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Mineral Exploration and Deposit Appraisal Expenditures

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Mineral Exploration and Deposit Appraisal Expenditures[1]

A national survey of company spending intentions indicates that mineral exploration and deposit appraisal expenditures in Canada are expected to decline by 18% to $1.4 billion (B)[2] in 2016 from $1.7 B in 2015 (Figure 1). This would mark the fifth consecutive annual reduction and represent a spending level drop of 67% since the peak achieved in 2011.

This continued downward trend coincides with a period of declining prices across a broad range of mineral commodities, a persisting dim market outlook, an unfavourable capital market for financing mineral exploration, and, as a result of these circumstances, the adoption of measures by companies to trim costs and focus efforts on core assets.

The impacts on the sector include a significant reduction in the number of active mineral projects (down one-third from the 2011 peak) and a number of projects reporting only minimal expenses related to maintaining mineral claims and leases in good standing and head-office expenditures aimed at keeping the corporate entity alive. This and other statistics from the latest survey underscore the ongoing struggle to conduct work programs that advance projects into later stages of development.

Exploration and Deposit Appraisal Work Phases

The survey collects data according to three distinct work phases to provide a better understanding of the steps between discovery and production. Only the exploration and deposit appraisal work phases are considered in this bulletin. Additional intra-phase statistical breakdowns, such as off-mine-site and on-mine-site spending and company-class expenditures, are included to highlight trends affecting the pipeline of future potential Canadian mines. They help underline the fluid nature of projects as they progress, or regress, along the mineral development continuum as a result of proponents' responses to market conditions and other impacting factors.

As a result of the strong fundamentals that supported the last upward trend in overall expenditures, off-mine-site deposit appraisal (i.e., from the start of a pre-feasibility study to a production decision) became more prevalent, nearly tripling between 2007 and 2012 (Figure 2). However, spending in this category decreased substantially in 2013 (-30%), and has continued to fall with 2016 expenditures anticipated to drop 38% to $425 million (M).

Annual variations in intra-phase categories can be greatly influenced by projects progressing, or regressing, along the mineral development continuum. For 2015, four of the six projects within the off-mine-site deposit appraisal stage, accounting for nearly 50% of the year-over-year decrease in this work phase, advanced to the mine complex development (construction) stage. Also, some of the projects remaining in the off-mine-site deposit appraisal phase had completed the more capital-intensive economic and technical studies and, in 2015, were focused on regulatory or community engagement activities, or were waiting for better market conditions to either re-assess the project or proceed with a production decision.

Overall investment for the more vulnerable off-mine-site exploration work phase (from grassroots exploration to the completion of a positive preliminary economic assessment) declined from a high of $2.8B in 2011 to $823M in 2015, and is expected to decline further in 2016 to $683M. This total is the lowest for such spending in more than a decade, and a prolonged weakness in this category would reinforce concerns about Canada's capacity to generate new mineral discoveries and projects.

Company and Project Distributions

The number of companies acting as project operators was 713 in 2014, 598 in 2015 and, subject to the availability of financing, is expected to be 480 in 2016 (Figure 3). Since the record high of 911 in 2012, it is projected that 431 project operators will have become dormant, merged, or ceased to exist by 2016. Of this total, junior mining companies are anticipated to account for the vast majority (412) of lost project operators, bringing their population to levels associated with previous major downturns and highlighting the impact of current operating challenges on their ability to remain viable.

The paring down of the project operator count has been accompanied by a corresponding reduction in spending by project. Between 2011 and 2016, there has been a significant drop in the number of projects receiving annual investment of $10M or more, $5M-$10M, and $1M-$5M (Figure 4). Investments greater than $5M are usually associated with the types of activities required to advance a project along the development path towards a production decision.

The difficult context facing grassroots exploration is clearly visible in spending levels within the less-than-$1M interval. In 2015, there were 85 fewer companies operating in this range than in the previous year, and in 2016 a further 126 companies are expected to be lost.

In 2015, companies in the $10M-or-more category accounted for approximately two-thirds of total spending while those in the $5M-$10M, $1M-$5M, and $1M-or-less expenditure ranges accounted for 14%, 15%, and 5%, respectively, of total spending, clearly showing the relative importance of the top spending projects and companies. That said, for the first time in a decade, total spending by companies in the $10M-or-more category is expected to be below $1B ($841M).

Junior and Senior Companies

Junior companies play an important role in the discovery and development of mineral projects in Canada. These companies propelled increased exploration and deposit appraisal investment during the mid-to-late 2000s (Figure 3). Their combined expenditures broke the $2B barrier in 2007, 2008, and 2011 (2015 constant dollars), while their share of total spending hovered around 65% in 2007 and 2008. However, the current downturn, highlighted by a 48% drop in junior company spending in 2013, has brought their share of total activity to less than 35%–a level not seen since the early 2000s. In 2016, junior company expenditures are expected to fall below $500M for the first time in a dozen years.

Expenditures by senior mining companies also surpassed the $2B level in 2011 and again in 2012. However, their spending decreased by 31%, 13%, and 6%, respectively, from 2013 to 2015. Senior company expenditures are anticipated to fall 20% to $904M in 2016, marking the first sub-$1B spending level for these companies since the global economic crisis in 2009.

Provinces and Territories

The 15% decline ($308M) in total expenditures in 2015 was felt in all Canadian mining jurisdictions except Nunavut, Saskatchewan, Manitoba, and Nova Scotia (Figure 1). Decreases exceeding 30% were recorded in New Brunswick, Newfoundland and Labrador, Alberta, Yukon, and Quebec.

British Columbia, Quebec, and Ontario, each with a drop of over $70M, accounted for close to 94% of the total decrease in 2015. Despite this, the leading jurisdictions remained Ontario and British Columbia, followed by Saskatchewan, which together accounted for more than 57% of total exploration and deposit appraisal spending.

Another aggregate decrease of $308M is expected in 2016. Reduced levels of activity will be widespread again with only Manitoba, Alberta, and New Brunswick anticipated to experience higher spending. However, increased expenditures within these jurisdictions will not be felt at the national level due to substantial decreases recorded elsewhere, particularly in Nunavut, British Columbia, and Ontario, which together are expected to account for 81% of the total projected decrease. Although part of these spending reductions can be traced back to projects moving into the mine complex development phase, it is also evident that some jurisdictions are experiencing serious declines in their exploration and deposit appraisal activity.

Mineral Commodities

While precious metals (mainly gold) remains the leading commodity group with shares of total spending of 45% and 46%, respectively, in 2015 and 2016, decreases in dollar terms are notable (Figure 5). Precious-metals expenditures have dropped from a peak of $2.3B in 2011 to $776M in 2015, and are expected to fall to $643M in 2016. As the second-ranked commodity group, the base-metals category fell 21% in 2015 to $330M, with a further drop of 38% to $206M anticipated for 2016. At its 10-year peak in 2012, iron ore accounted for nearly 10% of total expenditures; however, due to oversupply, reduced Chinese demand, and subsequent price retreats, iron ore’s share of total expenditures in 2015 was less than 2%.

Additional information is available on the Internet at: www.nrcan.gc.ca/mining-materials

Figure 1. Exploration and Deposit Appraisal Expenditures, (1) by Province and Territory, 2014-16

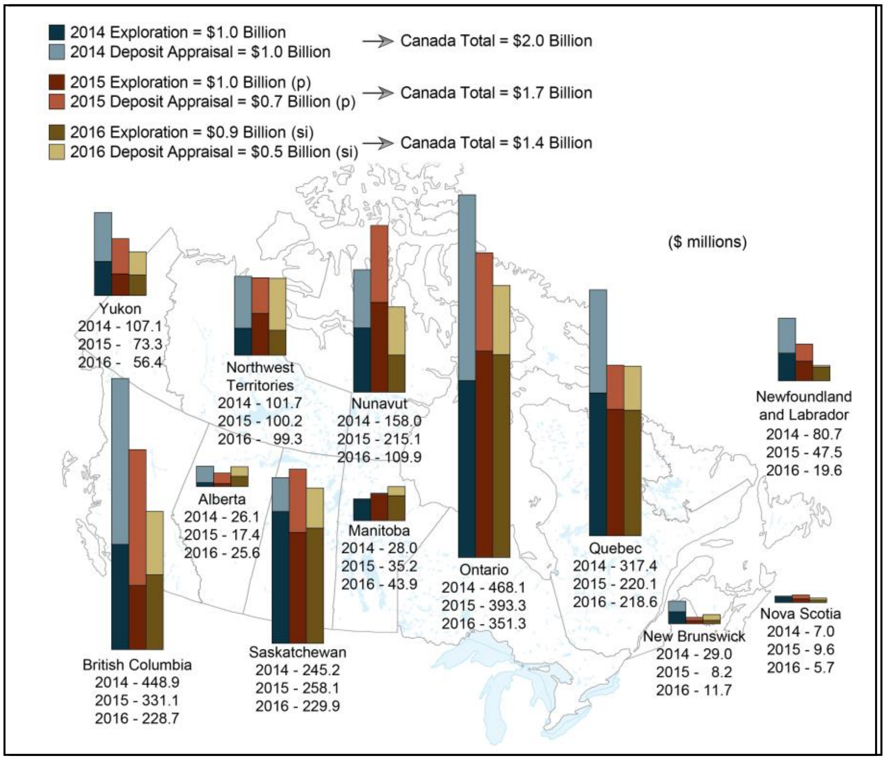


Figure 2. Exploration and Deposit Appraisal Expenditures, (1) On- and Off-Mine-Site, 2006-16

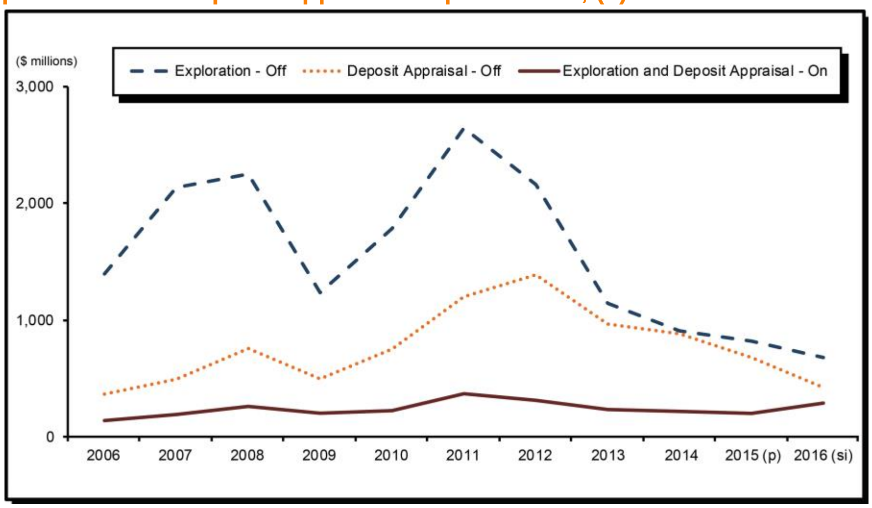


Figure 3. Exploration and Deposit Appraisal Expenditures, (1) By Company Class, Number of Project Operators, (3) and Monthly Metals Price Index, (4) 2006-16

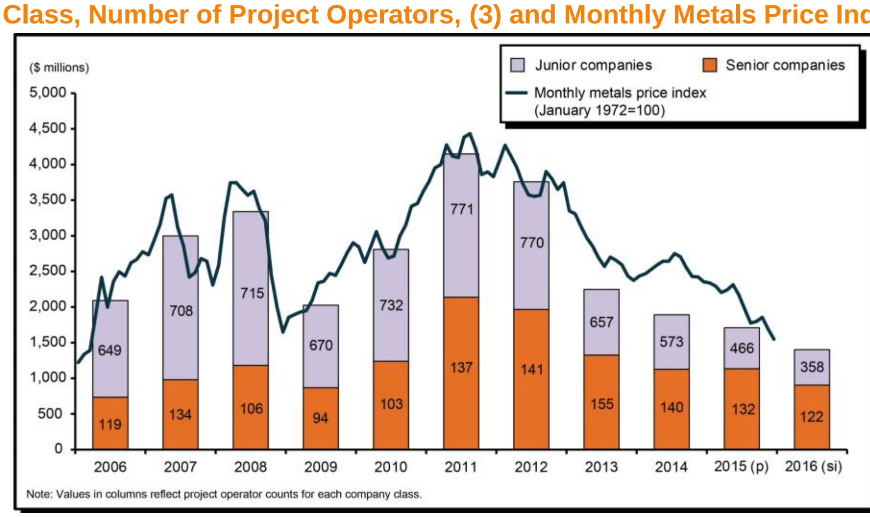


Figure 4. Exploration and Deposit Appraisal Expenditures, (1) By Range of Expenditures and Number of Project Operators (3), 2006-16

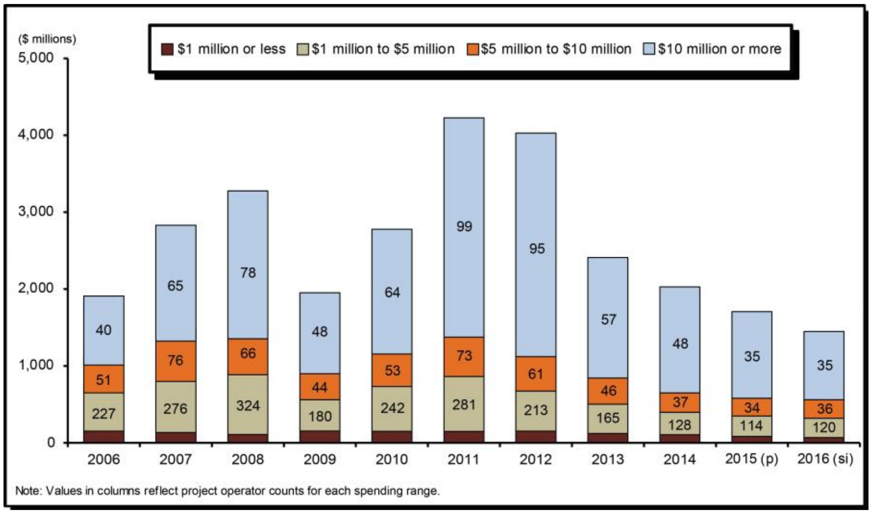
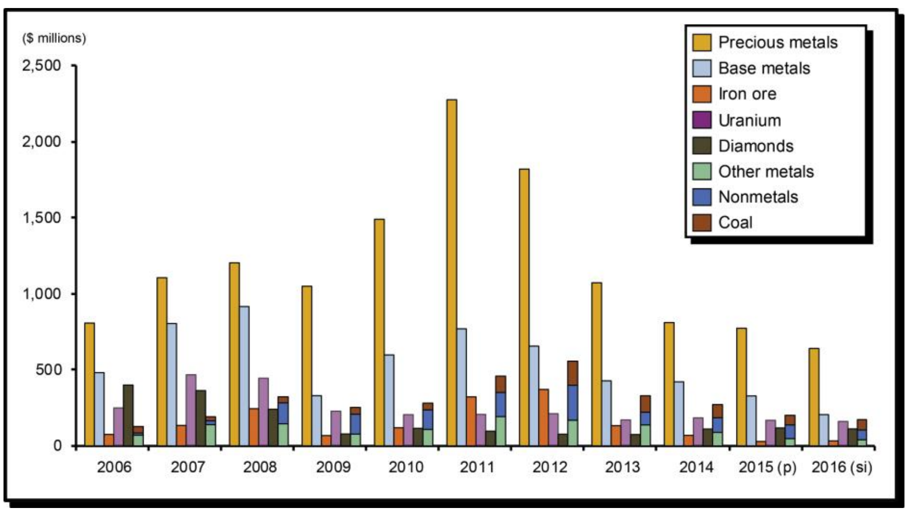


Figure 5. Exploration and Deposit Appraisal Expenditures, (1) by Mineral Commodity, (5) 2006-16



Source: Natural Resources Canada, from the federal-provincial/territorial Survey of Mineral Exploration, Deposit Appraisal, and Mine Complex Development Expenditures.
(p) Preliminary estimates; (si) Spending intentions. (1) The **exploration work phase** is defined as the search for, discovery, and first delimitation of a previously unknown mineral deposit or the re-evaluation of a sub-marginal one to enhance its potential economic interest up to sufficient indicated mineral resources accompanied by a positive preliminary economic assessment that will justify costly deposit appraisal work. **Deposit appraisal expenditures** include all activities carried out to bring a delimited deposit to the stage of detailed knowledge required for the pre-feasibility and final feasibility studies that will support a production decision and the investment required. Exploration and deposit appraisal expenditures include field work, overhead, engineering, economic and pre- or production feasibility studies, environment, and land access costs for on-mine-site and off-mine-site activities. (2) Unless stated otherwise, all values are in current Canadian dollars. (3) The number of project operators in the $1 million-or-less spending interval amounted to 500 in 2014, 415 in 2015, and 289 in 2016. (4) The Bank of Canada Metals and Minerals Price Index is a chain Fischer index based on the prices of nine commodities: potash, aluminum, gold, silver, nickel, copper, zinc, lead, and iron. (5) The commodity breakdown for 2016 spending intentions was estimated based on 2015 preliminary reports. Notes: Company budgets for 2016 expenditures had not all been finalized at the time of the survey. Data were collected from October 2015 to mid-February 2016. Figures throughout this bulletin are rounded and totals may not equal the sum of the components.