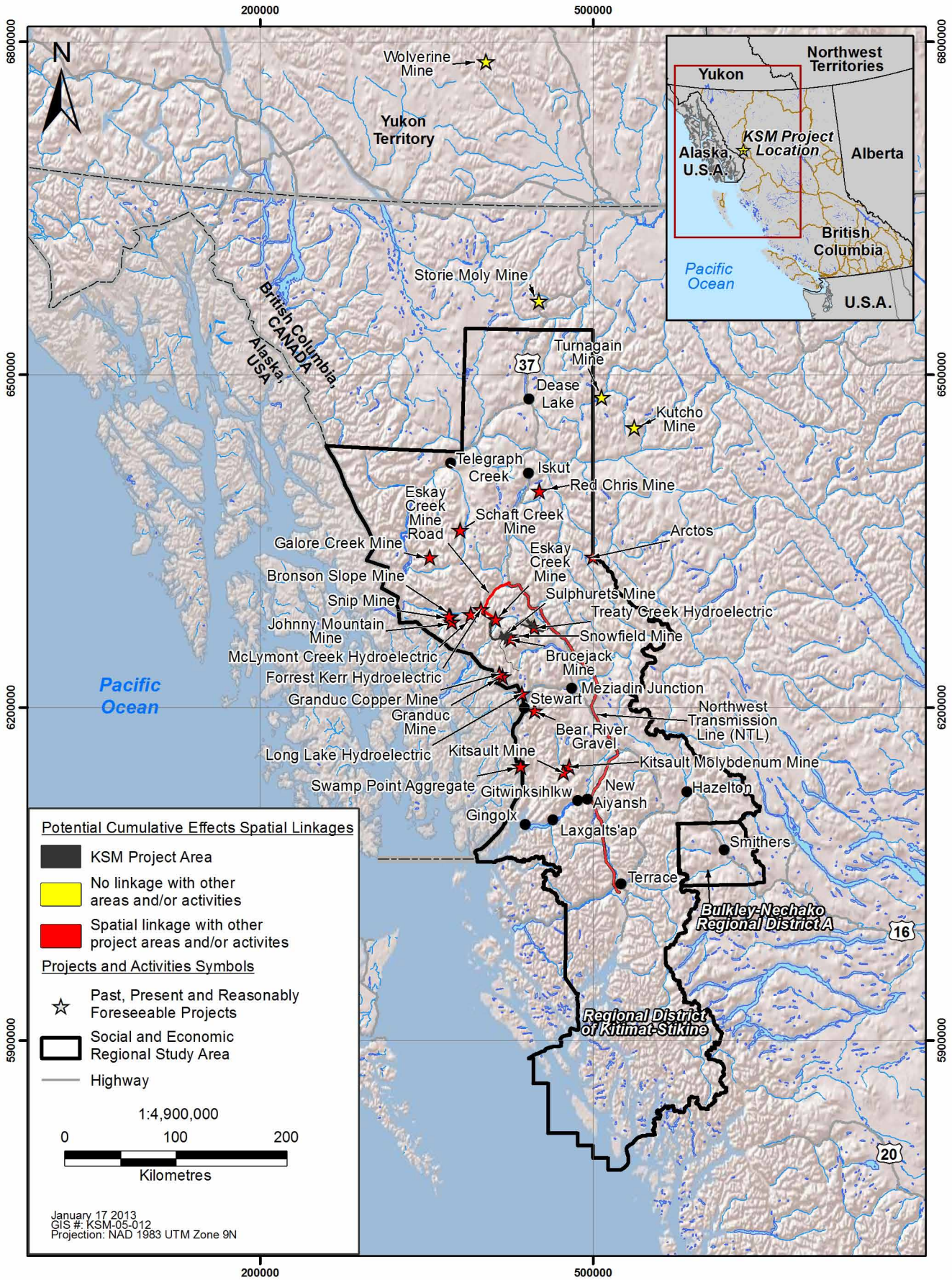


Figure 20.9-1

- Red Chris Mine;
- Bear River Gravel;
- Bronson Slope Mine;
- Brucejack Mine;
- Galore Creek Mine;
- Granduc Copper Mine;
- Kitsault Mine;
- McLymont Creek Hydroelectric;
- Arctos Antracite Mine;
- Schaft Creek Mine;
- Snowfield Project
- Treaty Creek Hydroelectric;
- fishing;
- guide outfitting;
- resident and aboriginal harvest;
- mineral and energy resource exploration;
- recreation and tourism; and
- timber harvesting.

Wolverine Mine, Kutcho Mine Project, Storie Moly Mine Project, and Turnagain Mine Project were evaluated and determined not to have spatial linkages with the KSM Project because of their distance from the Project, with most also having relatively modest employment and production levels compared to a larger mine project.

20.9.1.2 Temporal Linkages with Other Projects and Human Actions

Present projects (i.e., NTL and Red Chris Mine), future mine and hydroelectric projects, and commercial land use activities (i.e., fishing, guide outfitting, mineral and energy resource exploration, recreation and tourism, and timber harvesting) have a temporal linkage for economics, such that these current and future projects and activities may cause similar economic changes to the KSM Project at a similar time. All past projects and activities are assessed as not having a temporal linkage with economics because there are no longer any substantial employment and expenditures associated with these past projects and activities. Table 20.9-1 summarizes the linkages between KSM and other projects and activities.

Table 20.9-1. Summary of Potential Linkages between the KSM Project and Other Human Actions with regards to Economics

Action/Project		Past	Present	Future
Past Projects	Eskay Creek Mine	NL	NL	NL
	Granduc Mine	NL	NL	NL
	Johnny Mountain Mine	NL	NL	NL
	Kitsault Mine	NL	NL	NL
	Snip Mine	NL	NL	NL
	Sulphurets Project	NL	NL	NL
	Swamp Point Aggregate Mine	NL	NL	NL
Present Projects	Forrest Kerr Hydroelectric	NL	NL	NL
	Long Lake Hydroelectric	NL	NL	NL
	Northwest Transmission Line	NL	X	X
	Red Chris Mine	NL	X	X
	Wolverine Mine	NL	NL	NL
Reasonably Foreseeable Future Projects	Bear River Gravel	NL	NL	X
	Bronson Slope Mine	NL	NL	X
	Brucejack Mine	NL	NL	X
	Galore Creek Mine	NL	NL	X
	Granduc Copper Mine	NL	NL	X
	Kitsault Mine	NL	NL	X
	Kutcho Mine	NL	NL	NL
	McLymont Creek Hydroelectric	NL	NL	X
	Arctos Anthracite Mine	NL	NL	X
	Schaft Creek Mine	NL	NL	X
	Storie Moly Mine	NL	NL	NL
	Snowfield Project			
	Turnagain Mine	NL	NL	NL
Treaty Creek Hydroelectric	NL	NL	X	
Land Use Activities	Agricultural Resources	NL	NL	NL
	Fishing	NL	X	X
	Guide Outfitting	NL	X	X
	Resident and Aboriginal Harvest	NL	NL	NL
	Mineral and Energy Resource Exploration	NL	X	X
	Recreation and Tourism	NL	X	X
	Timber Harvesting	NL	X	X
	Traffic and Roads	NL	NL	NL

Notes:

NL = No linkage (no spatial and temporal overlap, or potential effects do not act in combination).

X = Potential spatial and temporal linkage with project or action.

20.9.2 Cumulative Effects Assessment for Employment and Income

The predicted residual effects of the KSM Project include: beneficial effects on direct, indirect, and induced employment (including employment of Aboriginal peoples and LSA residents); beneficial effects on direct, indirect, and induced personal incomes, GDP, and government tax revenues; and alteration of the current employment and income profiles of the RSA and LSA communities. With respect to other projects and activities, the Red Chris Mine, a number of other future mine and hydroelectric projects (Table 20.9-1), and commercial land use activities (i.e., fishing, guide outfitting, mineral and energy resource exploration, recreation and tourism, and timber harvesting) have the potential to interact cumulatively with each of these effects due to the employment, personal income, GDP, and government tax revenues generated by these other projects and activities (Table 20.9-2). The NTL project is not expected to act cumulatively with the KSM Project on employment, because construction of NTL will be complete prior to KSM beginning construction; in addition, during operation, NTL will employ a small number of workers.

Table 20.9-2. Summary of Projects and Activities with Potential to Interact Cumulatively with Expected Project-specific Residual Effects on Employment and Income

Description of KSM Residual Effect	NTL	Red Chris Mine	Future Mine and Hydroelectric Projects	Commercial Land Use Activities
The Project will have beneficial effects on direct, indirect and induced employment, including employment of LSA residents in Aboriginal and non-Aboriginal communities	No Interaction	Possible Interaction	Possible Interaction	Possible Interaction
The Project will have beneficial effects on direct, indirect and induced personal incomes, GDP, and government tax revenues, including income to LSA residents in Aboriginal and non-Aboriginal communities	No Interaction	Possible Interaction	Possible Interaction	Possible Interaction
The change in business activity is expected to alter the employment and income profile of the RSA and LSA communities	No Interaction	Possible Interaction	Possible Interaction	Possible Interaction

20.9.2.1 Cumulative Effect for Change in Employment

The Red Chris Mine is currently under construction and scheduled to enter production in the year 2014, with an approximate 28-year mine life. In operation, it is expected to directly employ approximately 250 workers. In addition, all identified future projects that temporally overlap with the KSM Project will provide additional employment within the RSA and LSA communities (i.e., a total direct construction workforce of approximately 4,500 and a total operation workforce of approximately 2,600 among the projects, spread among a number of years). In addition, there is ongoing employment associated with commercial land use activities (i.e., fishing, guide outfitting,

mineral and energy resource exploration, recreation and tourism, and timber harvesting). Together, these projects and activities are expected to act cumulatively on increasing employment and alter the current employment profiles in the RSA and LSA communities.

Of note with respect to the change in employment, is the potential for the cumulative effects to be altered because of the supply of labour. BC's mining sector is currently experiencing a labour shortage. This shortage is due to a number of factors, including recent economic growth and changes in population demographics. With high commodity prices, substantial expenditures on exploration, and the development of energy infrastructure in remote locations, the BC mining sector is poised for further growth. Decreasing birth rates and increasing population aging, however, are limiting the amount of labour available to support this growth. In an already shrinking labour force, mining sector-related skills are becoming increasingly scarce as the experienced labour force retires, adding additional human resource challenges (MIHR 2008, 2011; Pollen 2011).

Currently, around 15% of BC mining workers are 55 years of age and over, with around 28% aged 45 to 54, and around 25% aged 35 to 44. Retirements are predicated to rise over the next 10 years, the number of school graduates is expected to decline slightly, and fewer younger people are expected to choose the mining industry, further depleting the available number of mining workers. The number of mining workers in the mid-career range (33 to 44 years old) is currently relatively low, leaving fewer experienced mining workers to mentor those entering the industry (MIHR 2012).

The currently available number of mining workers¹⁹ in BC is lower than that needed to fill all positions in the BC mining sector. Projections are that approximately 16,770 mining workers will be needed over the next 10 years in BC. Mining sector occupations that are predicted to be the hardest to fill include heavy equipment operators, heavy duty mechanics, construction millwrights, industrial mechanics, and industrial electricians (MIHR 2012).

It is likely that the KSM Project will face a highly competitive labour market in the future. In addition to competition with other mining developments in BC, the Project will have to compete with large-scale developments in other provinces, such as the oil sands in Alberta or the potash and oil and gas industries in Saskatchewan (MIHR 2008, 2011). Although competition will be high, opportunities currently exist to increase attraction and retention of traditionally underrepresented groups, such as Aboriginal peoples. Potential labour shortages and impacts to other sectors can be mitigated with investment in training programs, and engagement of Aboriginal peoples, women, and immigrants (MIHR 2012).

In consideration of the labour supply restrictions and competition among employers, it is expected that, cumulatively, the beneficial effect for change in employment within the region will be lessened such that total employment impacts are proportionally less than the sum of the local

¹⁹ Here mining workers are those with education and skills training relevant to the mining sector whom have worked in the mining sector for at least one year, also termed "mining talent" by the Mining Industry Human Resources Council (MIHR 2012).

demand for all projects and activities—that is, total employment within the LSA communities will, overall, be higher, but with decreasing marginal benefits as other projects come on line.

20.9.2.1.1 Project Specific Cumulative Effects Mitigations for Change in Employment

As described in Section 20.7.2.1, management practices, monitoring, and adaptive management will be implemented to mitigate and enhance the potential Project effects on employment. This includes a Labour Recruitment and Retention Strategy, a Procurement Strategy, a Workforce Training Strategy, and a Workforce Transition Program.

20.9.2.1.2 Other Project/Activity Mitigations to Address Change in Employment

There are no specific mitigation or management measures explicitly identified from other projects or activities to address effect on employment. However, it is expected that other large resource development projects would adopt mitigation and management measures similar to those of the KSM Project (Section 20.7.2.1).

20.9.2.1.3 Determination of Potential for Residual Cumulative Effect and Significance

There is predicted to be a beneficial residual cumulative effect on employment (Table 20.9-3). With the additional effects of Red Chris Mine, future mine and hydroelectric projects, and commercial land use activities, the duration of the effects will increase for the construction phase to long term. The magnitude of the effect will also increase for both construction and operation, now rated as medium based on the criteria definitions (Table 20.8-1). For all other descriptors for the residual effects, the ratings do not change. The cumulative effect on change in employment is predicted to be **significant (major)**.

20.9.2.2 Cumulative Effect for Change in Income and Value-added

As with the cumulative effect for change in employment, the Red Chris Mine, future mine and hydroelectric projects, and current and ongoing commercial land use activities (Section 20.9.1.2) are expected to act cumulatively on direct, indirect, and induced personal incomes, GDP, and government tax revenues, including income to LSA residents in Aboriginal and non-Aboriginal communities. This will, in turn, further alter the income profiles of the RSA and LSA communities (i.e., increasing wage incomes and changing the income source mix, reflecting an increase in the importance of direct mine employment and indirect supply and service business).

20.9.2.2.1 Project Specific Cumulative Effects Mitigations for Change in Income and Value-added

As described in Section 20.7.2.1, management practices, monitoring, and adaptive management will be implemented to mitigate and enhance the potential Project effects. This includes a Labour Recruitment and Retention Strategy, a Procurement Strategy, a Workforce Training Strategy, and a Workforce Transition Program to enhance the income and value-added benefits to the RSA and LSA communities.

20.9.2.2.2 Other Project/Activity Mitigations to Address Change in Income and Value-added

There are no specific mitigation or management measures expected from other projects or activities to address effect on personal incomes, GDP, and government tax revenues. However, it

is expected that other large resource development projects would adopt mitigation and management measures similar to those of the KSM Project (Section 20.7.2.1).

20.9.2.2.3 Determination of Potential for Residual Cumulative Effect and Significance

There is predicted to be a beneficial residual cumulative effect on direct, indirect, and induced personal income, GDP, and government tax revenues during construction and operation (Table 20.9-3). With the additional effects of Red Chris Mine, future mine and hydroelectric projects, and commercial land use activities, the duration of the effects will increase for the construction phase to long term. The magnitude of the effect will also increase for both construction and operation, now rated as medium based on the criteria definitions (Table 20.8-1). For all other descriptors for the residual effects, the ratings do not change. The cumulative effect on change in income and value added is predicted to be **significant (major)**.

20.9.2.3 Overall Cumulative Effect on Employment and Income

Overall, as described in Sections 20.9.2.1 and 20.9.2.2, there is predicted to be a positive cumulative effect on employment and income (Table 20.9-3). This is expected to include employment and income to LSA residents in Aboriginal and non-Aboriginal communities. The total cumulative effect is assessed as being medium in magnitude, beyond regional in extent, of long duration, and continuous through the duration of construction and operation. The effect is predicted to have a high probability of occurrence, with a high level of confidence in the assessment. The cumulative effect on employment and income is predicted to be **significant (major)**.

20.9.3 Cumulative Effects Assessment for Business Opportunities and Economic Development

The predicted residual effects of the KSM Project include: the economic growth, investment, and development of local businesses; beneficial effects on businesses selling goods and services to workers spending their incomes; and the growth, diversification, and overall advancement of economic development in the region. These residual effects are predicted to occur during construction and operation phases of the KSM Project. With respect to other projects and activities, the Red Chris Mine, a number of other future mine and hydroelectric projects (Table 20.9-1), and commercial land use activities (i.e., fishing, guide outfitting, mineral and energy resource exploration, recreation and tourism, and timber harvesting) have the potential to interact cumulatively with each of these effects (Table 20.9-4). The NTL project is also expected to interact cumulatively because the power transmission infrastructure that it provides to the region will facilitate further economic development.

20.9.3.1 Cumulative Effect for Change in Business Activity

Similar to the cumulative effect on employment and income, the Red Chris Mine, future mine and hydroelectric projects, and current and ongoing commercial land use activities are expected to act cumulatively on business activity. Specifically, there are expected to be additional benefits to businesses in the RSA and LSA communities that directly and indirectly supply the Project, as well as those that provide goods and services to residents in the region, as workers spend their incomes. Indirectly, the expected increase in local business activity will likely bring about an increase in capital investment. This, in turn, may result in an increase in business productivity and competitiveness, further enhancing local business capabilities.

Table 20.9-3. Summary of Cumulative Residual Effects on Employment and Income

Description of Residual Effect	Other Project(s)/ Activity(ies)	Timing of Effect	Magnitude	Magnitude Adjusted for CE	Extent	Extent Adjusted for CE	Duration	Duration Adjusted for CE	Frequency	Frequency Adjusted for CE	Reversibility	Reversibility Adjusted for CE	Context	Context Adjusted for CE	Likelihood of Effects				Significance Determination	Significance Determination Adjusted for CE	Follow-up Monitoring	Follow-up Monitoring Adjusted for CE
															Probability	Probability Adjusted for CE	Confidence Level	Conf. Level Adjusted for CE				
The Project will have beneficial effects on direct, indirect and induced employment, including employment of LSA residents in Aboriginal and non-Aboriginal communities	Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Construction	Medium	Medium	Beyond Regional	Beyond Regional	Medium	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	High	High	Not Significant (Moderate)	Significant (Major)	Not Required	Not Required
The Project will have beneficial effects on direct, indirect and induced employment, including employment of LSA residents in Aboriginal and non-Aboriginal communities	Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Operation	Medium	Medium	Beyond Regional	Beyond Regional	Long	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	High	High	Not Significant (Moderate)	Significant (Major)	Not Required	Not Required
The Project will have beneficial effects on direct, indirect and induced personal incomes, GDP, and government tax revenues, including income to LSA residents in Aboriginal and non-Aboriginal communities	Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Construction	Medium	Medium	Beyond Regional	Beyond Regional	Medium	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	High	High	Not Significant (Moderate)	Significant (Major)	Not Required	Not Required
The Project will have beneficial effects on direct, indirect and induced personal incomes, GDP, and government tax revenues, including income to LSA residents in Aboriginal and non-Aboriginal communities	Red Chris Mine; future mine and hydroelectric projects; commercial land use activities		Medium	Medium	Beyond Regional	Beyond Regional	Long	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	High	High	Not Significant (Moderate)	Significant (Major)	Not Required	Not Required
The change in business activity is expected to alter the employment and income profile of the RSA and LSA communities	Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Construction	Medium	Medium	Regional	Regional	Medium	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	Medium	Medium	Not Significant (Moderate)	Not Significant (Moderate)	Not Required	Not Required
The change in business activity is expected to alter the employment and income profile of the RSA and LSA communities	Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Operation	Medium	Medium	Regional	Regional	Long	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	Medium	Medium	Not Significant (Moderate)	Not Significant (Moderate)	Not Required	Not Required
Overall Effect	All	Post-closure	Medium	Medium	Beyond Regional	Beyond Regional	Long	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	High	High	Not Significant (Moderate)	Significant (Major)	Not Required	Not Required

Table 20.9-4. Summary of Projects and Activities with Potential to Interact Cumulatively with Expected Project-specific Residual Effects on Business Opportunities and Economic Development

Description of KSM Residual Effect	NTL	Red Chris Mine	Future Mine and Hydroelectric Projects	Commercial Land Use Activities
The Project will have beneficial effects on businesses supplying the Project and selling goods and services to residents and businesses	No Interaction	Possible Interaction	Possible Interaction	Possible Interaction
The Project is expected to contribute to economic growth, investments, and the development of local businesses	No Interaction	Possible Interaction	Possible Interaction	Possible Interaction
The Project is expected to contribute to LSA and RSA development and broadening of the economic base	Possible Interaction	Possible Interaction	Possible Interaction	Possible Interaction

As noted in Section 20.9.2, for both construction and operation it is expected that the KSM Project will be competing regionally and provincially for skilled and experienced labour, which is predicted to continue to be in short supply. This increase in demand for labour has the potential to have an adverse effect on other businesses and projects due to effects on labour availability and wage inflation. In other words, as with employment, total business activity within the LSA communities will, overall, be higher, but potentially with decreasing marginal benefits as other projects come on line.

20.9.3.1.1 Project Specific Cumulative Effects Mitigations for Change in Business Activity

As described in Section 20.7.3.1, management practices, monitoring and adaptive management will be implemented to mitigate and enhance the potential Project effects on business activity. This includes a Procurement Strategy that is designed to assist businesses in taking advantage of the opportunities to directly and indirectly supply the Project.

20.9.3.1.2 Other Project/Activity Mitigations to Address Change in Business Activity

There are no specific mitigation or management measures expected from other projects or activities to address effect on businesses supplying to projects and selling of goods and services to residents and other businesses. However, it is expected that other large resource development projects would adopt mitigation and management measures similar to those of the KSM Project (Section 20.7.2.1).

20.9.3.1.3 Determination of Potential for Residual Cumulative Effect and Significance

There is predicted to be a beneficial residual cumulative effect on business activity (Table 20.9-5). With the additional effects of Red Chris Mine, future mine and hydroelectric projects, and commercial land use activities, the duration of the effects will increase for the construction phase to long term. The magnitude of the effect will also increase for both

construction and operation, now rated as medium based on the criteria definitions (Table 20.8-1). For all other descriptors for the residual effects, the ratings do not change. The cumulative effect on change in business activity is predicted to be **not significant (moderate)**.

20.9.3.2 Cumulative Effect for Change in the Economy

As with the KSM Project, there is the potential for a cumulative effect that results in the further development of the economies within the RSA and LSA communities, and a broadening of the economic base. This may result in a number of overall changes to the characteristics of the economy within the RSA and LSA communities. The additional projects and activities that are expected to act cumulatively again include the Red Chris Mine, future mine and hydroelectric projects, and current and ongoing commercial land use activities. In addition, the NTL will provide needed power transmission infrastructure in the region, providing additional incentive for economic development. Specifically, the potential cumulative effects include:

- further supporting the development and expansion of local industrial service and supply businesses;
- further supporting the development and expansion of local retail and service businesses;
- supporting an increase in the overall income (and savings) of individuals and households; and
- broadening the business base and diversity of local economies by increasing the local demand for a variety of goods and services.

20.9.3.2.1 Project Specific Cumulative Effects Mitigations for Change in the Economy

As described in Section 20.7.2.1, management practices, monitoring and adaptive management will be implemented to mitigate and enhance the potential Project effects for change in the economy. This includes a Labour Recruitment and Retention Strategy, Procurement Strategy, and Workforce Training Strategy that, collectively, are predicted to enhance local benefits and development of economies within the RSA and LSA communities.

20.9.3.2.2 Other Project/Activity Mitigations to Address Change in the Economy

There are no specific mitigation or management measures expected from other projects or activities to address effect on economic growth, investment, and the development of local business. However, it is expected that other large resource development projects would adopt mitigation and management measures similar to those of the KSM Project (Section 20.7.2.1).

20.9.3.2.3 Determination of Potential for Residual Cumulative Effect and Significance

There is predicted to be a beneficial residual cumulative effect on RSA and LSA community development and broadening of the economic base (Table 20.9-5). With the additional effects of NTL, Red Chris Mine, future mine and hydroelectric projects, and commercial land use activities, the duration of the effects will increase for the construction phase to long term. The magnitude of the effect will also increase for both construction and operation, now rated as medium based on the criteria definitions (Table 20.8-1). For all other descriptors for the residual effects, the ratings do not change. The cumulative effect on change in the economy is predicted to be **not significant (moderate)**.

Table 20.9-5. Summary of Cumulative Residual Effects on Business Opportunities and Economic Development

Description of Residual Effect	Other Project(s)/ Activity(ies)	Timing of Effect	Magnitude	Magnitude Adjusted for CE	Extent	Extent Adjusted for CE	Duration	Duration Adjusted for CE	Frequency	Frequency Adjusted for CE	Reversibility	Reversibility Adjusted for CE	Context	Context Adjusted for CE	Likelihood of Effects				Significance Determination	Significance Determination Adjusted for CE	Follow-up Monitoring	Follow-up Monitoring Adjusted for CE
															Probability	Probability Adjusted for CE	Confidence Level	Conf. Level Adjusted for CE				
The Project will have beneficial effects on businesses supplying the Project and selling goods and services to residents and businesses	Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Construction	Medium	Medium	Regional	Regional	Medium	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	High	High	Not Significant (Moderate)	Not Significant (Moderate)	Not Required	Not Required
The Project will have beneficial effects on businesses supplying the Project and selling goods and services to residents and businesses	Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Operation	Medium	Medium	Regional	Regional	Long	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	High	High	Not Significant (Moderate)	Not Significant (Moderate)	Not Required	Not Required
The Project is expected to contribute to economic growth, investments, and the development of local businesses	Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Construction	Medium	Medium	Regional	Regional	Medium	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	Medium	Medium	Not Significant (Moderate)	Not Significant (Moderate)	Not Required	Not Required
The Project is expected to contribute to economic growth, investments, and the development of local businesses	Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Operation	Medium	Medium	Regional	Regional	Long	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	Medium	Medium	Not Significant (Moderate)	Not Significant (Moderate)	Not required	Not required
The Project is expected to contribute to LSA and RSA development and broadening of the economic base	NTL; Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Construction	Medium	Medium	Regional	Regional	Medium	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	Medium	Medium	Not Significant (Moderate)	Not Significant (Moderate)	Not Required	Not Required
The Project is expected to contribute to LSA and RSA development and broadening of the economic base	NTL; Red Chris Mine; future mine and hydroelectric projects; commercial land use activities	Operation	Medium	Medium	Regional	Regional	Long	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	Medium	Medium	Not Significant (Moderate)	Not Significant (Moderate)	Not required	Not required
Overall Effect	All	Post-closure	Medium	Medium	Regional	Regional	Long	Long	Continuous	Continuous	Reversible short-term	Reversible short-term	Neutral	Neutral	High	High	Medium	Medium	Not Significant (Moderate)	Not Significant (Moderate)	Not Required	Not required

20.9.3.3 Overall Cumulative Effect on Business Opportunities and Economic Development

Overall, as described in Sections 20.9.3.1 and 20.9.3.2, there is predicted to be a positive cumulative effect on business opportunities and economic development (Table 20.9-5). The total cumulative effect is assessed as being medium in magnitude, beyond regional in extent, of long duration, and being continuous through the duration of construction and operation. The effect is predicted to have a high probability of occurrence, with a medium level of confidence in the assessment. The cumulative effect on business opportunities and economic development is predicted to be **not significant (moderate)**.

20.10 Summary of Assessment of Potential Environmental Effects on Economics

Table 20.10-1 summarizes the assessment of the potential environmental effects of the KSM Project on economic conditions.

20.11 Economic Conclusions

In sum, the Project is predicted to result in a number of beneficial residual effects on economics, including:

- employment. The Project is predicted to have a beneficial effect on direct, indirect, and induced employment during construction and operation. This is expected to include employment of LSA residents in Aboriginal and non-Aboriginal communities. The change in business activity is also expected to alter the employment profiles of the RSA and LSA communities during construction and operation;
- income and value-added. The Project is predicted to have a beneficial effect on direct, indirect, and induced personal income, GDP, and government tax revenues during construction and operation. This is expected to include income to LSA residents in Aboriginal and non-Aboriginal communities. The change in business activity is also expected to alter the income profiles of the RSA and the LSA communities during construction and operation;
- change in business activity. The Project is predicted to contribute to the economic growth, investments, and development of local businesses during construction and operation. The change in employment and income is also expected to have beneficial effects on businesses supplying the Project and selling goods and services to residents and businesses; and
- change in the economy. The Project is predicted to contribute to RSA and LSA community development and broadening of the economic base during construction and operation.

Table 20.10-1. Summary of Assessment of Potential Environmental Effects: Economics

Valued Component	Phase of Project	Potential Effect	Key Mitigation Measures	Significance Analysis of Residual Effects	Significance Analysis of Cumulative Residual Effects
Employment and Income	Construction	The Project will have beneficial effects on direct, indirect, and induced employment, including employment of LSA residents in Aboriginal and non-Aboriginal communities.	Labour Recruitment and Retention Strategy; Procurement Strategy; Workforce Training Strategy	Not Significant (Moderate)	Significant (Major)
Employment and Income	Operation	The Project will have beneficial effects on direct, indirect, and induced employment, including employment of LSA residents in Aboriginal and non-Aboriginal communities.	Labour Recruitment and Retention Strategy; Procurement Strategy; Workforce Training Strategy	Not Significant (Moderate)	Significant (Major)
Employment and Income	Construction	The Project will have beneficial effects on direct, indirect, and induced personal incomes, GDP, and government tax revenues, including income to LSA residents in Aboriginal and non-Aboriginal communities.	Labour Recruitment and Retention Strategy; Procurement Strategy; Workforce Training Strategy	Not Significant (Moderate)	Significant (Major)
Employment and Income	Operation	The Project will have beneficial effects on direct, indirect, and induced personal incomes, GDP, and government tax revenues, including income to LSA residents in Aboriginal and non-Aboriginal communities.	Labour Recruitment and Retention Strategy; Procurement Strategy; Workforce Training Strategy	Not Significant (Moderate)	Significant (Major)
Employment and Income	Construction	The change in business activity is expected to alter the employment and income profile of LSA and RSA communities.	Labour Recruitment and Retention Strategy	Not Significant (Moderate)	Not Significant (Moderate)

(continued)

**Table 20.10-1. Summary of Assessment of Potential Environmental Effects: Economics
(completed)**

Valued Component	Phase of Project	Potential Effect	Key Mitigation Measures	Significance Analysis of Residual Effects	Significance Analysis of Cumulative Residual Effects
Employment and Income	Operation	The change in business activity is expected to alter the employment and income profile of LSA and RSA communities.	Labour Recruitment and Retention Strategy	Not Significant (Moderate)	Not Significant (Moderate)
Business Opportunities and Economic Development	Construction	The Project will have beneficial effects on businesses supplying the Project and selling goods and services to residents and businesses.	Labour Recruitment and Retention Strategy; Procurement Strategy	Not Significant (Moderate)	Not Significant (Moderate)
Business Opportunities and Economic Development	Operation	The Project will have beneficial effects on businesses supplying the Project and selling goods and services to residents and businesses.	Labour Recruitment and Retention Strategy; Procurement Strategy	Not Significant (Moderate)	Not Significant (Moderate)
Business Opportunities and Economic Development	Construction	The Project is expected to contribute to economic growth, investments, and the development of local businesses.	Labour Recruitment and Retention Strategy; Procurement Strategy	Not Significant (Moderate)	Not Significant (Moderate)
Business Opportunities and Economic Development	Operation	The Project is expected to contribute to economic growth, investments, and the development of local businesses.	Labour Recruitment and Retention Strategy; Procurement Strategy	Not Significant (Moderate)	Not Significant (Moderate)
Business Opportunities and Economic Development	Construction	The Project is expected to contribute to LSA and RSA development and broadening of the economic base.	Labour Recruitment and Retention Strategy; Procurement Strategy; Workforce Training Strategy	Not Significant (Moderate)	Not Significant (Moderate)
Business Opportunities and Economic Development	Operation	The Project is expected to contribute to LSA and RSA development and broadening of the economic base.	Labour Recruitment and Retention Strategy; Procurement Strategy; Workforce Training Strategy	Not Significant (Moderate)	Not Significant (Moderate)

Management practices, monitoring, and adaptive management will be implemented to mitigate and enhance the potential Project effects on employment. This includes a Labour Recruitment and Retention Strategy, a Procurement Strategy, a Workforce Training Strategy, and a Workforce Transition Program. The objective of the Labour Recruitment and Retention Strategy is to maximize employment benefits within the LSA communities, the RSA, and the province as a whole. This will include a focus on the engagement of Aboriginal workers for direct employment by the Project. The overall objective of the Procurement Strategy is to encourage the involvement of local and regional businesses in the Project to maximize benefits within the RSA. It is to enhance opportunities for businesses to benefit directly and indirectly from the Project. The objective of the Workforce Training Strategy is to maximize work experience, education, and skill levels of the regional workforce, as well as to develop the workforce to meet the needs of the Project. The Nisga'a Nation and First Nation communities will be engaged for the potential development of programs specifically targeted at the training of Aboriginal workers, based on the level of interest and demand. The objective of the Workforce Transition Program is to help workers secure suitable employment elsewhere and, thus, minimize adverse effects of employment loss. This will be achieved mainly through assisting employees in identifying job opportunities that require complementary skills and opportunities to retrain to take advantage of the demands of trades and professions that exist at the time of closure and post-closure.

With closure and post-closure, there is expected to be a loss of employment, income, value-added (GDP), and business activity, and reduction in direct employment and the value of goods and services procured by the Project. This may result in an adverse effect in personal and household income, as well as business opportunities and economic development. However, the effect is dependent upon the conditions present at the time of closure and post-closure, including overall economic conditions and the availability of alternative employment and business opportunities. Implementation of Project mitigation will help workers prepare for the new job opportunities that are available and is expected to minimize the loss of personal and household income. As previously noted, Project-related employment during operation will also provide the workforce with on-the-job training, skills, and experience that are expected to be highly marketable, thus positioning workers to be highly competitive for employment—this will further reduce the likelihood of income loss. Businesses are expected to be adaptive to changes in market conditions and seek out new opportunities. With the identified mitigation, residual adverse effects during closure and post-closure are not predicted.

No residual effects of the Project are assessed as being significant. Two residual effects—1) change in employment, and 2) change in personal income, GDP, and government tax revenues—were assessed as significant with respect to cumulative economic effects. The significance of the cumulative effects is driven mainly by the increase in magnitude and duration of the combined effects of all projects considered.

Monitoring of direct employment by the Project should occur during construction and operation. This will permit analysis and monitoring of the effectiveness of mitigation and of accomplishments with respect to the hiring of residents from the RSA and LSA communities, including Aboriginal workers. Because of the importance of ensuring that there are opportunities for local businesses, including Aboriginal-owned businesses, to benefit by becoming suppliers to the Project, procurement should also be monitored. This will permit analysis and monitoring of accomplishments with respect to the benefits to local businesses.

References

- AANDC. 2010. *First Nation Profiles*. <http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Index.aspx?lang=eng> (accessed December 2010).
- AANDC. 2012a. *First Nation Profiles*. <http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Index.aspx?lang=eng> (accessed July 2012).
- AANDC. 2012b. *Registered Population - New Aiyansh*. http://pse5-esd5.ainc-inac.gc.ca/FNP/Main/Search/FNRegPopulation.aspx?BAND_NUMBER=677&lang=eng (accessed May 2012).
- BC Hydro. 2012. *Northwest Transmission Line Project: Nisga'a Nation & First Nations* http://www.bchydro.com/energy_in_bc/projects/ntl/first_nations.html (accessed August 2012).
- BC ILMB. 2000. *Cassiar Iskut-Stikine Land and Resource Management Plan*. Government of British Columbia. <http://ilmbwww.gov.bc.ca/slrp/lrmp/smithers/cassiar/index.html> (accessed December 2012).
- BC ILMB. 2004. *Dease-Liard Sustainable Resource Management Plan*. Government of British Columbia. <http://ilmbwww.gov.bc.ca/slrp/srmp/north/dease-liard/index.html> (accessed April 2010).
- BC MARR. 2012. *Tahitian Nation*. http://www.gov.bc.ca/arr/firstnation/tahltan_nation/default.html (accessed November 2012).
- BC MEMPR. 2012a. *All Minerals Production and Values - 1998 to 2010*. <http://www.empr.gov.bc.ca/Mining/MineralStatistics/MineralEconomySnapshot/1992toPresent/ProductionandValues/Pages/default.aspx> (accessed June 2012).
- BC MEMPR. 2012b. *Mineral Exploration in British Columbia*. <http://www.empr.gov.bc.ca/Mining/Exploration/Pages/default.aspx> (accessed June 2012).
- BC MFLNRO. 2012. *Nass South Sustainable Resource Management P*. <http://ilmbwww.gov.bc.ca/slrp/srmp/south/nass/index.html> (accessed December 2012).
- BC MOFR. 2010. *Ministry of Forests and Range 2010/11 – 2012/13 Service Plan*. Ministry of Forests and Range, Government of British Columbia: Victoria, BC.
- BC Stats. 2006. *A guide to the BC economy and labour market*. Ministry of Advanced Education and Labour Market Development, Government of British Columbia: Victoria, BC.
- BC Stats. 2007. *Community Facts: Smithers*. February 2, 2007. Government of British Columbia: n.p.
- BC Stats. 2009a. *2006 Census Profile - Dease Lake, UNP*. Government of British Columbia: n.p.
- BC Stats. 2009b. *2006 Census Profile - Kitimat-Stikine, CD*. Government of British Columbia: n.p.
- BC Stats. 2009c. *2006 Census Profile - Stewart, DM*. Government of British Columbia: n.p.
- BC Stats. 2009d. *2006 Census Profile - Stikine, CD*. Government of British Columbia: n.p.

- BC Stats. 2010a. *British Columbia Quarterly Population Estimates 1971-2009*. April 2010. Government of British Columbia. <http://www.bcstats.gov.bc.ca/data/pop/pop/BCQrtPop.asp> (accessed April 2010).
- BC Stats. 2010b. *Bulkley-Nechako Regional District*. BC Regional Index Online. http://www.bcstats.gov.bc.ca/data/cen06/profiles/detailed/ch_cd.asp/ (accessed October 2010).
- BC Stats. 2010c. *A Guide to BC Economy and Labour Market (2010 edition)*. <http://guidetobceconomy.org/> (accessed May 2011).
- BC Stats. 2011. *College Region 12 - Northwest: Statistical Profile*. <http://www.bcstats.gov.bc.ca/statisticsbysubject/geography/referencemaps/CollegeRegions.aspx> (accessed August 2012).
- BC Stats. 2012a. *The British Columbia Economic Accounts*. <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Economy/EconomicAccounts.aspx> (accessed June 2012).
- BC Stats. 2012b. *Business Counts and Employment by Industry*. <http://www.bcstats.gov.bc.ca/StatisticsBySubject/BusinessIndustry/BusinessCountsEmploymentByIndustry.aspx> (accessed June 2012).
- BC Stats. 2012c. *Community Facts*. <http://www.bcstats.gov.bc.ca/StatisticsBySubject/SocialStatistics/CommunityFacts.aspx> (accessed November 2012).
- BC Stats. 2012d. *Exports and Imports: Data*. <http://www.bcstats.gov.bc.ca/StatisticsBySubject/ExportsImports/Data.aspx> (accessed June 2012).
- BC Stats. 2012e. *Indicators of Human Economic Hardship*. <http://www.bcstats.gov.bc.ca/StatisticsBySubject/SocialStatistics/SocioEconomicProfilesIndices/SocioEconomicIndices/RDReports.aspx> (accessed August 2012).
- BC Stats. 2012f. *Population Estimates*. <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Demography/PopulationEstimates.aspx> (accessed November 2012).
- Bridges and Robinson. 2005. *Northwest BC mining projects: Socio-economic impact assessment*. Prepared for the Ministry of Small Business and Economic Development, Economic Analysis Branch by G.E. Bridges & Associates and Robinson Consulting & Associates: Victoria, BC.
- City of Terrace. 2011. *Official Community Plan*. http://www.terrace.ca/news/official_community_plan_2011 (accessed November 2012).
- Conference Board of Canada. 2012. *Understanding the Value, Challenges, and Opportunities of Engaging Metis, Inuit, and First Nations Workers*. Conference Board of Canada: Ottawa, ON.
- Daum, H. 2010. *Cassiar – Do you remember?* <http://www.cassiar.ca/> (accessed November 2010).
- Dease Lake Internet Society. 2006. *Dease Lake Community Website*. <http://www.stikine.net> (accessed November 2008).
- DeaseLake.net. 2006. *Dease Lake Information*. <http://www.deaselake.net> (accessed November 2008).

- District of Stewart. n.d. *Community Profile*. [http://www.districtofstewart.com/District/Stewart%20-%20Investment-Ready%20Community%20Profile%20\(web\).pdf](http://www.districtofstewart.com/District/Stewart%20-%20Investment-Ready%20Community%20Profile%20(web).pdf) (accessed October 2010).
- GDC. 2012. *Gitxsan Development Corp and Skii km Lax Ha Nation sign agreement*. <http://www.gitxsanbusiness.com/news-media/news/29-gitxsan-development-corp-and-skii-km-lax-ha-nation-sign-agreement.html> (accessed August 2012).
- Gitanyow Hereditary Chiefs. 2006. *Building a New Relationship: Recognition, Reconciliation, Respect & the Gitanyow Huwilp*.
- GMG Consulting. 2009. *Report on the Baseline Data Collection for Social and Cultural Measures and Indicators for the Tahltan Nation*. Report prepared by GMG Consulting Services Inc. for the Tahltan Central Council, September 2009:
- Halseth, G., D. Strassfogel, D. Parsons, S., and A. Wishart. 2004. Regional Economic Shifts in British Columbia: Speculation from Recent Demographic Evidence. *Canadian Journal of Regional Science*, 37 (3): 317-52.
- Horne, G. 2009a. 2006 Diversity Indices. In *British Columbia Local Area Economic Dependencies - 2006*. Victoria, BC: BC Stats. Table 2.3.
- Horne, G. 2009b. *British Columbia Local Area Economic Dependencies: 2006*. BC Stats. March 2009. Government of British Columbia.: Victoria, BC.
- ICABC. 2012. *BC Check-Up 2012: North Coast Development Region*. <http://www.bccheckup.com/bccheckup.php?cat=86> (accessed June 2012).
- Invest BC. 2012. *Invest in Terrace*. <http://investnorthwestbc.ca/site-selector-community-profiles/terrace-2/invest-terrace> (accessed November 2012).
- IPGDC and NDI. 2009. *Northern British Columbia: A Vision for Prosperity. Prepared for Outlook 2020: Shaping BC's Economic Future*. Initiatives Prince George Development Corporation and Northern Development Initiative Trust. http://www.bcbc.com/content/556/2020_200910_IPG.pdf (accessed November 2012).
- Marsden, T. 2010. *Gitanyow Wilp-based Socio-Cultural Needs Assessment: Final Report*. Gitanyow Hereditary Chiefs Office: Gitanyow, BC.
- MIHR. 2008. *British Columbia Report on Labour Market Demand Projections*. <http://www.mihr.ca/en/publications/resources/BCReportonLabourMarketDemandProjections.pdf> (accessed April 2012).
- MIHR. 2011. *Canadian Mining Industry Employment and Hiring Forecasts 2011*. http://www.mihr.ca/en/publications/resources/Employment_HiringForecasts2011_FINALAug4_ENG.pdf (accessed April 2012).
- MIHR. 2012. *British Columbia Hiring Requirements and Available Talent Forecasts: Exploration, Mining, and Stone, Sand and Gravel. Kanata ON*. http://www.mihr.ca/en/publications/Publications_by_Subject_LMI.asp (accessed January 2013).

- NLG. 2011. *Consolidated Financial Statements of Nisga'a Lisims Government*. <http://www.nisgaalisims.ca/files/nlg/Audit.pdf> (accessed September 2012).
- NLG. n.d. *Nisga'a Commercial Group of Companies*. <http://www.nisgaalisims.ca/?q=nisgaa-commercial-group-companies> (accessed June 2010).
- Northwest Tribal Treaty Nations. 2010. *Working together to Create Sustainable Wealth. First Nations in British Columbia*. <http://fnbc.info/content/report-working-together-create-sustainable-wealth-northwest-tribal-treaty-nations> (accessed January 2012).
- NovaGold. 2006. *Galore Creek Project: Socio-economic assessment*. Prepared for NovaGold by Rescan Environmental Services Ltd. and Rescan-Tahltan Environmental Consultants: Vancouver, BC.
- Pollen, C. 2011. *B.C. Mining Labour Shortage*. BC Business Online. <http://www.bcbusinessonline.ca/2011/04/04/crisis-meets-opportunity-bc-mining> (accessed August 2012).
- PricewaterhouseCoopers. 2011. *Seize the day: The mining industry in British Columbia 2010*. PricewaterhouseCoopers LLP: n.p.
- PricewaterhouseCoopers. 2012. *Forging Ahead: The Mining Industry in British Columbia 2011*. <http://www.pwc.com/ca/en/mining/publications/pwc-mining-survey-bc-2012-05-en.pdf> (accessed June 2012).
- Rescan. 2009. *Northwest Transmission Line Project: Socio-economic Baseline Study Report*. Prepared for the British Columbia Transmission Corporation by Rescan Environmental Services Ltd.: Vancouver, BC.
- SNDS. 2007a. *2006 Labour Market Census*. <http://www.snds.bc.ca/lmc06.htm> (accessed June 2010).
- SNDS. 2007b. *Interview by Skeena Native Development Society*. Skeena Native Development Society: n.p.
- Statistics Canada. 1997. *1996 Community Profiles*. <http://www12.statcan.ca/english/Profil/Place/SearchForm1.cfm> (accessed June 2010).
- Statistics Canada. 2002. *2001 Community Profiles*. <http://www12.statcan.ca/english/Profil01/CP01/Index.cfm?Lang=E> (accessed June 2010).
- Statistics Canada. 2007a. *2001 Community Profiles: British Columbia*. <http://www12.statcan.ca/english/profil01/CP01/Search/List/Page.cfm?Lang=E&GeoCode=59> (accessed November 2012).
- Statistics Canada. 2007b. *2006 Community Profiles*. <http://www12.statcan.ca/english/census06/data/profiles/community/Index.cfm?Lang=E> (accessed December 2008).
- Statistics Canada. 2008a. *2006 Aboriginal Population Profile*. <http://www12.statcan.ca/english/census06/data/profiles/aboriginal/Index.cfm?Lang=E> (accessed April 2010).
- Statistics Canada. 2008b. *2006 Census: Profile of Designated Places*. <http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/rel/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=1&PID=94540&PRID=0&PTYPE=89103&S=0&SHOWALL=0&SUB=0&Temporal=2006&THEME=81&VID=0&VNAMEE=&VNAMEF> (accessed July 2012).

- Statistics Canada. 2010. *Community Profiles. British Columbia*. <http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/details/Page.cfm?Lang=E&Geo1=PR&Code1=59&Geo2=PR&Code2=01&Data=Count&SearchText=BritishColumbia&SearchType=Begins&SearchPR=01&B1=All&GeoLevel=PR&GeoCode=59> (accessed November 2012).
- Statistics Canada. 2012a. *2011 Census Profile: British Columbia*. <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/search-recherche/lst/page.cfm?Lang=E&GeoCode=59&TABID=1&G=1&Geo1=PR&Code1=10&Geo2=0&Code2=0> (accessed November 2012).
- Statistics Canada. 2012b. *2011 Census Profiles*. <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E> (accessed May 2012).
- Statistics Canada. 2012c. *Employment by major industry groups, seasonally adjusted, by province (monthly): British Columbia*. <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/labr67k-eng.htm> (accessed September 2012).
- Statistics Canada. 2012d. *Population by broad age groups and sex, 2011 counts for both sexes, for Canada, provinces and territories*. <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/hlt-fst/as-sa/Pages/highlight.cfm?TabID=1&Lang=E&Asc=1&PRCode=01&OrderBy=999&Sex=1&View=1&tableID=21&queryID=1> (accessed June 2012).
- Stewart-Hyder ICC. 2008. *Stewart, BC & Hyder, AK International Chamber of Commerce*. <http://www.stewart-hyder.com> (accessed June 2008).
- Town of Smithers. 2010. *Town of Smithers*. <http://www.town.smithers.bc.ca> (accessed April 2010).
- Village of Hazelton. 2008. *About*. <http://www.village.hazelton.bc.ca/html/about.htm> (accessed October 2008).
- Personal Communications**
- Danuser, A. and S. McFee. 2009. Mayor and Administrative Officer, Stewart, BC. Interview by Andrew Robinson, Voice Recording: August 26, 2009.
- Derrick, A. Principal, Gitanyow Independent School, Gitanyow, BC. Interview by Andrew Robinson: May 26, 2010.
- Drew, E. 2009. Teacher, Bear Valley Elementary School, Stewart, BC. Interview by Andrew Robinson: August 27, 2009.
- Maitland, A. and B. Smith. 2009. Mayor and Councillor, Hazelton, BC. Interview by Andrew Robinson: August 24, 2009.
- Maitland, A. 2009. Director, Northwest Community College Hazelton Campus, Hazelton, BC. Interview by Andrew Robinson, Tape Recording: May 10, 2009.
- Weeber, P. and B. Faasnidge. 2009. Mayor and Administrator, New Hazelton, BC. Interview by Andrew Robinson, Voice Recording: August 24, 2009.