Pan-Ontario mining supply and services sector economic impact study

Canadian Association for Mining Equipment and Services for Export

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Introduction

The Conference Board of Canada states that the Mining Supply and Services (“MSS”) sector is a “multi-billion industry, yet it is a ‘hidden’ sector that is not directly measured or tracked due to overlaps of serving other industries as well”. Statistics Canada does not currently track the sector at a level of aggregation and detail that enables government and policy makers to assess and measure how the sector is performing; thus, limiting an overall understanding of the importance of the MSS sector to Canada, including Ontario. Accordingly, the Canadian Association for Mining Equipment and Services for Export (“CAMESE”), with support from the Ontario Ministry of Northern Development and Mines (“MNDM”), Mining Association of Canada (“MAC”) and Natural Resources Canada (“NRCan”), engaged PwC to help close this data gap. More specifically, PwC was retained to:

- Develop a profile of the MSS sector in Ontario, including an export profile;
- Estimate the economic contribution of the MSS sector to Ontario using standard measures of economic activity; and
- Identify potential opportunities and challenges facing the sector based on MSS sector companies’ perspectives.

Approach

Our approach to undertaking this study included the following:

- Developed a working definition of the MSS sector, working closely with CAMESE, MNMD and other related industry stakeholders, including referencing MSS sector definitions used in other relevant studies;
- Developed and compiled a database of private sector Ontario MSS companies based on the working definition of the MSS sector. A number of sources including company databases from CAMESE and MNDM were used;
- Developed and administered a survey to companies comprising the Ontario MSS sector based on the MSS sector definition developed above for the calendar year 2011; and
- Analyzed and assessed the database of Ontario MSS sector companies compiled, data collected from the Ontario MSS sector company survey and other relevant sources, and:
  - Developed a profile of the Ontario MSS sector, including an export profile;
  - Estimated the economic contribution of the MSS sector to Ontario for the calendar year 2011; and
  - Identified potential challenges and opportunities facing the Ontario MSS sector.

MSS sector profile

The MSS sector is comprised of many different types of companies that provide goods or services to the mining sector across the mining life cycle. More specifically, the MSS sector can be categorized into the following three components:

- **Mining equipment, supplies and services companies** - includes mining equipment manufacturers and dealers, chemical manufacturers and providers, electronic/communications equipment manufacturers and providers, companies providing trade/logistics solutions, and other goods and services providers.
- **Mining contract services companies** - includes engineering companies, construction and drilling companies, companies providing geophysical and testing solutions, metal fabricators, and other companies that would typically provide services to the mining sector for the development and operation of a mine site.

- **Consulting services and other related companies** - includes consulting companies, financial service providers, environmental consulting companies, information technology companies, law, accounting and other professional services firms, and other companies that provide services to the mining sector that extend beyond the mine site.

The Ontario MSS sector breakdown based on survey responses is provided below.

**MSS sector by sub-sector**

- Consulting services and other
- Mining contract services
- Mining equipment, supplies and services

Approximately 56% of Ontario MSS sector companies indicated that they are mining equipment, supplies and services providers. Consulting companies and mining contractors are estimated to account for 31% and 13% of the Ontario MSS sector respectively.

There are approximately 913 companies in Ontario that would likely consider themselves to be part of the MSS sector. The estimated geographic distribution of the MSS sector in terms of number of companies and number of establishments in Ontario is outlined below.

**Number of MSS sector companies and establishments in Ontario by region**

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of companies</th>
<th>Number of establishments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Ontario</td>
<td>306</td>
<td>435</td>
</tr>
<tr>
<td>Southern Ontario</td>
<td>607</td>
<td>1,043</td>
</tr>
<tr>
<td>Southwestern Ontario</td>
<td>62</td>
<td>122</td>
</tr>
<tr>
<td>Southcentral Ontario</td>
<td>299</td>
<td>333</td>
</tr>
<tr>
<td>Greater Toronto Area</td>
<td>199</td>
<td>530</td>
</tr>
<tr>
<td>Eastern Ontario</td>
<td>47</td>
<td>57</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>913</strong></td>
<td><strong>1,479</strong></td>
</tr>
</tbody>
</table>

¹ Numbers do not sum to total due to rounding.
MSS sector companies are located throughout Ontario. In addition to the concentration of MSS sector companies in Northern Ontario (306 companies), where the bulk of mining activities in the province occur, approximately two-thirds of MSS sector companies are located in Southern Ontario, with over half of Ontario MSS sector companies (498 companies) located in Southcentral Ontario and the Greater Toronto Area (“GTA”). Of the 913 companies, many have more than one location in the province. Results indicate there are approximately 1,479 MSS sector establishments or business locations in Ontario. Of these, 435 are estimated to be located in Northern Ontario and 1,043 are located in Southern Ontario.

Exports play a large role in Ontario’s MSS sector – 70% of MSS companies report exporting outside of Canada. The most common export destinations are the United States, South America and Mexico. Similarly, these are the most targeted markets for companies in the MSS sector not currently exporting. The greatest challenges cited by Ontario MSS companies not currently exporting is how to assess and address the needs in different markets for their products and services.

**Economic contribution of the MSS sector**

As indicated above, at present there is limited information and understanding of the size, scale, composition and economic importance of the MSS sector in Canada and Ontario. Accordingly, the methodology employed to estimate the economic contribution of the MSS sector to Ontario depended on data obtained from a variety of sources, including the survey of companies that were considered to comprise the Ontario MSS sector. The level of survey participation enabled meaningful analysis of the sample of respondents and extrapolation to the entire MSS industry. Estimates of the MSS sector’s economic contribution in 2011 are outlined below.

**Economic contribution of the MSS sector to Ontario (2011)**

<table>
<thead>
<tr>
<th></th>
<th>Direct impact</th>
<th>Indirect impact</th>
<th>Total impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross output, millions</td>
<td>$6,637.8</td>
<td>$4,204.6</td>
<td>$10,842.4</td>
</tr>
<tr>
<td>GDP, millions</td>
<td>$3,859.3</td>
<td>$2,376.7</td>
<td>$6,236.0</td>
</tr>
<tr>
<td>Wages and salaries, millions</td>
<td>$2,928.0</td>
<td>$1,656.9</td>
<td>$4,584.9</td>
</tr>
<tr>
<td>Employment</td>
<td>40,960</td>
<td>27,471</td>
<td>68,431</td>
</tr>
<tr>
<td>Government tax revenues, millions</td>
<td>$904.4</td>
<td>$557.0</td>
<td>$1,461.4</td>
</tr>
</tbody>
</table>

Based on the above estimates, the MSS sector is estimated to have contributed over $6.2 billion to Ontario’s GDP and was a source of over 68,000 jobs in 2011. Given the above estimates and for comparative purposes, the direct economic impact of the MSS sector is larger than the size (GDP) of the information and communication technology manufacturing industry and the motion picture and sound recording industries in Ontario.

**Challenges and opportunities facing the MSS sector**

Overall, MSS sector companies surveyed indicated that access to skilled labour and labour costs are amongst the most important challenges facing the MSS sector in Ontario. This was particularly the case for MSS sector companies located in Northern Ontario. Increasing global competition, which could be a result of the changing relationship between mining companies and suppliers, was another important challenge identified by MSS sector companies. Globalization and increased competition also leads to increased opportunity, and companies surveyed reported obtaining access to and knowledge of global markets, growth through diversification and employing appropriate promotion and marketing to be the greatest opportunities.
Summary

The MSS sector is a large and important sector in Ontario in terms of contribution to GDP, as a source of employment and in comparison to other important sectors in Ontario. In addition, the footprint of the MSS sector extends well beyond Northern Ontario, where the bulk of mining activities occur. However, the MSS sector is not currently being tracked or measured in a systematic fashion. Given the size, scope and importance of the MSS sector, a more systematic and frequent measurement of the MSS sector would provide for a more in-depth and meaningful understanding of the MSS sector. This, in turn, could help the MSS sector and government address industry issues, strategies and public policy discussions on a more fully-informed basis to ensure its continued growth and success.
1. Introduction

Background
The Conference Board of Canada states that the mining supply and services sector (the MSS sector) is a “multi-billion industry, yet it is a ‘hidden’ sector that is not directly measured or tracked due to overlaps of serving other industries as well”. Despite being a large and important industrial sector in Ontario and other parts of Canada, Statistics Canada does not currently track the MSS sector at a level of aggregation and detail. Accordingly, it is challenging for government and policy makers to assess and measure how the sector is performing, which hinders government’s ability to develop policy that will help the sector to grow and develop, and limits an overall understanding of the importance of the mining supply and services sector to Ontario. The purpose of this study is to help address and provide further insight into the size, scope, scale and challenges facing the Ontario MSS sector given the current lack of available information on the MSS sector.

Ontario’s mining industry
Ontario is considered Canada’s largest mining jurisdiction. For example, Figure 1 below shows mineral exploration expenditures in Ontario, Quebec and British Columbia – the three largest mining jurisdictions in Canada.

Figure 1 – Ontario, Quebec and British Columbia mineral exploration expenditures (2007 to 2012, millions)

As illustrated, since 2007, Ontario has consistently attracted more mineral exploration dollars than Quebec and British Columbia. Moreover, mineral exploration expenditures have increased significantly in Ontario (and in Quebec and British Columbia) since 2009.

Mining production value is another key measure of mining activity, which is depicted in Figure 2 below.

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2 Measuring the Mining Supply and Services Sector, The Conference Board of Canada, May 2011 Briefing
3 Natural Resources Canada, Exploration and Deposit Appraisal Expenditures
As Figure 2 shows, Ontario is the largest mining jurisdiction in Canada by production value. In 2011, the total value of mining production in Ontario was roughly $10.7 billion, which accounted for approximately 20% of all mining production in Canada. In comparison, mining production in British Columbia and Quebec was $8.6 billion and $7.7 billion in 2011, respectively.

A mining supply and services sector has emerged in Ontario that supports the mining industry in Ontario, across Canada and outside of Canada. The information presented above suggests that the MSS sector is potentially quite large in Ontario.

**Previous MSS sector studies**

Prior to this study, it appears that three other studies also attempted to address the MSS sector in Ontario and Canada. In addition, a fourth study conducted by the University of Toronto for the Ontario Mining Association, also provides some analysis on the MSS sector from the perspective of mining operations.

1. The first study to define the importance of this sector in Canada was conducted by Natural Resources Canada (“NRCan”) in cooperation with CAMESE in 2000 (“NRCan Study”).
2. A second study was carried out in 2010 by Doyletech Corporation on behalf of the Ontario North Economic Development Corporation which focused on assessing the characteristics and revenues generated by the MSS sector in Northern Ontario (“Doyletech Study”).
3. The third study, released by the Conference Board of Canada in 2011, was a briefing paper which discussed measuring the MSS sector in Canada.

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4 Natural Resources Canada, Mineral Production of Canada
5 This list of studies does not include studies that were completed by the Ontario Mining Association, which assessed the MSS sector on a more peripheral basis.
6 Canadian Supplier of Mining Goods and Services: Links between Canadian mining companies and selected sectors of the Canadian economy, Natural Resources Canada, September 2000
7 Northern Ontario Mining Supply and Services Study, Prepared for the Ontario Northern Economic Development Corporation, Doyletech Corporation, June 2010
4. Finally, the Ontario Mining Association (“OMA”) recently released a study on the Ontario mining industry which includes some analysis on the MSS sector.9

These studies have jointly highlighted the importance of this sector for Canada and Ontario specifically.

The NRCan Study estimated there were at least 2,200 MSS companies located in Canada based on advertisements made in trade publications from 1991 to 1999 and on the results of a survey of suppliers conducted in 1996 and 1997. Ontario accounted for about half of the Canadian suppliers identified in these publications. Although the companies identified were those for which the mining industry constituted a sizeable market and justified investment in advertising, the scope of this study did not capture any suppliers that would not advertise in mining trade publications, which could be a significant number of companies.

The Doyletech Study results were based on interviews conducted with 150 mining supply firms in Northern Ontario to obtain key industry information such as the total value of industry output (i.e., company revenues generated by MSS companies in Northern Ontario). Based on interviews with MSS companies, the projected industry revenues of the sector in Northern Ontario was $5.6 billion in 2010 estimated from gross sales of $3.8 billion reported by the companies. Of these sales, 69% of total sales value was made from within Ontario of which 62% can be attributed to Northern Ontario.

Based on international estimates, the Conference Board estimated that every dollar spent on mining goods and services appears to directly generate $5 to $20 of mine revenue in Canada.

Finally, the OMA released a study in 2012 on the mining industry in Ontario that assessed and characterized the economic contribution of the Ontario mining sector to Ontario.

While highlighting the importance of the MSS sector, the scope of these studies did not include or provide for an assessment of the MSS sector’s economic contribution to Ontario on a provincial-wide basis, which is the primary focus of this study.10 A comparison of the purpose, scope and results of the Doyletech and OMA studies with this PwC study is provided as Appendix E.

**Study purpose**

The Canadian Association of Mining Equipment and Services for Export (“CAMESE”) retained PwC to assess the economic contribution of the MSS, with funding provided by the Ontario Ministry of Northern Development and Mines (“MNDM”), Mining Association of Canada (MAC) and Natural Resources Canada (NRCan). More specifically, PwC was retained to:

- Develop a profile of the MSS sector in Ontario, including an export profile;
- Estimate the economic contribution of the MSS sector to Ontario using standard measures of economic activity; and
- Identify potential opportunities and challenges facing the sector based on MSS sector companies’ perspectives.

A detailed description of our approach to this study is summarized in Section 3 of the report.

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9 Mining: Dynamic and Dependable for Ontario’s Future, Dungan and Murphy (University of Toronto), Ontario Mining Association, December 2012

10 Appendix E provides a more detailed comparison between this study and the Doyletech Study and the study recently completed by the Ontario Mining Association.
Study limitations

PwC has relied upon the completeness, accuracy and fair presentation of all the information, data, advice, opinions or representations obtained from various sources which were not audited or otherwise verified. These sources (collectively, the “Information”), include:

- CAMESE;
- MNDM;
- Information obtained from websites of MSS sector companies;
- Data obtained from MSS sector companies through a company survey; and
- Other publicly available studies and data.

The findings in this report are conditional upon such completeness, accuracy and fair presentation of the Information. PwC has not verified independently the completeness, accuracy and fair presentation of the Information. We are providing no opinion, attestation or other form of assurance with respect to our work and we did not verify or audit any information provided to us.

PwC reserves the right at its discretion to withdraw or make revisions to this report should PwC be made aware of facts existing at the date of the report that were not known to PwC when it prepared this report. The findings are as of the date hereof and PwC is under no obligation to advise any person of any change or matter brought to its attention after such date, which would affect the findings and PwC reserves the right to change or withdraw this report.

This information has been prepared solely for the use and benefit of, and pursuant to a client relationship exclusively with CAMESE. PwC disclaims any contractual or other responsibility to others based on its use and, accordingly, this information may not be relied upon by anyone other than CAMESE.

There currently is no consistent or standardized approach to defining the MSS sector. This study employs a definition that focuses on assessing whether companies perceive themselves to be part of the MSS sector. Accordingly, this study’s findings are dependent on this definition. A different definition would likely produce different results.

Any use that a third party makes of this report or reliance thereon, or any decision made based on it, is the responsibility of such third party. PwC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken, based on this report.

Organization of the report

The report is organized as follows:

- Section 2 provides an overview of the study methodology.
- Section 3 describes the profile of the Ontario MSS sector based on survey data received.
- Section 4 provides estimates of the importance of the Ontario MSS sector to Ontario’s economy using standard measures of economic activity.
- Section 5 outlines challenges and opportunities facing the Ontario MSS sector based on responses from the company survey.
• The high level review of the Ontario MSS sector export profile is provided in Appendix A.

• Appendix B provides comparisons of the sample of the MSS sector companies that responded to the survey relative to the population of the Ontario MSS sector.

• Phase 1 of the MSS sector company survey is provided in Appendix C.

• Phase 2 of the MSS sector company survey is provided in Appendix D.

• Appendix E compares the purpose and scope of this PwC study to the Doyletech Study and the OMA study.
2. **Study methodology**

*Introduction*

This section of the report provides a detailed description of the study methodology used to assess the profile of the MSS sector as well as its economic contribution.

**PwC study methodology**

The diagram below provides a high level overview of the methodology in this study. Each component of the study methodology is subsequently described and explained.

- **Stage 1 - Define the sector**
  - Working with CAMESE, developed working definition of MSS sector, based on how others have defined the sector.

- **Stage 2 - Assess sector population**
  - Obtained and organized MSS company lists from various sources.
  - Assessed whether each company belonged in the MSS sector based on the sector definition.
  - Ensured that each company on the list has an existing Ontario relationship.

- **Stage 3 - Data collection**
  - Identified data requirements for economic impact model.
  - Working with CAMESE and MNMD, developed and administered the survey.
  - Checked survey data for reasonableness.
  - Resurveyed the population as a second phase to the survey process to obtain additional financial data.

- **Stage 4 - Economic impacts and analysis**
  - Developed economic impact model.
  - Populated model with survey data and estimated economic impacts.
  - Analysis of survey data to develop sector profile, export profile and assessment of opportunities/challenges facing the sector.

Each of these stages is discussed in greater detail below.
There currently does not appear to be a standard approach to defining the sector that is accepted or agreed to across Canada. The sector represents manufacturers, service providers, consultancies, distributors, contractors and other types of companies that provide goods and services to the mining sector. Accordingly, developing a definition of the MSS sector is challenging.

For the purposes of this study, the MSS sector is defined as companies that perceive themselves to be part of the MSS sector. This definition could therefore include companies that are singularly focused on mining and companies that only derive a small percentage of their revenues from the mining industry.

A framework for characterizing MSS companies was developed that defined the MSS sector along two dimensions:

- **Across the mining life cycle (the “life cycle”):**
  - Mineral exploration
  - Mine development
  - Mine operation
  - Rehabilitation

- **By major segment of product or service provided (the “segment” or “sub-sector”):**
  - **Mining equipment, supplies and services companies** - includes mining equipment manufacturers and dealers, chemical manufacturer providers, electronic/communications equipment manufacturers and providers, companies providing trade/logistics solutions, and other goods and services providers.
  - **Mining contract services companies** - includes engineering companies, construction and drilling companies, companies providing geophysical and testing solutions, metal fabricators, and other companies that would typically provide services to the mining sector for the development and operations of a mine site.
  - **Consulting services and other related companies** - includes consulting companies, financial services providers, environmental consulting companies, information technology companies, law, accounting and other professional services firms, and other companies that provide services to the mining sector that extend beyond the mine site.

Our approach to defining the sector and our framework for categorizing the sector was then summarized and provided to CAMESE, MNDM and other industry stakeholders for validation, feedback and refinement. Included for review was the economic impact methodology, which was based on the sector definition and other relevant information.
Stage 2 – Assess sector population

In order to identify companies that form part of the MSS sector, a company listing was obtained from CAMESE, which included CAMESE members and former members but also prospective and potential members. CAMESE’s list was used as the primary tool to delineate the MSS sector from the rest of the economy. This list was supplemented by companies from other mining related associations such as the Ontario Mining Association (“OMA”), Prospectors & Developers Association of Canada (“PDAC”), the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”), Sudbury Area Mining Supply and Service Association (SAMSSA), Canadian Diamond Drilling Association (CDDA), and Mining Association of Canada (“MAC”). Additional subscription databases such as Factiva and Capital IQ were also used to identify companies. MNDM also provided a company list that was exclusive to Northern Ontario. Company lists and contact information were then compiled into one database or company list, which had over 2,000 entries.

A number of filters were then applied to the aggregated company list in order to obtain a reliable, accurate and representative MSS company population, reflective of the sector definition. The following process was used:

- Duplicate entries were removed.
- Companies that no longer existed or did not have an Ontario location were removed.
- Public sector organizations and industry associations were removed.
- Mining extraction companies, mineral exploration companies and other companies that would likely take an equity stake in a mine were also removed.

Based upon this refined list, the website of each remaining company was reviewed and assessed as to whether they would likely perceive themselves to be part of the MSS sector. To answer this question, a check was performed to see if companies had a specific product or service that was targeted to the mining sector, if they had a “mining division” or if they had mining companies as reference clients. If the answer to any of these questions was “yes” they remained on the list. If not, they were removed. In addition, in most cases if a company did not have a website they were removed from the list.

The resulting list of companies is referred to as the Ontario MSS sector population, and this study assumes that it represents the Ontario MSS sector.
**Stage 3 – Data collection**

- Identified data requirements for economic impact model.
- Working with CAMESE and MNDM, developed and administered the survey.
- Checked survey data for reasonableness.
- Conducted a phase 2 survey process working with CAMESE to obtain additional financial data from MSS companies

The objective of the third stage was to collect industry data through a survey of the Ontario MSS companies identified in Stage 2 above that would be used to develop a profile of the MSS sector in Ontario and estimate economic impacts associated with the industry.

The data collection was conducted in two phases. The phase 1 survey questionnaire was designed in consultation with CAMESE and MNDM and is provided in Appendix C. It was designed to obtain the data required while limiting the amount of time required by participants. A customized online survey tool provided a streamlined data entry process for participants. In order to drive high participation rates, CAMESE participated in the survey launch and outreach to participants. CAMESE assisted by identifying and communicating with target companies, stressing the importance of the survey to survey participants, and developing a complete and accurate list of appropriate contacts at each company. An invitation letter was issued by CAMESE to the appropriate company contact to demonstrate industry association support and to request full participation. The phase 1 survey process was launched in August of 2012 and was closed in December of 2012.

All survey responses were held in confidence by PwC. Checks of the data inputs for reasonableness were conducted by PwC including follow-up calls with selected companies. For instance, one reasonableness check compared reported revenues to the reported number of employees with resulting unlikely ratios flagged. Company contacts were then called and questioned regarding flagged information and responses were adjusted accordingly.

While the level of survey participation from phase 1 (103 usable survey responses) enabled meaningful descriptive analysis of the sector, the survey participation level was not considered to be sufficient to provide reliable estimates when extrapolated from this small sample to the population of Ontario MSS sector companies. Accordingly, it was decided to design and launch a phase 2 survey process to capture the additional financial data which was needed to conduct the quantitative analysis that would lead to more reliable estimates regarding the economic contribution of the MSS sector in Ontario.

Phase 2 of the survey was launched on January 17, 2014 and closed on May 30, 2014 using a modified survey questionnaire provided as Appendix D. Using an expanded and updated participant list from phase 1, CAMESE used a direct marketing campaign to contact each of the companies on the list requesting their participation in the survey. After CAMESE had secured agreement from company representatives confirming their willingness to participate in the survey, PwC was notified to send a confidential survey link to them. At all times, PwC retained control of the online survey which ensured the confidentiality of company responses. When the survey closed on May 30, 2014, an additional 165 usable survey responses had been obtained, resulting in a total of 268 responses from both survey phases, providing a survey response rate of 29%.

Phase 1 survey questions requested information about each company’s current or future plans to export their goods and services outside the Ontario market and broader questions regarding companies’ perception of challenges and opportunities facing the sector and the education of their staff. These additional questions were not included in the
phase 2 survey phase. The findings of this report pertaining to exports, challenges and opportunities in the sector and education in the sector are developed from the phase 1 data set.

Stage 4 – Economic impacts and analysis

The final stage involved estimating the economic contribution of the MSS sector in Ontario. An economic impact model was developed and the economic impact of the MSS companies surveyed was derived from the model. Further details regarding the economic impact methodology are described in Section 5 of this report.

In order to extrapolate the economic impact of surveyed companies to the entire MSS sector in Ontario, a high level extrapolation technique was used, which is described below. The limitations of this approach are also addressed in the section below. Resulting economic impact estimates obtained were compared to similar estimates from other industries and sectors (comparable data was obtained from Statistics Canada).

Data obtained from the phase 1 survey process enabled us to analyze the current export profile and assess challenges and opportunities facing MSS companies that responded to the survey.

Data sources and extrapolation approach

Fundamentally, two data sources were used to develop an overview and profile of the sector, estimate the MSS sector’s economic contribution to Ontario, provide a basis for reviewing the export profile of MSS sector companies and identify potential challenges/opportunities facing the MSS sector. These two data sources are described below:

- **MSS sector population (or MSS company list)** - a list of companies was determined to make up the MSS sector in Ontario. For the purposes of this study, this list of companies represents the MSS sector in Ontario. This list was compiled by PwC using data provided by CAMESE, MNDM and other relevant sources (refer to Stage 2 in the preceding section for information on how this list was compiled from the available data sources).

- **MSS sector company survey responses** refers to the data obtained during the phase 1 and phase 2 survey process from 268 MSS sector companies (of the 913 companies in the population) that responded in full to the company survey that was developed and administered by PwC.

The diagram below shows how these data sources were used to develop the outputs to address this study’s overall objectives and purpose.
The companies that comprise the MSS sector in Ontario were used to develop a high level overview of the MSS sector (i.e., MSS sector overview) in terms of company type (i.e., sub-sector) and regional breakdown based on the primary location of each company. The sample of MSS sector companies that responded to the company survey was used to profile the MSS sector in terms of revenues, number of employees, focus on the mining sector, number of establishments and other relevant information. Survey data from the phase 1 survey process was used to characterize MSS sector exports and identify potential challenges and opportunities facing the sector. Comparisons of the sample of MSS sector companies that responded to the survey appear to be broadly consistent with the population in terms of geographic distribution and sub-sector.

Expenditure and employment data provided by MSS sector companies that responded to the survey and provided complete financial information was then used to assess the economic contribution of the MSS sector to Ontario. The survey sample is comprised of those companies that provided complete financial information. The economic impact estimates of the MSS sector are to be viewed as estimates of the MSS sector’s economic contribution to Ontario, extrapolated from the survey sample.
3. **Ontario MSS sector profile**

**Introduction**
This section of the report provides a description of the MSS sector profile in Ontario based on the MSS sector population and more detailed data from the sample of MSS sector companies responding to the survey. The regional distribution is first presented followed by more specific information regarding the composition of companies that comprise the MSS sector.

**About the MSS sector**
The MSS sector represents a number of different types of companies that provide a range of products and services to the mining industry. The diagram outlined below shows the mining life cycle at a high level. MSS companies provide goods and services to mining companies across the whole spectrum.

**Figure 4 – Mining life cycle**

Establishing mining operations, constructing mines and operating mines and ultimately closing mines requires a number of complex and in many cases industry-specific goods and services. Some companies provide specific services to one part of the mining life cycle and other companies provide a much broader range of goods and services to multiple parts of the mining life cycle. Given this disparity, developing a common framework for the MSS sector is challenging. To address this issue, a high level sector-based classification was developed that was applied to MSS sector companies. These categories are referred to as MSS sub-sectors or segments and are listed and briefly described below:

- **Mining equipment, supplies and services companies** - includes mining equipment manufacturers and dealers, chemical manufacturer providers, electronic/communications equipment manufacturers and providers, companies providing trade/logistics solutions, and other goods and services providers.

- **Mining contract services companies** - includes engineering companies, construction and drilling companies, companies providing geophysical and testing solutions, metal fabricators, and other companies that would typically provide services to the mining sector for the development and operations of a mine site.

- **Consulting services and other related companies** - includes consulting companies, financial services providers, environmental consulting companies, information technology companies, law, accounting and other professional services firms, and other companies that provide services to the mining sector that extend beyond the mine site.

Companies that comprise the MSS sector population were classified based on the above – see Appendix B for greater detail. Appendix B also provides greater detail regarding the types of companies that comprise the MSS sector.
Regional breakdown
In addition to classifying the MSS sector by sub-sector, the company population was categorised by location based on the primary location of each company (i.e., some companies had multiple locations in Ontario across several regions). The first letter in the postal code of the primary location of each company was used to facilitate this mapping and correspond to the diagram and corresponding table below.

Figure 5 – Ontario postal code regions

Table 1 – MSS sector population in Ontario by region

<table>
<thead>
<tr>
<th>Region</th>
<th>Postal code reference</th>
<th>Number of companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Ontario</td>
<td>P</td>
<td>306</td>
<td>33.5%</td>
</tr>
<tr>
<td>Southern Ontario</td>
<td>L, N, M and K</td>
<td>607</td>
<td>66.5%</td>
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<tr>
<td>Southwestern Ontario</td>
<td>N</td>
<td>62</td>
<td>6.8%</td>
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<td>Southcentral Ontario</td>
<td>L</td>
<td>299</td>
<td>32.7%</td>
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<tr>
<td>Greater Toronto Area</td>
<td>M</td>
<td>199</td>
<td>21.8%</td>
</tr>
<tr>
<td>Eastern Ontario</td>
<td>K</td>
<td>47</td>
<td>5.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>P, L, N, M and K</strong></td>
<td><strong>913</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>
Primary locations of MSS sector companies are widely distributed across Ontario. Southcentral Ontario accounted for 32.7%, while 33.5% of MSS sector companies have primary locations in Northern Ontario. Approximately 20% of the MSS sector companies were located in the Greater Toronto Area (“GTA”). This shows that the MSS sector extends well beyond Northern Ontario, where much of the mining activity occurs. Indeed, approximately two-thirds of all MSS sector companies have primary locations outside of Northern Ontario. The following section provides more detailed profile information about the MSS sector based on responses to the survey.

**Survey results**

As indicated above, more detailed information regarding the profile of MSS sector companies (including the export profile) was obtained from the survey. Survey participation information is first presented. Data and information regarding the sub-sector breakdown, number of establishments, employment profile, revenue profile and export profile of MSS sector companies responding to the survey are also presented below.

**Survey participation**

A total of 268 companies responded to the survey with complete financial information, out of 913 companies identified as belonging to the MSS sector. This represents a 29% survey completion rate.

Survey respondents were first asked to identify whether they perceived themselves to be part of the MSS sector. Among respondents, almost all indicated that they perceived themselves to be part of the MSS sector. Appendix B compares the geographic and sub-sector distribution of the MSS sector population to the sample that responded to the survey. The results indicate that, in this regard, the sample of companies that responded to the survey is broadly consistent with the population of MSS sector companies. As well, the regional distribution of the sample of responding MSS sector companies is also broadly consistent with the MSS sector population, and shows that the MSS sector has a significant footprint in Southern Ontario (see Appendix B).

**Sub-sector breakdown**

The breakdown of MSS sector companies by sub-sector responding to the survey is illustrated in Figure 6 below.

**Figure 6 – MSS sector companies by sub-sector, survey respondents**

- **Mining equipment, supplies and services**: 56%
- **Consulting services and other**: 31%
- **Mining contract services**: 13%

[Diagram showing the breakdown of MSS sector companies by sub-sector with percentages for each category.]
By sub-sector, a majority of respondents were classified within the mining equipment, supplies and services category. Approximately 31% of respondents indicated they fell into the consulting services category. Mining contract services represented only 13% of respondents. The survey results are roughly consistent with the MSS sector population in regards to the sub-sector breakdown (see Appendix B for greater detail).

**Company establishments in Ontario**

MSS sector companies responding to the survey were also asked to specify how many establishments or unique locations they had in Ontario. For the purposes of this study, an establishment is defined as a business location where at least one company employee worked. Figure 7 below shows the distribution of responses received.

**Figure 7 – MSS sector company establishments in Ontario**

The majority of MSS sector companies responding to the survey - nearly 80% - appear to have a single establishment for their operations. About 9% of survey respondents reported having two establishments and another 4.9% reported three establishments. Very few respondents had more than 3 locations. There were nevertheless 4 companies (or 1.5% of the sample) who reported having more than 15 establishments throughout Ontario. Extrapolating this distribution to the broader population indicates there are approximately 1,479 MSS sector establishments or business locations across Ontario. To get a sense of the regional breakdown of these establishments the MSS sector population regional breakdown has been applied to the total estimated number of MSS sector establishments. Results are provided in the table below.\(^{11}\)

\(^{11}\) The regional breakdown of the number of MSS sector establishments in Ontario is an indicative estimate based on the location of primary establishment/office, and more detailed analysis would be required to validate these figures.
Table 2 – Estimated regional breakdown of MSS sector establishments

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of companies</th>
<th>Number of establishments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Ontario</td>
<td>306</td>
<td>435</td>
</tr>
<tr>
<td>Southern Ontario</td>
<td>607</td>
<td>1,043</td>
</tr>
<tr>
<td>Southwestern Ontario</td>
<td>62</td>
<td>122</td>
</tr>
<tr>
<td>Southcentral Ontario</td>
<td>299</td>
<td>333</td>
</tr>
<tr>
<td>GTA</td>
<td>199</td>
<td>530</td>
</tr>
<tr>
<td>Eastern Ontario</td>
<td>47</td>
<td>57</td>
</tr>
<tr>
<td>Total</td>
<td>913</td>
<td>1,479¹²</td>
</tr>
</tbody>
</table>

As shown above, Southern Ontario accounted for 1,043 MSS sector establishments. Northern Ontario is estimated to have approximately 435 MSS sector establishments.¹³

**Employment**

Data was also obtained from MSS sector companies responding to the survey regarding the number of workers they currently employ and other information regarding the educational level of MSS sector employees. Companies were asked to only provide employment information for employees in Ontario that were focused on the mining sector.

Figure 8 – MSS sector employees in Ontario

¹² Numbers do not sum to total due to rounding
¹³ This is roughly consistent with the company database that was provided by MNDM.
Almost half of MSS sector companies (48.5%) responding to the survey were small companies with no more than 10 employees in Ontario. About a third of companies responding to the survey had 11 to 50 Ontario employees while nearly 17% of companies reported having over 50 employees in Ontario.

The MSS sector employs individuals with varying levels of education, which is partly reflective of the disparate nature of the MSS sector in terms of types of companies. Educational attainment is an important indicator (or proxy) of the relative skill level of an employee. MSS sector companies were asked to estimate the percentage of their employees (within specific ranges) that had achieved the above educational levels. MSS companies that responded to the survey indicated that:

- Approximately 15% of MSS sector companies had over 25% of their employees with advanced educational degrees (i.e., Masters and/or PhD).
- About 38% of MSS sector companies stated that over half their employees had a university and/or college degree. Over half of MSS sector companies noted that at least 25% of their employees had a university and/or college degree.
- Nearly 20% of MSS sector companies stated that over half their employees had some sort of trade and/or vocational training.

These results suggest that MSS sector employees are relatively highly skilled and have a wide range of educational backgrounds. To some extent, this disparity in educational outcomes is reflective of a sector that encompasses construction companies, consultancies, engineering companies, equipment providers, fabricators, distributors, manufacturers and several other different types of companies.

**Company Revenues**

This section of the report outlines and characterizes information regarding MSS companies’ revenues as reported by companies responding to the survey. The survey asked companies to specify their revenues from Ontario operations within specific ranges and to identify actual revenues if they were willing to provide this information – many companies did not provide this information. Accordingly, analysis of MSS sector company revenues is restricted to the revenue ranges.
Approximately one third of responding MSS sector companies had revenues from Ontario operations that were lower than $1 million. Approximately 60% had revenues less than $5 million and nearly three quarters (or 73.9%) had annual revenues less than $10 million but lower than $50 million. About 7.5% of respondents had revenues in excess of $50 million and 4.9% did not specify their revenue range.

The MSS sector appears to be comprised of a heterogeneous mix of companies providing products and services that are often used by industries other than mining. Accordingly, revenues cannot be solely attributed to the MSS sector. At one end, some small companies located in close proximity to their mining customers only supply the mining industry (and maybe only one company). At the other end, multinational companies supply many industries with mining customers accounting for only a fraction of their total revenue. In the survey, companies were asked to specify the share of their Ontario revenue that was earned from supplying the mining industry. The results of this question were cross-tabulated against company size in terms of revenues. Results are presented in Figure 10 below. The colour boxes represent the percentage share of MSS company revenue that can be attributed to the mining industry.
Generally, larger companies that responded to the survey in terms of revenues tended to earn a lower proportion of their revenues from the mining sector and smaller companies earned a higher proportion of their revenues from the mining sector. This is consistent with our understanding of the companies that represent the population of MSS sector companies: smaller, more mining focused companies and larger companies where mining may only be a tertiary focus. With respect to companies that responded to the survey:

- Roughly 77.6% of companies that earned less than $500,000 from Ontario operations earned more than two-thirds of their revenues from the mining sector.

- Approximately 61% of companies that had revenues of less than $50 million from Ontario operations earned more than two-thirds of these revenues from Ontario operations.

- Only 15% of companies that had Ontario revenues in excess of $50 million earned more than two-thirds of their revenues from the mining sector. About 65% of these companies indicated that less than a third of their revenues came from mining.

**Export Profile**

A high level review of the export profile of the MSS sector was also undertaken based on data received from MSS companies via phase 1 of the survey. MSS sector companies were asked to specify where they are currently exporting to and the intensity of their exports to that region. If the responding company was not currently exporting to the specific country/region they had an opportunity to specify if they were targeting that region/country. MSS sector companies also had an opportunity to assess challenges to exporting. The following regions were analyzed: the United States, Mexico, Central America and the Caribbean (“CAA”), South America, Africa, Europe (not including Russia), Russia, China, India, Rest of Asia (not including China or India) and Australia.
Exports play a large role in Ontario’s MSS sector – 70% of MSS companies report exporting outside of Canada. Further analysis indicates that a large portion of the economic impacts that are generated by the MSS sector, are from the 70% of companies which export. The most common destinations are the United States, South America and Mexico. Similarly, these are the most targeted markets for companies in the MSS sector not currently exporting (see Figure 11 below).

Figure 11 – MSS sector priority/target markets

Companies not currently exporting to specific markets were asked to identify if they were targeting the specific region. Over 40% of companies not currently exporting to the United States indicated that they were targeting the United States. Over 30% (but less than 40%) of similar companies (i.e., not currently exporting to these markets) suggested that Mexico, CAA, South America and Africa were export targets. The greatest challenges cited by Ontario MSS companies not currently exporting is how to assess and tap into the different markets’ needs for products and services. Appendix A provides further detail regarding the export profile of MSS sector companies.
4. Economic contribution of the MSS sector to Ontario

Introduction

Survey data obtained from the MSS sector companies responding to the survey, was compiled and categorized, and used as key inputs into the economic impact model developed to assess the economic contribution of the MSS sector to Ontario. The modelling process is outlined in this section. Prior to outlining economic impact results, some terminology is first defined.

Defining economic impact

The measurement of economic impacts is generally restricted to quantitative, well-established measures of economic activity. The most commonly used of these measures are gross output, value added (or gross domestic product (GDP)), employment and government tax revenues. These measures of economic activity are defined below:

- **Gross output** – the total gross value of all business revenue. This is the broadest measure of economic activity and indicates the total sales and transactions triggered by operations.

- **Value added (GDP)** – the “value added” to the economy or the unduplicated total value of goods and services. GDP includes only final goods to avoid double counting of products sold during an accounting period.

- **Wages and salaries** – the total value of wages and salaries associated with employment impacts.

- **Employment** – the number of jobs created or supported. It is expressed as the number of equivalent full-time jobs indicated in person years.

- **Government tax revenues** – the amount of tax revenues generated. In this study only indirect taxes and personal income tax impacts are calculated. Whilst value-added, excise and corporate taxes would be generated as a result of business activity, because of the diverse nature of companies included within this sector; this level of tax analysis is beyond the scope of this study.

Moreover, it is convention to report the above economic impacts at the direct and indirect level. These are defined below:

- **Direct impacts** are changes that occur in “front-end” businesses that would initially receive expenditures and operating revenue as a direct consequence of the operations and activities of the headquarters (e.g. the purchase of materials or equipment from a local supplier).

- **Indirect impacts** arise from changes in activity by suppliers of the “front-end” businesses (e.g. purchase of merchandise from factories by local business supplying the MSS sector).

- **Multipliers** measure how much a dollar spent circulates and re-circulates within the economy magnifying the effects of the original expenditure.

The **total impact** of any given initial expenditure by the MSS sector is calculated by adding the direct and indirect impacts.
Economic impact methodology
The diagram and corresponding table below outlines and describes the methodology employed to estimate the economic contribution of the MSS sector to Ontario.

Figure 12 – Economic impact methodology

Table 3 – Description of economic impact methodology

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Step 1 – Obtain and categorize expenditure data** | • Specific expenditure data and employment numbers were obtained from MSS companies responding to the survey. MSS sector companies were asked to provide expenditure and employment data for only their mining-related operations in Ontario.  
• This data was reviewed for reasonableness. Follow-up with some companies was conducted to clarify responses and where expenditure data did not make sense was removed from the sample. |
| **Step 2 – Develop economic impact model**   | • An economic impact model was developed that translated these expenditures into a set of economic impacts. Estimated economic impacts were based on a set of output, GDP, wages and salaries, employment and government tax revenues multipliers.  
• Expenditures by MSS companies were mapped to industries that would likely receive these expenditures. The specific industries that were selected depended on a number of factors including the MSS sub-sector and type of expenditure. |
| **Step 3 – Estimate economic impacts**       | • Expenditure and employment data was then used to run the economic impact model and a set of economic impacts were estimated. Economic impacts were estimated at the direct and indirect level. Induced economic impacts were not estimated.  
• The resulting output was then reviewed and compared to benchmark economic data (i.e., average wages in Ontario, GDP per worker etc.). |
| **Step 4 – Extrapolate to population**       | • Economic impact results for the sample of companies responding to the survey were then extrapolated to the wider population of MSS sector companies.  
• These results were then reviewed and compared to other industrial sectors in Ontario. |

The following section describes the approach used to extrapolate economic impact estimates to the broader population.
Extrapolation of economic impacts to broader MSS sector

Of the 913 companies identified to be part of the sector, 268 provided data that could be used for the economic impact analysis, resulting in a 29% response rate. This level of participation was considered sufficient to assert that the expenditure data provided by the 268 survey respondents was sufficient to provide reliable estimates of the broader population\(^4\). Accordingly, a high level and province-wide extrapolation approach was employed which applied the participation rate to the economic impact estimates to determine the economic impact estimates for the broader population. The economic impact estimates were developed using the economic impact estimates prepared from the 29% of MSS sector companies providing expenditure data which were then divided by the total number of MSS companies in the broader population. The economic contribution of those companies responding to the survey with expenditure data and the extrapolated results are presented below.

Economic contribution of MSS sector to Ontario

Non-extrapolated economic impact of the MSS sector

Direct and indirect economic impacts of the MSS sector in Ontario were estimated and the results are presented below. Impacts are first presented for the subset of companies that completed the survey and provided reasonable expenditure data, then results are extrapolated to the entire MSS sector. The economic impacts in this study are estimated in 2011 dollars. Table 4 below shows economic impact results for the subset of companies that responded to the survey.

Table 4 – Economic contribution of responding MSS companies to Ontario

<table>
<thead>
<tr>
<th></th>
<th>Direct impact</th>
<th>Indirect impact</th>
<th>Total impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross output, millions</td>
<td>$1,952.3</td>
<td>$1,236.7</td>
<td>$3,189.0</td>
</tr>
<tr>
<td>GDP, millions</td>
<td>$1,135.1</td>
<td>$699.0</td>
<td>$1,834.1</td>
</tr>
<tr>
<td>Wages and salaries,</td>
<td>$861.2</td>
<td>$487.3</td>
<td>$1,348.5</td>
</tr>
<tr>
<td>millions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>12,047</td>
<td>8,080</td>
<td>20,127</td>
</tr>
<tr>
<td>Government tax revenues,</td>
<td>$266.0</td>
<td>$163.8</td>
<td>$429.8</td>
</tr>
<tr>
<td>millions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total expenditures by companies in the MSS sector that responded to the survey are estimated at $1,952.3 million. These expenditures are estimated to result in indirect expenditures of $1,236.7 million for a total spending impact of $3,189.0 million. These expenditures are estimated to account for:

- $1,834.5 million in total GDP impact;
- $1,348.5 million in estimated wages and salaries; and
- $429.8 million in government tax revenues, which includes personal income taxes and indirect taxes on consumption and production.

\(^4\) With a sample of this size and with this survey participation rate, when estimates for the total sector are extrapolated from this sample, it is possible to be 95% confident that the true estimates for the entire sector are plus or minus 5% of the estimated values.
Employment impacts supported by MSS companies include direct and indirect jobs due to MSS company expenditures. The companies surveyed are estimated to have supported 12,047 jobs directly. A further 8,080 jobs are supported by MSS company expenditures.

**Extrapolated economic impact of the MSS sector**

This section of the report outlines extrapolated estimates of the economic contribution of the MSS sector to Ontario. As mentioned above, a high level approach was used to estimate the extrapolated economic contribution of the MSS sector. Table 5 below shows these results.

**Table 5 – Estimated economic contribution of MSS sector by extrapolation**

<table>
<thead>
<tr>
<th></th>
<th>Direct impact</th>
<th>Indirect impact</th>
<th>Total impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross output, millions</td>
<td>$6,637.8</td>
<td>$4,204.6</td>
<td>$10,842.4</td>
</tr>
<tr>
<td>GDP, millions</td>
<td>$3,859.3</td>
<td>$2,376.7</td>
<td>$6,236.0</td>
</tr>
<tr>
<td>Wages and salaries, millions</td>
<td>$2,928.0</td>
<td>$1,656.9</td>
<td>$4,584.9</td>
</tr>
<tr>
<td>Employment</td>
<td>40,960</td>
<td>27,471</td>
<td>68,431</td>
</tr>
<tr>
<td>Government tax revenues, millions</td>
<td>$904.4</td>
<td>$557.0</td>
<td>$1,461.4</td>
</tr>
</tbody>
</table>

Extrapolating economic impact estimates to the broader population of MSS sector companies indicates the following:

- MSS sector companies had expenditures in Ontario of over $6.6 billion in 2011, which generated a further $4.2 billion in spending throughout the Ontario economy.
- In 2011, the MSS sector directly contributed approximately $3.9 billion to Ontario’s GDP. Taking into consideration indirect impacts, the MSS sector contributed roughly $6.2 billion to Ontario’s GDP. In 2011, Ontario’s GDP was $655 billion and the MSS sector contributed nearly 1% of Ontario’s GDP.
- In total, the MSS sector is estimated to contribute approximately 68,000 jobs in Ontario.
- These jobs are estimated to generate nearly $4.6 billion in salaries and wages.
- Extrapolated economic impact results also suggest that the MSS sector is expected to contribute nearly $1.5 billion in government tax revenues.

As the estimates above suggest, the MSS sector provides a significant economic impact across all of Ontario, and is an important source of employment for many Ontarians.

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15 Jobs refers to full-time and part-time employment.
Comparison to other industrial sectors in Ontario

In this section, the direct economic impact of the Ontario MSS sector is compared to other sectors in Ontario. Figure 13 below compares the 2011 GDP direct economic impact of the Ontario MSS sector to the size (GDP) of selected sectors in Ontario using Statistics Canada data and the estimated GDP direct economic contribution of the MSS sector.

**Figure 13 – 2011 Ontario direct GDP impact of the MSS sector relative to size (GDP) other select sectors (2011 billion dollars and percent of Ontario GDP in 2011 in parenthesis)**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Direct GDP Impact (2011 billion)</th>
<th>Percent of Ontario GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry and logging</td>
<td>$0.5</td>
<td>0.1%</td>
</tr>
<tr>
<td>Motion picture and sound recording industries</td>
<td>$1.8</td>
<td>0.3%</td>
</tr>
<tr>
<td>Information and communication technology</td>
<td>$3.8</td>
<td>0.6%</td>
</tr>
<tr>
<td>manufacturing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mining Supply and Services</td>
<td>$3.9</td>
<td>0.6%</td>
</tr>
<tr>
<td>Machinery manufacturing</td>
<td>$5.9</td>
<td>0.9%</td>
</tr>
<tr>
<td>Architectural, engineering and related services</td>
<td>$6.0</td>
<td>0.9%</td>
</tr>
<tr>
<td>Chemical manufacturing</td>
<td>$6.1</td>
<td>0.9%</td>
</tr>
<tr>
<td>Mining and quarrying (except oil and gas)</td>
<td>$7.0</td>
<td>1.1%</td>
</tr>
<tr>
<td>Food manufacturing</td>
<td>$9.6</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

In 2011, the MSS sector provided a significant contribution to Ontario’s GDP based on estimates outlined above. At approximately $3.9 billion of direct GDP in 2011, the direct economic impact of the MSS sector is larger than the size of the information and communication technology manufacturing industry and the motion picture and sound recording industries in Ontario, with the total economic impact of the MSS sector being $6.2 billion.

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16 Data on the GDP contributions of other industries is obtained from Statistics Canada and refers to the industry aggregations as per the North American Industrial Classification System.
5. Challenges and opportunities facing the MSS sector

Introduction
Companies in the MSS sector were surveyed on their perspectives regarding challenges and opportunities facing the MSS sector based on a list of internal and external competitiveness factors that were developed by PwC in conjunction with CAMESE and MNDM. Internal competitiveness factors relate to factors that are controllable by companies. Less or uncontrollable factors are referred to as external factors. These competitiveness factors are categorized and listed below:

- Internal factors
  - Protecting company intellectual property
  - Allocating resources to R&D activities
  - Growing through diversification
  - Employing appropriate promotion and marketing
  - Access to and knowledge of global markets
  - Concentrated customer base

- External factors
  - Materials and supplies costs
  - Labour costs
  - Government policy
  - Industry consolidation
  - Increasing global competition
  - Energy costs
  - Commodity prices
  - Availability of local manufactured inputs
  - Access to transportation infrastructure
  - Access to skilled labour
  - Access to financing for business development
  - Access to education and training

Challenges and opportunities
MSS sector companies surveyed had an opportunity to indicate if a specific competitiveness factor was a significant challenge, challenge, neither a challenge nor an opportunity, an opportunity, significant opportunity, both a challenge and an opportunity or whether they had no opinion.

Grouped survey results are illustrated in Figure 14 below for internal competitiveness factors.17

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17 To better illustrate the survey data regarding opportunities and challenges facing the MSS sector in the coming years, significant opportunity and opportunity responses and significant challenge and challenge responses have been grouped. Some companies also indicated that the specific factor was a challenge and an opportunity. These were added to both categories. The corresponding figures do not report whether companies did not provide an opinion and whether they thought the factor did not present a challenge or an opportunity.
With respect to internal competitiveness factors, protecting company intellectual property and access to markets were seen by Ontario MSS sector companies as particular challenges facing the MSS sector. Employing appropriate promotion and marketing strategies, growing through diversification and access to and knowledge of global markets were seen as opportunities. Apart from protecting company intellectual property MSS sector companies indicated that many of the internal competitiveness factors presented both opportunities and challenges.
The most prevalent external challenges reported by companies in Ontario’s MSS sector were:

- Access to skilled labour – 59% indicated as a challenge;
- Increasing global competition – 56% indicated as a challenge;
- Commodity prices – 53% indicated as a challenge; and
- Labour costs – 52% indicated as a challenge.

For the above external competitiveness factors, more detailed analysis was completed to assess if there were any significant differences from a geographic, sub-sector or company size perspective.

Companies primarily located in Northern Ontario, the GTA and Southcentral Ontario were more likely to assess access to skilled labour as a challenge than in Southwestern Ontario or Eastern Ontario. This is shown in the Figure 16 below.
Approximately 40% of responding Ontario MSS sector companies that were primarily located in Northern Ontario, the GTA and Southcentral Ontario – where almost 90% of MSS sector companies are primarily located – indicated that access to skilled labour is a challenge facing the MSS sector. About 29% of companies primarily located in Eastern Ontario indicated that accessing skilled labour as a challenge. Interestingly, 0% of responding MSS sector companies primarily located in Southwestern Ontario indicated that accessing skilled labour as a challenge. In regions with substantial MSS sectors in terms of number of companies access to skilled labour was seen as a challenge relative to other regions with a significantly smaller number of companies.

While many MSS sector companies in Northern Ontario thought accessing skilled labour was a challenge, a smaller percentage thought labour costs were a challenge as shown in Figure 17 below.

Approximately 40% of responding Ontario MSS sector companies that were primarily located in Northern Ontario, the GTA and Southcentral Ontario – where almost 90% of MSS sector companies are primarily located – indicated that access to skilled labour is a challenge facing the MSS sector. About 29% of companies primarily located in Eastern Ontario indicated that accessing skilled labour as a challenge. Interestingly, 0% of responding MSS sector companies primarily located in Southwestern Ontario indicated that accessing skilled labour as a challenge. In regions with substantial MSS sectors in terms of number of companies access to skilled labour was seen as a challenge relative to other regions with a significantly smaller number of companies.

While many MSS sector companies in Northern Ontario thought accessing skilled labour was a challenge, a smaller percentage thought labour costs were a challenge as shown in Figure 17 below.
About 22% of MSS sector companies primarily located in Northern Ontario indicated that labour costs are a challenge facing the sector. In comparison, 47% and 43% of MSS sector companies primarily located in the GTA and Southcentral Ontario indicated that labour costs are a challenge facing the MSS sector.

Increasing global competition was another important challenge cited by nearly half of all companies. The mining industry’s relationship with its suppliers is changing as a result of increased globalization. For one, the mining industry is consolidating and supply relationships are being further developed at a global, rather than local level. Mining is also becoming more knowledge-intensive and complex, leaving more opportunity for the adoption of new technologies. Finally, mining companies are increasingly outsourcing their activities, allowing for new entrants in the MSS sector.

Surveyed companies responded, however, that globalization and increased competition can also lead to increased opportunity, and companies surveyed reported predicting access to and knowledge of global markets, growth through diversification and employing appropriate promotion and marketing to be the greatest opportunities for growth. Over a third of companies reported that these three opportunities provided the greatest potential for Ontario’s MSS sector. As marketing and selling were both described as a significant challenge and a large opportunity, it appears that this is the domain in which companies in Ontario’s MSS sector will want to focus on in order to increase their market access globally.

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18 Australian story – the formation of Australian mining technology services and equipment suppliers, Don Scott-Kemmis, November 2011
Appendix A – MSS sector export markets

Introduction
In addition to questions regarding company characteristics and financial information, companies in the MSS sector were surveyed regarding their current or future plans to export goods and services outside Ontario. The importance of exports for the growth of the MSS sector is highlighted then key survey findings are presented.

Exporting and MSS sector growth
The ability to tap into international markets is a key element to the growth of Ontario’s MSS sector. Many of the leading firms in the global MSS sector are internationalizing rapidly, often early in their development, through exports and particularly through opening offshore offices and subsidiaries. Internationalization strategies can involve different combinations of direct exports, use of agents, joint ventures or direct investment through acquisition or Greenfield investment. Exporting offers large market potential as well as increased diversification which can mitigate downside risk. New markets in particular often benefit from lower levels of direct competition as well as lower levels of capital requirement for initial entry. Some evidence suggests that, all else being equal, firms which focus on international markets and internationalize at an early stage tend to outperform domestically-focused firms in terms of return on capital and growth of overall sales.

However, according to the results of the MSS survey and demonstrated by results of other industry studies, the Ontario MSS sector has traditionally kept an overwhelming focus on its domestic market. The Doyletech study found that 81% of sales by the MSS sector were generated domestically.20 Also in the Doyletech study, small to medium enterprises reported facing challenges in serving foreign markets, as a result of a lack of resources and staff to deal with exporting issues such as trade regulations, exchange-rate fluctuations and cultural differences.

Building from the Doyletech Survey, the PwC survey was designed to both obtain insights into the current export efforts by the MSS sector as well as understand potential new international markets being targeted. Exporting efforts were measured in terms of the number of destination markets as well as the share of revenues, or exporting intensity, in these markets. Key exporting challenges and opportunities were also collected through the survey.

MSS sector export market destinations
The estimated exporting effort of the MSS sector in Ontario was based on two dimensions: the number of companies exporting (or market penetration) and their export revenues (or market size). For each country, the degree of market penetration and export revenues generated (i.e., market size) was estimated based on the data obtained from the survey. The table below describes the proxies used to estimate these two parameters, which are used to profile MSS sector export markets.

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19 Scott-Kemmis, 2011
20 Doyletech, 2010
21 MSS sector companies were asked to provide information within specific ranges to make it easier to complete the survey.
Table 6 – Market penetration and market size

<table>
<thead>
<tr>
<th>Export profile descriptor</th>
<th>Proxy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export revenues generated (i.e., market size)</td>
<td>• Number of companies that reported that they earn over 25% of their revenues from the specific export market as a percentage of all companies that reported they export to the specific market.</td>
</tr>
<tr>
<td></td>
<td>• Proxy for the overall size of the export market in terms of export revenues generated.</td>
</tr>
<tr>
<td>Market penetration</td>
<td>• Number of companies that reported they export to the specific market as a percentage of all companies that responded to this question in the survey.</td>
</tr>
</tbody>
</table>

This data is plotted in Figure 18 below for the following export markets: the United States, Mexico, Caribbean and Central America (“CAA”), South America, Africa, Europe (not including Russia), Russia, China, India, Rest of Asia (not including China or India) and Australia.

Figure 18 – Market penetration and market size by geography
A large number of companies surveyed reported exporting outside of Canada. However, a number of companies reported relying on Canada and Ontario specifically for all their revenue.

- Out of 148 companies answering the questions related to export markets, 103 (or 70%) responded that they earned revenue outside of Canada, and reciprocally 45 (or 30%) did not earn any revenue outside of Canada.

- Within Canada, a total of 33 companies, or 22% of companies, reported that they did not earn revenue outside of Ontario.

- The most common export markets reported consisted of the United States (over 50%) and South America (47%).

- Market penetration in other countries was reported as ranging from 5% in India to 37% in Mexico.

- In terms of market size however, most exporting companies reported earning less than a quarter of their revenue from any one country. For example, although 37% of companies reported exporting to Mexico, less than 1% reported generating more than a quarter of their revenue from Mexico. The only exceptions were the United States, South America and Russia where over 10% of exporters reported generating more than 25% of their revenue.

**MSS sector export markets – target countries/regions**

MSS sector companies were asked to specify if they were targeting specific export markets provided they were currently not exporting to that market. The diagram below shows the export markets which MSS sector companies suggested were targets or priorities (along the same dimensions as the diagram above).

*Figure 19 – Targeted regions for non-exporters*
• The most important target market was the United States, where over 40% of companies not already exporting to the United States reported showing interest in doing so in the future. In general, areas with a current large market penetration were identified by MSS companies as targets.

• Non-exporting MSS companies expressed interest in targeting the Americas for exports. Among non-exporters, 42% reported the United States as a target market while over 30%, but less than 40%, considered Mexico, CAA and South America target export markets.

• Less than 20% of responding MSS sector companies indicated that Russia, India, China, Europe and Australia were target markets.

Challenges and opportunities to exporting

In the survey, MSS companies were asked to what extent various factors represented a challenge or an opportunity for them to export. In general, when companies consider exporting to new markets, they likely face certain challenges and opportunities which may impede or facilitate their ability to export, as well as impact their decision to export. In the survey, questions were designed to determine whether certain factors may represent a challenge for some companies or an opportunity for other companies which have already acquired the expertise enabling them to be more competitive. Factors identified as either being a challenge or opportunity included: transportation and shipping, trade barriers, taxation, marketing and selling, local regulations, market intelligence, international competitiveness, business-to-business (“B2B”) issues, and access to resources.

Companies’ response to these questions were mixed in their assessment of challenges and opportunities, with a majority of respondents considering export factors to be a challenge or being neutral (i.e., export factor seen as neither a challenge nor an opportunity). For each factor, as presented in Figure 20, over half of the companies reported it was a challenge or were indifferent. Taxation in particular was neither a challenge nor an opportunity for nearly 50% of companies reporting. Local regulations and barriers did not seem to represent insurmountable challenges, with over 40% of companies reporting not deeming it a challenge.

Figure 20 – Exporting challenges and opportunities
Both the greatest challenge and largest opportunity was deemed by MSS companies to be marketing and selling. While 45% of MSS companies reported considering marketing and selling a challenge, another 30% reported it as representing an opportunity. Other sizable opportunities mentioned by survey respondents included international competitiveness and market intelligence. This would indicate that generally, Ontario companies in the MSS sector are confident in their ability to compete internationally particularly in terms of addressing the needs of the market.

Access to resources represented a challenge for 30% to 40% of MSS companies reporting, however, for smaller-sized companies reporting, this did not appear to be a more significant issue than for large-sized companies. For example, over 60% of firms in the $5 million to $10 million revenue range considered access to resources to be a challenge.

Medium-sized companies, with revenues ranging from $5 million to $10 million, reported the most exporting challenges. Well over half of these companies reported challenges related to accessing resources, business-to-business issues, international competitiveness, market intelligence, marketing and selling, and trade barriers. Reciprocally, smaller businesses frequently reported opportunities with over 20% of companies with less than $1 million in revenue considering access to resources, business-to-business, competitiveness, market intelligence, and marketing and selling as opportunities. Over 40% of start-ups reported taxation to be an opportunity.

Companies classified in the different MSS sub-sectors reported facing different challenges and opportunities. For example, mining equipment, supplies and services companies reported being more concerned about marketing, market intelligence, competitiveness, trade barriers and transportation. In comparison, mining technology and services firms reported placing higher emphasis on access to resources, business-to-business issues, and local regulations, with the highest concern reported for marketing and selling.

The greatest challenges cited by Ontario MSS companies not currently exporting were market intelligence and marketing and selling, in other words how to assess and tap into the different markets need for products and services. As these were also commonly cited by MSS companies currently exporting, these challenges appear to be key differentiators for companies to be competitive in the MSS sector, both nationally and globally.
Appendix B – MSS sector population

Introduction

This study depends on two important data sources: the Ontario MSS sector population (i.e., list of companies that comprise the Ontario MSS sector) and survey results from a sample of Ontario MSS companies that comprise the Ontario MSS sector. This part of the report compares the survey sample to the population based on the sub-sector and regional breakdown. Along these two dimensions, the sample is broadly consistent with the population.

MSS sector sub-sector breakdown

Overall, the MSS sector in Ontario – based on the working definition in this study – is comprised of 913 companies. These are companies that would likely perceive themselves to be part of the MSS sector (Section 2 of this study outlines how this list was developed). This list of companies is referred to as the population of Ontario MSS sector companies. The diagram below shows the breakdown of the MSS sector population by sub-sector.

Figure 21 – MSS sector population of 913 companies in Ontario by sub-sector

Figure 21 above shows that over half the population of Ontario MSS sector companies were classified as falling within the mining equipment, supplies and services category (these are companies that provide a specific good and/or service with minimal customization to client needs or requirements). About 33% of the population were

---

22 An important assumption this study makes is that the MSS sector in Ontario is totally represented by the MSS sector population (or 913 companies that have been determined to be within the MSS sector).
categorized as consulting and other companies and 13% were mining contract services companies. Roughly 11% were unclassified and were not included in the breakdown in Figure 22.

The sub-sector breakdown of the Ontario MSS sector survey sample is provided below, which is broadly consistent with the sub-sector distribution for the population of Ontario MSS sector companies shown above.

**Figure 22 – MSS sector survey sample by sub-sector**

- Consulting services and other: 31%
- Mining contract services: 13%
- Mining equipment, supplies and services: 56%

Approximately 56% of companies that responded to the survey said they were mining equipment, supplies and services companies. About 13% indicated they were mining contract service companies and the remaining 31% said they were part of the consulting services and other category.

**MSS sector by company type**

The MSS sector comprises a disparate group of companies that range from manufacturers of mine supplies to financial services companies that focus on the mining sector. The table below shows the types of companies and the number of them that comprise the MSS sector in Ontario. This data was compiled by PwC based on a review and assessment of information on each company’s website.

**Table 7 – MSS sector by company type**

<table>
<thead>
<tr>
<th>Type of company</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasion and Corrosion</td>
<td>3</td>
<td>0.3%</td>
</tr>
<tr>
<td>Air surveying and imaging</td>
<td>6</td>
<td>0.7%</td>
</tr>
<tr>
<td>Application and analytical software</td>
<td>10</td>
<td>1.1%</td>
</tr>
<tr>
<td>Asset management services</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Automation, Robotics</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Blasting</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Bulk propane</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Business training</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Type of company</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>Chemical, adhesive, solvents and coatings manufacturer</td>
<td>15</td>
<td>1.6%</td>
</tr>
<tr>
<td>Communications equipment/services provider</td>
<td>6</td>
<td>0.7%</td>
</tr>
<tr>
<td>Construction Engineering</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Construction equipment manufacturing</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Construction supplies distribution</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Construction supplies manufacturing</td>
<td>5</td>
<td>0.5%</td>
</tr>
<tr>
<td>Consulting</td>
<td>42</td>
<td>4.6%</td>
</tr>
<tr>
<td>Contract construction services</td>
<td>17</td>
<td>1.9%</td>
</tr>
<tr>
<td>Contractors</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Controls &amp; Instrumentation</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Corporate social responsibility services</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Custom machine shop</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Custom Machining/Fabrication</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Custom Steel Fabrication and Welding Services</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Custom Work</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Dealer/agent</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Design &amp; Construction</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Diamond drilling</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Drill rigs and machines</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Drilling and Blasting Contractor</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Drilling products and services</td>
<td>22</td>
<td>2.4%</td>
</tr>
<tr>
<td>Electrical</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Electrical and Civil Contractor; Large Mechanical</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Electrical and leaky feeder accessories</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Electrical Engineering Services</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Electrical equipment manufacturing</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Electro plating and polishing</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Electronic equipment and instrumentation</td>
<td>27</td>
<td>3.0%</td>
</tr>
<tr>
<td>Engineering services</td>
<td>50</td>
<td>5.5%</td>
</tr>
<tr>
<td>Environmental/remediation products and services</td>
<td>13</td>
<td>1.4%</td>
</tr>
<tr>
<td>Equipment financing services</td>
<td>3</td>
<td>0.3%</td>
</tr>
<tr>
<td>Equipment for blasting/mining</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Equipment rentals</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Equipment sales and rentals</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Explosives manufacturing</td>
<td>4</td>
<td>0.4%</td>
</tr>
<tr>
<td>Type of company</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>Fabrication, Engineering</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Financial services</td>
<td>33</td>
<td>3.6%</td>
</tr>
<tr>
<td>Fuel services</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Gases, welding equipment, safety products</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>General Contractor</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Geomatics/geophysical services</td>
<td>19</td>
<td>2.1%</td>
</tr>
<tr>
<td>Hard Surfacing Pipe</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Health equipment and services provider</td>
<td>3</td>
<td>0.3%</td>
</tr>
<tr>
<td>Heavy equipment sales and service</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Hydraulic and pneumatic systems</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Hydraulic Equipment</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Hydraulics</td>
<td>3</td>
<td>0.3%</td>
</tr>
<tr>
<td>Imaging equipment and services</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Industrial &amp; Commercial Machinery</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Industrial Construction &amp; Equipment</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>industrial hydraulics</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Industrial machines, saws</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Industrial Roofing Contractor</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Industrial supplies</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Information technology</td>
<td>24</td>
<td>2.6%</td>
</tr>
<tr>
<td>Insulation Contractors</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Laboratory testing services</td>
<td>11</td>
<td>1.2%</td>
</tr>
<tr>
<td>Logistics and trade</td>
<td>28</td>
<td>3.1%</td>
</tr>
<tr>
<td>Machine Shops/Fabricating</td>
<td>4</td>
<td>0.4%</td>
</tr>
<tr>
<td>Machining</td>
<td>4</td>
<td>0.4%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>6</td>
<td>0.7%</td>
</tr>
<tr>
<td>Marketing and public relations</td>
<td>8</td>
<td>0.9%</td>
</tr>
<tr>
<td>Media</td>
<td>7</td>
<td>0.8%</td>
</tr>
<tr>
<td>Metal fabrication services</td>
<td>30</td>
<td>3.3%</td>
</tr>
<tr>
<td>Mine backfilling consulting</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Mine hoisting plant services</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Mine rehab</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Mining Engineering</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Mining Equipment &amp; Supplies</td>
<td>4</td>
<td>0.4%</td>
</tr>
<tr>
<td>Mining equipment dealer</td>
<td>24</td>
<td>2.6%</td>
</tr>
<tr>
<td>Type of company</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>Mining equipment manufacturing</td>
<td>217</td>
<td>23.8%</td>
</tr>
<tr>
<td>Mining locomotives</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Mining service provider</td>
<td>11</td>
<td>1.2%</td>
</tr>
<tr>
<td>Mining supplies manufacturing</td>
<td>21</td>
<td>2.3%</td>
</tr>
<tr>
<td>On-site/temporary building manufacturer/provider</td>
<td>7</td>
<td>0.8%</td>
</tr>
<tr>
<td>Piping (Polyurethane)</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Precious metal processing</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Precious Metal Recovery</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Primary and secondary materials provider</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Professional and legal</td>
<td>13</td>
<td>1.4%</td>
</tr>
<tr>
<td>Recruiters</td>
<td>14</td>
<td>1.5%</td>
</tr>
<tr>
<td>Remote control devices for Mining Equipment</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Rentals</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Safety Products</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Security equipment</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Site security</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Staffing</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Steel</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Steel manufacturing</td>
<td>5</td>
<td>0.5%</td>
</tr>
<tr>
<td>Steel/Steel Fabrication</td>
<td>5</td>
<td>0.5%</td>
</tr>
<tr>
<td>Surveyors/Surveying Equipment</td>
<td>4</td>
<td>0.4%</td>
</tr>
<tr>
<td>Training services</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Translator</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Transportation equipment dealer</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Transportation equipment manufacturing</td>
<td>6</td>
<td>0.7%</td>
</tr>
<tr>
<td>Transportation services</td>
<td>3</td>
<td>0.3%</td>
</tr>
<tr>
<td>Welding and fabrication</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Woven polythene products</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Other/not classified</td>
<td>101</td>
<td>11.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>913</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
MSS sector regional breakdown

In addition to classifying the MSS sector by sub-sector, the company population is also categorized by location based on the primary location of each company (i.e., some companies had multiple locations in Ontario across several regions). The first letter in the postal code of the primary location of each company was used to facilitate this mapping and correspond to the diagram and corresponding table below.

Figure 23 – Ontario postal code regions

Table 8 – MSS sector population in Ontario by region

<table>
<thead>
<tr>
<th>Region</th>
<th>Postal code reference</th>
<th>Number of companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Ontario</td>
<td>P</td>
<td>306</td>
<td>33.5%</td>
</tr>
<tr>
<td>Southern Ontario</td>
<td>L, N, M and K</td>
<td>607</td>
<td>66.5%</td>
</tr>
<tr>
<td>Southwestern Ontario</td>
<td>N</td>
<td>62</td>
<td>6.8%</td>
</tr>
<tr>
<td>Southcentral Ontario</td>
<td>L</td>
<td>299</td>
<td>32.7%</td>
</tr>
<tr>
<td>GTA</td>
<td>M</td>
<td>199</td>
<td>21.8%</td>
</tr>
<tr>
<td>Eastern Ontario</td>
<td>K</td>
<td>47</td>
<td>5.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>P, L, N, M and K</strong></td>
<td><strong>913</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>
Primary locations of MSS sector companies are widely distributed across Ontario. Southcentral Ontario accounted for 32.7% of all companies. Approximately a third of MSS sector companies have primary locations in Northern Ontario. About 22% of the MSS sector companies were located in the GTA.

MSS sector companies responding to the survey were asked to provide the postal code of their current location, which was used to assess the regional breakdown of survey respondents. In pulling together the participant list for the survey (i.e., the sector population), company contacts were selected that could reasonably complete the survey and provide the information requested. Operationally, this meant that survey participants included senior company officials and managers and company proprietors. As such, the “primary location” most likely represents the location of these individuals. Figure 24 below shows the regional breakdown of responding MSS sector companies.

**Figure 24 – MSS sector by region, survey respondents**

MSS sector companies responding to the survey indicated that their primary location was in one of the following regions:

- 35% located in Southcentral Ontario;
- 35% located in Northern Ontario;
- 5% and 3% located in Southwestern and Eastern Ontario, respectively.

The regional distribution of the sample of responding MSS sector companies is also broadly consistent with the MSS sector population, and shows that the MSS sector has a significant footprint in Southern Ontario.
Appendix C – Phase 1 survey

Pan-Ontario Mining Supply and Services Industry Study

Help us prove that mining is much more important to Ontario’s economy than is currently accepted. According to the Conference Board of Canada, the mining supply and services sector is a ‘hidden’ industrial sector. This is because the full economic impact of the mining services and supplier sector is not captured by statisticians as part of the mining industry. Thus, the reported contribution of the mining supply and services sector to the economic well-being of Ontarians is understated.

The only way to capture the contribution of Ontario’s suppliers to the mining industry is to define what the mining supply and services sector is and survey it. That is what CAMESE and PwC are doing. Your firm has been identified as supplying goods and/or services to the mining industry. We therefore need a little bit of information from you in order to properly measure the benefits to Ontario of the outputs of your firm and others like it.

Your participation in this survey represents a very important indicator of the health of the sector in Ontario and will assist in understanding the opportunities and challenges that the mining supply and services sector is facing today and going forward. Individual submissions will be held in strict confidence by PwC. Results are presented in such a way that will not identify any individual results or organizations. This survey link can be forwarded, but the link you have been provided can be responded to only once.

Please give us 20 minutes of your time to complete this important survey!

Company information:

1. Would you say that you are part of the mining supply and services sector?
   - ☑ Yes
   - ☐ No

2. In this section, we ask you some basic information about your company.
   - Contact name ___________________________________
   - Title _____________________________________
   - Phone number ___________________________________
   - Email _____________________________________

3. How many establishment(s)/branch(es) do you have across Ontario?
   ___________________________________

4. What is the postal code of your primary Ontario location:
   ___________________________________
Employees:

Throughout this survey, we are going to ask some information specific to your operations in Ontario that supply to the mining industry, wherever the final customer may be; Ontario, other parts of Canada, or international.

If precise data is not readily available to you, please provide your best estimate. Please remember that we have gone to great lengths to protect the information you provide with the highest level of confidentiality.

5. For calendar year 2011, how many full time and part time employees did you have in your Ontario operations, focussed on mining? If unsure, please estimate.

6. Please estimate the percentage of your staff involved in your Ontario mining supply and service operations with each of the following as their highest qualifications completed.

<table>
<thead>
<tr>
<th>Percentage of staff</th>
<th>0%</th>
<th>1% to 25%</th>
<th>26% to 50%</th>
<th>51% to 75%</th>
<th>76% to 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced degree (Masters, PhD)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>University/college degree</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Trade apprenticeship, technical, vocational</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>No post-secondary education</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Revenues:

7. In calendar year 2011, what were your total revenues for your operations in Ontario, excluding revenue from other parts of Canada or outside of Canada:

○ less than $500,000
○ between $500,001 and $1,000,000
○ between $1,000,001 and $5,000,000
○ between $5,000,001 and $10,000,000
○ between $10,000,001 and $50,000,000
○ more than $50,000,000
○ Not applicable (Prefer not to say)
8. If you have it readily available, please provide the actual total revenues of operations in Ontario in 2011:

________________________________________

9. What percentage of your Ontario revenues came from supplying the mining industry, regardless of the location of the customer?

________________________________________

10. What sub-sector of the mining services and supply sector would you say that your Ontario operations are primarily in?

☐ Mining equipment, supplies and services

☐ Mining technology and services

☐ Consulting services

☐ Contracting, support services and other

☐ Other (please specify) _____________________________

11. What component of the mining supply value chain would you say that your Ontario operations primarily service?

☐ Exploration and development

☐ Extraction and processing

☐ Mine rehabilitation

☐ Multiple components

☐ Other (please specify) _____________________________

12. Please estimate the percentage of your 2011 Ontario mining supply and service revenues that came from the following regions. If you did not have revenues from a region in 2011 but plan on targeting that region in the near future, please select "Target". If you did not have revenues and do not plan on targeting a region, please select "0%". If you have any other comments, please specify below.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Target</th>
<th>0%</th>
<th>1 to 25%</th>
<th>26 to 50%</th>
<th>51% to 75%</th>
<th>76% to 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Canada, but not Ontario</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>United States</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Mexico</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Region</td>
<td>Significant challenge</td>
<td>Challenge</td>
<td>Neither a challenge nor an opportunity</td>
<td>Opportunity</td>
<td>Significant opportunity</td>
<td>N/A No current exports or plans for exports</td>
</tr>
<tr>
<td>--------------------------------</td>
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<td>-----------</td>
<td>---------------------------------------</td>
<td>-------------</td>
<td>-------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Africa</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>India</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rest of Asia (not India or China)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central America and Caribbean</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rest of Europe (not Russia)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South America</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Other comments.**

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

13. How would you rate the following as challenges to your current or potential exports outside of Canada. If you have any other comments, please specify below:
Lack of knowledge / market intelligence
Local regulations
Marketing and selling
Taxation
Trade barriers
Transportation and shipping

Other comments.

______________________________________________________________
______________________________________________________________
______________________________________________________________

Capital spending:

14. For calendar year 2011, how much was your capital spending in Ontario to support your Ontario mining supply operations? If unsure, please estimate

   Capital spending ____________________________________________

15. How did that capital spending break down? If unsure, please estimate

   Research and development ________________________________
   Machinery and equipment ________________________________
   Construction ____________________________________________
   Information technology ________________________________
   Other (please specify below) __________________________________

Please describe any other capital spending below:

______________________________________________________________
______________________________________________________________
______________________________________________________________
Operating spending:

16. For calendar year 2011, what were the operating expenditures of your Ontario mining supply operations? If unsure, please estimate unsure, please estimate operations? If unsure, please estimate unsure, please estimate

_____________________________

17. How did that operating spending break down? If unsure, please estimate

Salaries and wages ________________________________

Other labour costs (including benefits, training) ________________________________

Materials and supplies ________________________________

Advertising and marketing ________________________________

Transportation ________________________________

General and accounting ________________________________

Other (please specify below) ________________________________

Please describe your other operating costs:

______________________________

______________________________

______________________________

Sector opportunities and threats:

18. Over the coming years, how would you rate the following as challenges or opportunities for your company as a part of the Ontario mining supply and services sector? If you have other comments, please specify below.

<table>
<thead>
<tr>
<th>Access to and knowledge of global markets</th>
<th>Significant challenge</th>
<th>Challenge</th>
<th>Neither a challenge nor an opportunity</th>
<th>Opportunity</th>
<th>Significant opportunity</th>
<th>Both a challenge and opportunity</th>
<th>No opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Access to education and training

<table>
<thead>
<tr>
<th>Access to education and training</th>
<th>Significant challenge</th>
<th>Challenge</th>
<th>Neither a challenge nor an opportunity</th>
<th>Opportunity</th>
<th>Significant opportunity</th>
<th>Both a challenge and opportunity</th>
<th>No opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor</td>
<td>Access to finance for business development</td>
<td>Access to skilled labour</td>
<td>Access to transportation infrastructure</td>
<td>Allocating resources to research and development activities</td>
<td>Availability of local manufactured inputs</td>
<td>Commodity prices</td>
<td>Concentrated customer base</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>--------------------------</td>
<td>------------------------------------------</td>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------------</td>
<td>-----------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Access to finance for business development</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Access to skilled labour</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Access to transportation infrastructure</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Allocating resources to research and development activities</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Availability of local manufactured inputs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Commodity prices</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Concentrated customer base</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Employing appropriate promotion and marketing strategies</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Energy costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Growing through diversification</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Increasing global competition</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Industry consolidation</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Government policy</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Thank you for participating in this survey.

Our goal is to have the responses to this survey be as representative of the sector as possible. Is there anyone that you can think of that may not have received this survey? If so, could you please provide their email address and we will send them an invitation.

Glossary of terms:

<table>
<thead>
<tr>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access to resources</strong></td>
</tr>
<tr>
<td><strong>Business to business issues</strong></td>
</tr>
<tr>
<td><strong>International competitiveness</strong></td>
</tr>
<tr>
<td><strong>Lack of knowledge / market intelligence</strong></td>
</tr>
<tr>
<td><strong>Local regulations</strong></td>
</tr>
<tr>
<td><strong>Marketing and selling</strong></td>
</tr>
<tr>
<td><strong>Taxation</strong></td>
</tr>
<tr>
<td><strong>Trade barriers</strong></td>
</tr>
<tr>
<td><strong>Transportation and shipping</strong></td>
</tr>
</tbody>
</table>
Appendix D – Phase 2 survey

Pan-Ontario Mining Supply and Services Industry Study

CAMESE with PwC recently conducted a survey of the mining supply and services industry in Ontario. While participation in the survey from industry firms was appreciated, we did not hear from enough of you to achieve a representative view of the industry. As your firm did not reply or did not complete the original survey and as we urgently need to increase the number of responses to ensure that the survey results are representative, we strongly urge you to take the few minutes required to support Ontario’s mining supply industry.

Your firm was identified as supplying goods and/or services to the mining industry. We are requesting your assistance to provide the information needed to properly measure the benefits to Ontario of the outputs of your firm and others like it.

Your participation in this survey represents a very important indicator of the health of the sector in Ontario and will assist in understanding the opportunities and challenges that the mining supply and services sector is facing today and going forward. Individual submissions will be held in strict confidence by PwC. Results are presented in such a way that will not identify any individual results or organizations. This survey link can be forwarded, but the link you have been provided can be responded to only once.

Please give us 5 minutes of your time to complete this important survey!

Company information:

1. Would you say that you are part of the mining supply and services sector?  
   _____Yes  
   _____No

2. In this section, we ask you some basic information about your company. 
   Contact name______________________________________________________________
   Title______________________________________________________________
   Phone number__________________________________________________________
   Email______________________________________________________________

3. How many branch offices do you have across Ontario? (See Glossary for definition) ________

4. What is the postal code of your primary Ontario location:________________________

5. What sub-sector of the mining services and supply sector would you say that your Ontario operations are primarily in? (See Glossary for definitions)
   - _____Mining equipment, supplies and services. Includes mining equipment manufacturers and dealers, chemical manufacturers and providers electronic/communications equipment manufactures and providers, companies providing trade/logistics solutions, and other goods and services providers
   - _____Mining contract services companies. Includes engineering companies, construction companies, companies providing geophysical and testing solutions, metal fabricators, and other companies that would typically provide services to the mining sector for the development and operation of a mine site.
Consulting services and other related companies. Includes consulting companies, financial service providers, environmental consulting companies, information technology companies, law, accounting and other professional services firms, and other companies that provide services to the mining sector that extend beyond the mine site.

Other (please specify) __________________________________________

Throughout this survey, we are going to ask some information specific to your operations in Ontario that supply to the mining industry, wherever the final customer may be; Ontario, other parts of Canada, or international.

If precise data is not readily available to you, please provide your best estimate. Please remember that we have gone to great lengths to protect the information you provide with the highest level of confidentiality.

Employees:

6. For calendar year 2011, how many full time and part-time employees did you have in your Ontario operations, focused on your Ontario mining supply/service operations? If unsure, please estimate.

7. For calendar year 2011, how much of your capital spending budget was allocated to spending in Ontario to support your Ontario mining supply/service operations? If unsure, please estimate.

$_______________________

Operating spending:

8. For calendar year 2011, what were the operating expenditures of your Ontario mining supply/service operations? If unsure, please provide an estimate.

$_______________________

9. How did that operating spending break down? If unsure, please estimate.

Salaries and wages including other labour costs such as benefits, training __________

All other expenditures_______________

Revenues:

10. In calendar year 2011, what were your total revenues for your operations in Ontario, this excludes revenue received from doing business in other parts of Canada or outside of Canada:

   ______ less than $500,000
   ______ between $500,001 and $1,000,000
   ______ between $1,000,001 and $5,000,000
   ______ between $5,000,001 and $10,000,000
   ______ between $10,000,001 and $50,000,000
   ______ more than $50,000,000
   ______ Not applicable (Prefer not to say)

11. What percentage of your Ontario revenues (noted above) came from supplying the mining industry, regardless of the location of the customer in 2011? ____________________________

Thank you for participating in this survey.
Appendix E – Comparative studies

Introduction

Two recent studies have been conducted that touch on and in some cases overlap matters addressed in this PwC study:

- *Northern Ontario Mining Supply and Services Study*, Doyletech Corporation for the Ontario North Economic Development Corporation (ONEDC), 2010
- *Mining: Dynamic and Dependable for Ontario’s Future*, Peter Dungan and Steve Murphy for the Ontario Mining Association, 2012

While the scope of this PwC study does not include a direct comparison and reconciliation of the results contained in each of the above-noted studies, in this Appendix, a comparison of the purpose, scope and results of each of the above-noted studies with this PwC study is provided which addresses and clarifies potential areas of overlap.

The Doyletech and OMA studies are not directly comparable to the PwC study with respect to several key definitions and assumptions. Accordingly, any detailed or quantitative comparisons between the PwC study and these other two studies are neither recommended nor appropriate.

**Northern Ontario Mining Supply and Services Study, Doyletech Corporation**

In 2010, the Ontario North Economic Development Corporation (ONEDC) retained Doyletech Corporation to undertake a study of the Mining Supplies and Services sector (MSS sector) in Northern Ontario. More specifically, the purpose of the Doyletech study was to:

- Define the Northern Ontario Mining Supply and Services Sector, assess its size and scale, and provide an overview of its activities and organization;
- Illuminate the global market and global trends for mining supply and services;
- Determine the Northern Ontario sector’s key drivers and markets;
- Identify the Strengths, Weaknesses, Opportunities, and Threats for the Northern Ontario sector from the supply-side perspective;
- Identify the Strengths, Weaknesses, Opportunities, and Threats for the Northern Ontario sector from a global demand-side perspective; and,
- Develop a strategy for growing/sustaining the sector, including: the prioritization of growth opportunities; the desirable level and kinds of support from governments; the role and activities of any industry association/organization to facilitate growth; and any other key factors that could usefully be addressed.

The purpose of this PwC study included the following:

- Develop a profile of the MSS sector in Ontario, including an export profile;
- Estimate the economic contribution of the MSS sector to Ontario using standard measures of economic activity; and,
- Identify potential opportunities and challenges facing the sector based on MSS sector companies’ perspectives.

Key findings from the Doyletech study included:

- Northern Ontario’s MSS sector is comprised of approximately 500 separate firms and organizations;
- In 2010, Northern Ontario’s MSS sector employed about 23,000 people; and,
- The total value of output of the Northern Ontario MSS sector is projected as being $5.6 billion.

In defining companies making up Northern Ontario’s MSS sector, it is understood that the Doyletech study assumed that the MSS sector was comprised of companies obtaining over 50% of their revenues from the mining sector, and incorporate 100% of the revenues and employment of these companies. For the purposes of this PwC study, it was assumed that the Ontario MSS sector was comprised of private sector companies perceiving themselves as part of the MSS sector. This definition therefore includes companies such as legal, financial or management consulting firms providing services to the mining sector who likely perceive themselves to be part of the MSS sector even though mining represents only a portion (for example, less than 50%) of their total revenues. In addition to impacting the number of organizations in the sector, the difference in definitions also impacts comparisons with respect to employment numbers.

As indicated above, the Doyletech study estimated revenues generated by the Northern Ontario MSS sector based upon its definition of the MSS sector in order to provide an indication of the size of the Northern Ontario MSS sector. In contrast, the purpose of this PwC study was focused on determining the economic contribution of the MSS sector to Ontario in terms of standard measures of economic activity (both direct and indirect economic impacts). The methodology to estimate the economic contribution on this basis was driven by expenditures undertaken by MSS sector companies supplying Ontario mining sector operations. Accordingly, the scope of this PwC study did not include estimating revenues generated by Ontario MSS sector companies.

**Mining: Dynamic and Dependable for Ontario’s Future, Ontario Mining Association**

The Ontario Mining Association (“OMA”) released a study in 2012 entitled Mining: Dynamic and Dependable for Ontario’s Future (the “OMA study”). The purpose of the OMA study was to assess and characterize the economic contribution of the mining sector to Ontario.

The scope of the OMA study did not include quantifying the economic importance of the MSS sector on a Province-wide basis. Instead, the OMA study estimated the economic impact of Ontario based MSS mining production only and did not include any exports outside of Ontario. PwC’s study estimated the economic impact of sales made by the MSS sector (as defined in this study) from within and outside of Ontario to estimate the economic importance of the sector on a province wide basis. Any comparison between both studies should take this into consideration.