Yukon Mineral Sector Supply Chain Gap Analysis

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Mine the Gap
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1.0 Mining Supply Chains: An Introduction

Yukon has a rich mining history, which dates back to the turn of the 20th Century. From the early days of the Klondike Gold Rush in Dawson City to modern day mining at the Minto Mine near Pelly Crossing, the territory has been home to dozens of operating mines – including both hard rock and placer mining operations – and extensive mineral exploration activities undertaken by hundreds of firms.

And while aggregate figures such as Gross Domestic Product provide an overview of the major historical impact of the industry in Yukon, there are gaps that prevent a more comprehensive understanding of mining's true contribution to the local economy. Notable among these gaps is the involvement of the many firms that supply inputs to mineral exploration and mining industry.

Mine operators and mineral exploration firms require a broad range of goods and services as inputs to their production processes. While not an exhaustive list, such goods and services include geologists, engineers, mapping services, communications services, food and fuel supply, water and wastewater engineering, drilling, explosives, transportation and legal services.

The combination of all relevant goods and services required is, in essence, the supply chain for the mining industry. This supply chain is the system of organizations, people, technology, activities, information and resources involved in moving a product or service from supplier to ultimate customer.

To date, limited information exists related to the supply chain that Yukon-present mine operators and mineral exploration firms require to be in the field and be successful. While there are documents that capture the long list of organizations that provide service to the industry, little is known on the actual contribution made by these organizations or to the gaps that might exist in the current supply chain.

Important questions remain unanswered:

- What is the make-up of the current Yukon mining supply chain?
- Where does the local mining industry source its inputs?
- What portion of these inputs do Yukon-present suppliers provide?
- What are the gaps between mining industry needs and local supplier capacity?

If the economic benefits of mining and mining exploration are to be maximized by Yukon, a better understanding of the current capacity of Yukon-present business to meet the demands of mine operators and mining exploration firms is required. This information could help Yukon attract new investment and retain the benefits of that investment within the Yukon economy. Accordingly, the purpose of this project is to undertake an analysis of the mineral sector input supply situation that will identify gaps between the supply needs of mine operators and mineral exploration firms and the capacity of Yukon-present firms to meet those needs.

2.0 Mine the Gap: About This Study

To better understand the input supply needs of firms active in the Yukon's mineral sector, information was sought from firms fitting one of three operational profiles: (A) producing mines (B) mine projects in the late stages of permitting or under construction and (C) mineral exploration firms. Information was collected from each type over the period March to April 2009 in the manner outlined in the table below.

Table 1
Profile of Study Participants

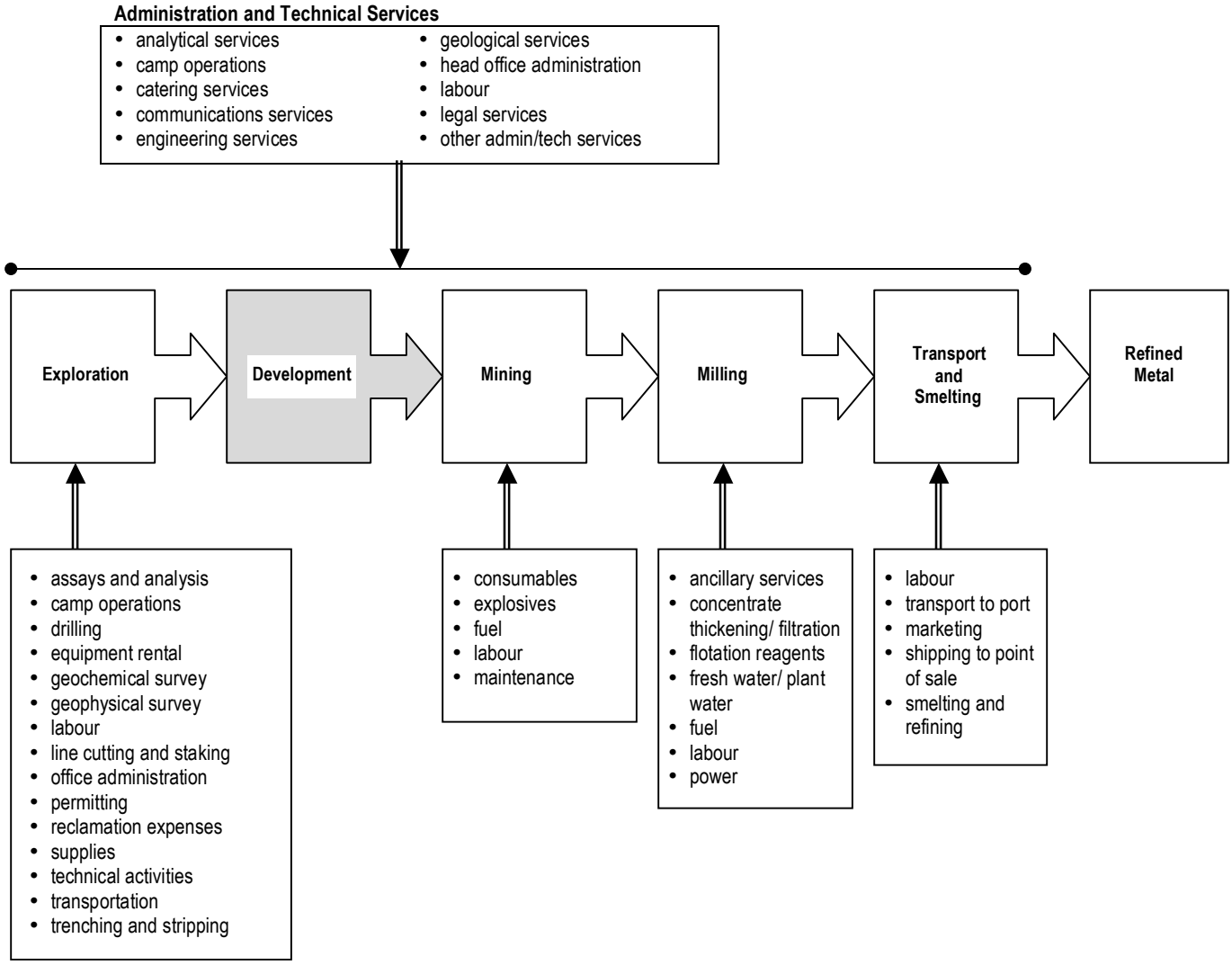
(A) Producing Mines
Background
• Yukon currently has one operating mine, Capstone Mining Corporation's Minto Mine located near Pelly Crossing. • In order to supplement the information collected from the Minto Mine, the Cantung Mine (North American Tungsten) based in the NWT was used as a proxy.
Data Source
• Information was collected via questionnaire and personal interviews with company executives. See Appendix A for a sample questionnaire.
(B) Mines Currently in Permitting/Construction
Background
• Yukon currently has one mine project in the late stages of permitting (Western Copper's Carmacks Copper Project) and one mine under construction (Yukon Zinc's Wolverine Project).
Data Source
• Information was collected via literature review, focused specifically on public documents prepared under government-led development processes and other disclosure processes designed for publicly held firms. • Since neither mine project is operational, the data is based on spending intentions rather than actual spending.
(C) Mineral Exploration Firms
Background
• According to the *Yukon Hard Rock Mining, Development and Exploration Overview 2008,*[1] there were 119 active exploration properties in the Yukon in 2008, with current drilling operations at 54 of these properties.
Data Source
• Information was collected via questionnaires conducted with a desired sample of five firms. A total of 18 firms were initially identified. After two months of ongoing follow-up, four firms responded to the questionnaire. See Appendix B for a sample questionnaire. • Information was sought only from firms who undertook with significant exploration activity in the previous year (10 or more drill holes in 2008).

[1] Government of Yukon, *Yukon Hard Rock Mining, Development and Exploration Overview 2008,* <www.emr.gov.yk.ca>.

3.0 Yukon Mineral Sector Supply Chain

Below is a graphical presentation of the Yukon mineral sector supply chain, which documents the specific inputs required by both mining production companies and mineral exploration firms. To follow in later sections of this paper are further details on these inputs and their relevance in Yukon.[2]

Figure 1: Yukon Mineral Sector Supply Chain



[2] The shaded area in the figure, denoting the "development" portion of the mining process, was not part of the research for this paper as the purpose of this paper was to document the supply chain inputs for the exploration and mining production portions of the process. Development is noted here only to illustrate its location in the mining supply chain.

4.0 Mining Industry Suppliers: Yukon Case Studies

4.1 Mining Firms at (or near) Production

4.1.1 Mining Companies: Yukon

Yukon currently has one operating mine. Owned by Capstone Mining Corporation, the Minto Mine is a copper-gold mine, located approximately 240 kilometres north of Whitehorse. Operations began in October 2007 and concentrates are currently being transported to tidewater at Skagway, Alaska for shipment to overseas customers.

To supplement the research for this project and to ensure the confidentiality of information received from respondents, two other mining projects were investigated, one in the late stages of permitting (Carmacks Copper) and one under construction (Wolverine Project). While supplier expenditure information is based on spending intentions rather than actual spending, they add further insight to the Yukon context.

To further supplement the information base, an operating mine in close proximity to Yukon was used as a proxy for Yukon-present results – the Cantung Mine, a tungsten operation located along the Yukon-NWT border.

Table 2
Yukon (and related) Mining Projects
"At" or "Near" Production

Project/Owner	Location	Background
Minto Mine/ Capstone Mining Corporation	Central Yukon; 240km north of Whitehorse; near Pelly Crossing, Yukon	The Minto Mine is a copper-gold operation that began operations in October 2007.
Cantung Mine/ North American Tungsten	Southwest NWT; 300km northeast of Watson Lake, Yukon; near Yukon/NWT border	The Cantung Mine is a tungsten operation that re-opened in September 2005.
Wolverine Project/ Yukon Zinc Corporation	Southeast Yukon; 240km northwest of Watson Lake, Yukon; 26km west of Robert Campbell Highway	Wolverine (zinc-copper-lead-silver-gold) is under construction, scheduled for production in 2010.
Carmacks Copper Project/ Western Copper Corporation	Central Yukon; 200km north of Whitehorse; near Carmacks, Yukon	Carmacks Copper (copper-gold-silver) is currently in the permitting process, production date unknown.

4.1.2 Mining Supply Chains: Background

There are four functions of producing mines including the following:

- Administration and Technical Services
- Mining
- Milling
- Transport/Smelting

Within these four functions are numerous supply chain inputs (see table below) that are required by mining operators to support the successful extraction of minerals and metals.

Table 3:
Mining Supply Chain
Key Components

Administration & Technical Services		
- Analytical services	- Engineering services	- Labour (employees)
- Camp operations	- Geological services	- Legal services
- Catering services	- Head office administration	- Other admin/tech. services
- Communications services	- Labour (contract)	
Mining		
- Consumables	- Labour (contract)	- Other mining
- Explosives	- Labour (employees)	
- Fuel (diesel and propane)	- Maintenance	
Milling		
- Ancillary services	- Fresh water/plant water	- Labour (employees)
- Concentrate thickening/filtration	- Fuel (diesel/propane)	- Other milling
- Flotation reagents	- Labour (contract)	- Power
Transport/Smelting		
- Labour (contract)	- Marketing and other	- Smelting and refining
- Labour (employees)	- Other transport/smelting	
- Local transport to port	- Shipping to point of sale	

4.1.3 Mining Supply Chains: Yukon Results

The primary purpose of the project research was to offer some insight on the nature of mining supplier relationships in the territory and to investigate the extent to which mining companies source needed supplies from Yukon-present suppliers. With only one operating mine in the Yukon, however, opportunities to make broadly-based observations were limited. The following observations emerged from the research:[3]

- Mining companies are beginning to make public and firm commitments on the use of local suppliers to support mining during both pre-production and production. As a response to the socio-economic requirements within the Yukon Environmental and Socioeconomic Assessment Act (YESAA), firms are committing to utilizing local suppliers, whenever possible. In some cases, such as with Yukon First Nations, explicit

[3] Caution should be used when interpreting these general observations as the sample size was very small and in certain cases the completeness of information provided limited the analysis. In consequence, the observations presented here constitute a high level analysis only and cannot be reasonably extended to other Yukon mine operations.

financial partnerships are formed that guarantee a certain portion of work to local citizens.

- Spending on administrative costs and technical services tends to be done outside Yukon. For this supplier category, both operating mines reported spending more than 60 per cent outside the local market. Given that head offices for mining companies are located in major southern cities (Vancouver and Toronto, primarily), it is no surprise that administrative costs are largely incurred outside the territory. In addition, a shortage of technical skills locally also contributes to a drain of supplier investment to the south.

- The three remaining supplier categories (mining, milling and transport/smelting) show mixed results that do not reveal any particular pattern that can reasonably be applied to other mine sites. It may be that location has an impact on local spending patterns. Alternatively, the type of mining in question might be a factor. The two active mine sites surveyed for this study are, in some key respects, different. While one is very remote and produces concentrates in small quantities (by weight), the other is a reasonably accessible site with larger quantities of product being shipped.

- Ultimately, "price" and "value" appear to be the most important criteria in establishing supplier relationships within the active mining industry. Given the competitiveness of the mining business, supplier relationships are almost exclusively based on a firm's value equation. If a top quality product or service can be provided to the mine, at a competitive price, then that supplier is more likely to win the business. As noted by one study respondent, if the firm's value equation cannot be met, it will look elsewhere for supplies.

4.2 Mineral Exploration Firms

4.2.1 Mineral Exploration Firms: Yukon

According to the most recent *Yukon Hard Rock Mining, Development and Exploration Overview,*[4] there were 119 active exploration properties in Yukon in 2008, with current drilling operations at 54 of these properties. Of these 54 properties – and as indicated in the table below – 18 firms undertook significant activity (10 or more drill holes) over the year.

[4] Government of Yukon, *Yukon Hard Rock Mining, Development and Exploration Overview 2008,* <www.emr.gov.yk.ca>.

Table 4: Potential Questionnaire Respondents March/April 2009		
Name	**Drill-Holes (2008)**	
	Number	Metres
ATAC Resources	18	3,423
Capstone Mining Corporation	120	23,840
Dynamite Resources	68	10,004
Largo Resources	38	11,500
Monster Mining	47	2,463
North American Tungsten	55	4,256
Northern Freegold Resources	97	22,233
Northern Platinum Limited	12	4,523
Northern Tiger Resources	10	2,238
Overland Resources	134	23,545
Rockhaven Resources	51	4,113
Selwyn Resources	13	3,857
Stratagold Corporation	49	8,307
Underworld/KRL Resources	27	3,431
Yankee Hat Minerals	21	2,134
Yukon Gold Corporation	10	3,674
Yukon-Nevada Gold Corporation	223	30,151
Zinccorp Resources	26	3,113

4.2.2 Mineral Exploration Supply Chains: Background

Mineral exploration involves the search for, discovery and description of new or neglected mineral deposits. Deposits are described in terms of mineral grade, tonnage and other characteristics. The exploration phase for a deposit is said to end when a positive scoping study justifies more detailed and costly appraisal work.

As with mining, there are numerous components in the supply chain for mineral exploration. Its key components – those required to successfully explore a known deposit and move into the next stage of the mining process – are noted in the table below.

Table 5: Mineral Exploration Supply Chain Key Components	
- Assays and analysis	- Line cutting and staking
- Camp operations (e.g., food, accommodation)	- Office administration
- Drilling (all types)	- Permitting
- Equipment rental	- Reclamation expenses
- Geochemical survey	- Supplies
- Geophysical survey	- Technical activities
- Labour (contract)	- Transportation (personnel, supplies and machinery)
- Labour (employees)	- Trenching and stripping

4.2.3 Mineral Exploration Supply Chains: Yukon Results

On average, mineral exploration firms who responded to the survey spent $5.5 million on exploration in 2008, with $4.0 million, or 74% of the total, spent in the Yukon.

Table 6:
Exploration Investment, 2008
In and Outside Yukon, By Firm

	Total Exploration	In Yukon	In Yukon	Outside Yukon	Outside Yukon
	($M)	($M)	(%)	($M)	(%)
Firm #1	6.0	4.4	74.1	1.6	25.9
Firm #2	9.0	7.0	77.8	2.0	22.2
Firm #3	2.0	1.7	85.4	0.3	14.6
Firm #4	5.0	2.9	57.2	2.1	42.8
Average	**5.5**	**4.0**	**73.6**	**1.5**	**26.4**

The table below shows the breakdown of spending by each component of the exploration supply chain for the four study respondents. Following the table are some key observations based on the table.

Table 7:
Mineral Exploration Expenditures
Average Spending Share By Activity and Average Yukon/Non-Yukon Proportions

	Spending Share (%)	In Yukon (%)	Outside Yukon (%)
Assays and analysis	6.9	11.8	88.3
Camp operations (e.g., food, accommodation)	7.8	99.3	0.8
Drilling (all types)	42.2	75.3	24.8
Equipment rental	2.0	96.5	3.5
Geochemical survey	1.8	60.0	40.0
Geophysical survey	2.0	50.0	50.0
Labour (contract)	1.6	31.5	68.5
Labour (employees)	13.3	58.3	41.7
Line cutting and staking	0.0	100.0	0.0
Office administration	0.9	46.7	53.3
Other	4.5	85.3	14.7
Permitting	0.3	94.0	6.0
Reclamation expenses	0.3	100.0	0.0
Supplies	1.7	87.5	12.5
Technical activities	5.1	55.5	44.5
Transportation (personnel, supplies and machinery)	9.8	93.5	6.5
Trenching and stripping	0.0	0.0	0.0
Total	**100.0**	**73.6**	**26.4**

- The largest components of mineral exploration in terms of spending are (in descending order): drilling, labour, transportation, camp operations and assays and analysis.

- Mineral exploration is largely a 'local' endeavour. Most supply chain items are purchased in Yukon from Yukon suppliers. Notable among this list are line cutting and staking, reclamation expenses, camp operations, equipment rental, permitting and transportation.

- As with mining companies, mineral exploration firms tend not to have their head office located in Yukon. Office administration costs are primarily borne outside the territory, presumably at the head office for the firm. Toronto and Vancouver are the most likely locations.

- The top supply chain inputs purchased outside Yukon are in the technical and human resources areas. Contract labour, assays and analysis, geophysical survey, geochemical survey and technical activities each involve large portions of investment outside the territory.

5.0 Mining Industry Suppliers: A Yukon Inventory

The *2009 Yukon Mining and Exploration Directory*[5], compiled annually by the Yukon Chamber of Mines, presents a comprehensive inventory of the Yukon mining industry. The publication includes background information on mining companies and exploration firms as well as the many businesses that provide support to the mining sector. It also provides information on organizations otherwise involved in the mining sector, including industry associations, governments, First Nations, environmental boards and training centres.

While this directory may not be a census of mining businesses (listings are voluntary), it is the most complete source available in Yukon. As noted in the table below, the industry is served by a number of key support firms, whose existence is linked to those companies that are either actively mining in the territory, or engaged in mineral exploration. These firms provide a wide range of goods and services to the industry.

[5] Yukon Chamber of Mines, *2009 Yukon Mining and Exploration Directory*, 2009.

Table 8: Yukon Mining Industry Suppliers Yukon Mining and Exploration Directory, 2009			
Service/Expertise	**Total Firms**	**In Yukon**	**Outside Yukon**
Communications	5	5	0
Consultants	38	28	10
Contractors – General	26	25	1
Contractors – Mine Development	9	3	6
Drilling	14	7	7
Employment Services	3	2	1
Expediting	3	3	0
Laboratories (full service)	6	0	6
Mining Services (Note 1)	35	18	17
Suppliers			
-Accommodations	35	35	0
-Equipment	6	3	3
-Food Services	14	12	2
-Fuel and Auto	23	23	0
-Office Services	6	6	0
-Printing and Design	4	4	0
-Security and Storage	6	5	1
-Supplies	21	16	5
-Transportation	24	23	1
Note 1: Mining Services is a 'catch-all' category that captures a wide range of services that do not fit cleanly in other categories. Services includes legal, insurance, contracting, parts sales, medical, photography, etc.			

6.0 Supply Chain Gaps: Yukon Context

While Section 5.0 illustrated the make-up of the Yukon mining supplier industry, it did not provide context on the extent to which these suppliers are actually used by the industry. The tables below document, on the basis of completed questionnaires, the average number of supplier relationships within each industry, including the prevalence of Yukon-present suppliers.

For mining companies, the average number of suppliers used is 548, of which 156 (or, 29 per cent) are local suppliers.

Table 9: Mining Companies: Number of Suppliers Total and Yukon/NWT (average of firms responding)	
Total Suppliers	548
Local (Yukon/NWT) Suppliers	156
% Local (Yukon/NWT) Suppliers	29

For mineral exploration firms, the number of suppliers is much lower. For these firms, an average of 57 suppliers are used, with 40 of these (70 per cent) being Yukon-present. Interestingly, of the four mineral exploration firms that responded, three reported local spending in excess of 80 per cent of all expenditures and two were greater than 90 per cent. While exploration is a smaller operation than mineral production, it does appear to have a proportionally larger local footprint.

Table 10: Mineral Exploration Firms: Number of Suppliers Total and Yukon (average of firms responding)	
Total Suppliers	57
Yukon Suppliers	40
% Yukon Suppliers	70

6.1 Key Supply Chain Gaps/Barriers

In the case of both mining companies and mineral exploration firms significant supplier relationships exist. Yet, there appear to be some key gaps between industry need and local supplier provision of goods and services for both mining and mineral exploration. The question remains: what are these gaps? And what are the barriers, if any, that impede the ability of the industry to purchase goods and services locally?

Based on project research (see Sections 4.0 and 5.0 above), the following key supplier gaps appear to exist in Yukon:

Table 11: Yukon Supplier Gaps	
Mining[6]	**Mineral Exploration**
See footnote below.	Assays and Analysis
	Contract Labour
	Geochemical Survey
	Geophysical Survey
	Other Technical Activities

According to interviews conducted with mining company and mineral exploration firm executives, these gaps are the result of several key barriers to local involvement in the mining industry (and were generally consistent across both mining and mineral exploration firms).

[6] Data received from mining companies was not detailed enough to allow for specific comment by supply chain category. The risk of identifying a particular mining company – and violating confidentiality expectations – outweighs the benefit of this information.

Table 12: Supply Chain Gaps Yukon Mining Support Industry	
Inadequate market size.	*First*, suppliers carry low inventories, which make it difficult for the industry to quickly obtain supplies. *Second*, local suppliers are not able to offer competitive pricing, as their operating costs are higher, compared to southern firms serving larger markets. *Third*, some supplies are not available in Yukon (example: grinding media).
Incomplete value equation.	Since mining is a highly competitive industry, suppliers have to be responsive to the industry. The industry requires high quality supplies at reasonable prices. This is not always available locally.
Shortage of technical expertise.	The labour pool for technical skills to support the industry is limited. Mining companies tend to obtain these services from southern suppliers.
Limited infrastructure.	*First*, local transportation infrastructure (to access some sites) is below the standard required to effectively transport supplies, personnel and mineral products. *Second*, electrical infrastructure does not extend to all portions of the territory, resulting in considerable energy costs at sites. *Third*, no full service laboratory exists in Yukon, making assays and analysis more time-consuming and costly.

6.2 Closing the Gap

Some considerations emerged for closing the gap between the needs of the mining industry and current capacity of local suppliers (as identified by questionnaire respondents).

- ***Option 1: Continue to provide local training opportunities.***

Technical skills are required to support the industry in a wide range of areas, including geophysical, geochemical, drilling and engineering, as well as others. With continued efforts to train local people, the industry would be in a better position to hire locally.

- ***Option 2: Consider key infrastructure improvements.***

A key local gap noted by the industry is the lack of a full service laboratory for assays and analysis. While such an investment would be significant, it would allow for more efficient and cost-effective treatment of samples during both the exploration and mining processes.

- ***Option 3: Support local businesses.***

If local businesses were able to carry greater inventories, offer better prices and provide greater quality products and services, business opportunities for suppliers would likely increase.

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Appendix A: Producing Mine Survey

Introduction

The mineral sector is an essential pillar of the Yukon economy. Mine operation and mineral exploration activities require a broad range of goods and services as inputs to their production processes. To date, Yukon has not carried out an analysis of the supply chain that mine operators and mineral exploration enterprises require to be in the field and be successful. A supply chain is the system of organizations, people, technology, activities, information and resources involved in moving a product or service from supplier to customer. Supply chain activities transform natural resources, raw materials and components into a finished product that is delivered to the end customer.

Examples of the types of supply businesses that mine operators and mining exploration firms rely on include geologists, engineers, mapping services, communications services, food and fuel supply, water and wastewater engineering, drilling, explosives, transportation, legal services amongst others. While the YBS Business Survey lists hundreds of enterprises that potentially supply mine operators and mineral exploration firms, YBS has not yet interpreted the data to improve our understanding of the mineral sector supply chain.

If the economic benefits of mining and mining exploration are to be maximized by Yukon, a better understanding of the current capacity of Yukon-present business to meet the demands of mine operators and mining exploration firms is required. We presently do not know what percentage of dollars spent by these sectors is retained in Yukon, nor do we know to what extent these firms contract or source locally. This information could help Yukon attract new investment and retain the benefits of that investment within the Yukon economy. Accordingly, the purpose of this project is to undertake an analysis of the mineral sector input supply situation that will identify gaps between the supply needs of mine operators and mineral exploration firms and the capacity of Yukon-present firms to meet those needs.

Mining Supply Chain Structures: Mine Production

Producing metal mines can be described as having four functions which together result in natural resources being transformed into raw materials that are used as inputs in prodution processes. The four functions include:

- administration and technical services;
- mining;
- milling; and,
- transport/smelting.

The table on the following page outlines a provisional supply chain structure for a typical mine. For each of the four functions outlined, please indicate the respective spending shares for each of the different categories of spending for each function. If the actual amount of spending for each category is within the public domain, please also indicate the amount.

In addition, please answer the five questions on page three to help round out our understanding of the Yukon mining supply chain.

Provisional Supply Chain Structure: Annual Operating Expenditures					
Administration & technical services	Spending Share		Share spent in Yukon	Share spent outside Yukon	Total
Head office administration					100%
Geological services					100%
Engineering services					100%
Analytical services					100%
Communications services					100%
Legal services					100%
Camp operations					100%
Catering services					100%
Other admin. And tech. services					100%
Other admin. And tech. services					100%
Labour (employees)					100%
Labour (contract)					100%
Total Spending | $	100%				
Mining					
Fuel (diesel and propane)					100%
Explosives					100%
Consumables					100%
Maintenance					100%
Other mining					100%
Other mining					100%
Labour (employees)					100%
Labour (contract)					100%
Total Spending | $	100%				
Milling					
Power					100%
Fuel (diesel and propane)					100%
Concentrate thickening/filtration					100%
Fresh water/plant water					100%
Flotation reagents					100%
Ancillary services					100%
Other milling					100%
Other milling					100%
Labour (employees)					100%
Labour (contract)					100%
Total Spending | $	100%				
Transport/Smelting					
Local transport to port					100%
Shipping to point of sale					100%
Smelting and refining					100%
Marketing and other					100%
Other transport/smelting					100%
Other transport/smelting					100%
Labour (employees)					100%
Labour (contract)					100%
Total Spending | $	100%				

Supplier Questions

1. Approximately how many supplier relationships does your mine currently maintain?

2. How many of those supply relationships are with suppliers located in the Yukon?

3. Who are your Yukon-present suppliers?

4. What are the barriers to sourcing mine operation inputs from Yukon-present suppliers?

5. What would facilitate the purchase of increased types and volumes of mine operation inputs from Yukon-present suppliers?

Appendix B: Exploration Firm Survey

Introduction

The mineral sector is an essential pillar of the Yukon economy. Mine operation and mineral exploration activities require a broad range of goods and services as inputs to their production processes. To date, Yukon has not carried out an analysis of the supply chain that mine operators and mineral exploration enterprises require to be in the field and be successful. A supply chain is the system of organizations, people, technology, activities, information and resources involved in moving a product or service from supplier to customer. Supply chain activities transform natural resources, raw materials and components into a finished product that is delivered to the end customer.

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Mining Supply Chain Structure: Mineral Exploration

Mineral exploration involves the search for, discovery and description of new or neglected mineral deposits. Deposits are described in terms of mineral grade, tonnage and other characteristics. The exploration phase for a deposit is said to end when a positive scoping study justifies more detailed and costly appraisal work.

The table on the following page outlines a provisional supply chain structure for a mineral exploration project. Please indicate the respective spending shares for each of the spending categories listed. If the amount of spending for each category is within the public domain, please also indicate the amount.

In addition, please answer the five questions that follow the table to help round out our understanding of the Yukon mining supply chain.

Provisional Supply Chain Structure: Annual Exploration Project Expenditures					
	Spending Share		Share spent in Yukon	Share spent outside Yukon	Total
Office administration					100%
Permitting					100%
Camp operations (e.g., food, accommodation)					100%
Transportation of personnel, supplies and machinery					100%
Equipment rental					100%
Supplies					100%
Line cutting and staking					100%
Geochemical survey					100%
Geophysical survey					100%
Trenching and stripping					100%
Drilling (e.g., diamond, percussion, reverse circulation)					100%
Assays and analysis					100%
Reclamation expenses (e.g., backfilling, revegetation, erosion control					100%
Technical activities (planning, data collection, interpretation, evaluation, map making, etc.)					100%
Other					100%
Other					100%
Labour (employees)					100%
Labour (contract)					100%
Total Spending | $	100%				

Supplier Questions

1. Approximately how many supplier relationships did you have for this project?

2. How many of those supply relationships are with suppliers located in the Yukon?

3. Who are your Yukon-present suppliers?

4. What are the barriers to sourcing exploration equipment, services and supplies from Yukon-present businesses?

5. What would facilitate your purchase of additional volumes of exploration equipment, services and supplies from Yukon-present businesses?