

**Laura Skaer**  
**Executive Director**  
**Northwest Mining Association**

***Testimony on Effect of the President's FY-2013 Budget and Legislative Proposals for the Bureau of Land Management and the U.S. Forest Service's Energy and Minerals Programs on Private Sector Job Creation, Domestic Energy and Minerals Production and Deficit Reduction.***

**March 20, 2012**

**Executive Summary**

Chairman Lamborn, Ranking Member Holt and Members of the Committee, the Northwest Mining Association (NWMA) appreciates this opportunity to provide testimony on the *Effect of the President's FY-2013 Budget and Legislative Proposals for the Bureau of Land Management and the U.S. Forest Service's Energy and Minerals Programs on Private Sector Job Creation, Domestic Energy and Minerals Production and Deficit Reduction.*

At a time when Members of Congress, the Administration, the media and the public are acknowledging that the United States has become increasingly vulnerable and dependant on foreign sources of strategic and critical minerals, the Administration's budget and legislative priorities not only fail to address this serious issue, they actually compound the problem. As you know, this vulnerability has serious national defense and economic consequences. This increased vulnerability and reliance on foreign sources of minerals is not new to NWMA or the mining industry, as we have been delivering that message for the past ten years.

While Members on both sides of the aisle are introducing legislation to address these mineral vulnerability issues, e.g., Mr. Lamborn's Strategic and Critical Minerals Policy Act of 2011 (H.R. 2011), the Administration's budget ignores this reality by proposing increased fees and royalties; advocating policies that make access to mineral lands and permits more and more difficult; fails to address serious workforce issues in both the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS); and basically ignores Congressional mandates to manage public and National Forest Lands for multiple-use, sustained yield and the production of fiber, food, minerals and energy the Nation requires. Just one example of the latter is the BLM and USFS Notice of Intent to incorporate Greater Sage-Grouse conservation measures into Land Use and Land Management Plans. The conservation measures proposed by the Sage-Grouse National Technical Team (NTT) are draconian, prohibit or restrict use of public lands for mineral and energy development and place conservation of sage-grouse habitat above all other multiple-uses in violation of FLPMA.

The *Federal Land Policy and Management Act of 1966* (FLPMA) 43 U.S.C. 17.01 *et seq* lists twelve policies with respect to the public lands of the United States. Section 102(a)(12) states that it is the policy of the United States that:

the public lands be managed in a manner which recognizes the Nation's need for domestic sources of minerals, food, timber and fiber from the public lands including implementation of the *Mining and Minerals Policy Act of 1970* (30 U.S.C. 21a) as it pertains to the public lands;

The *Mining and Minerals Policy Act* of 1970 declares, in part:

[t]hat it is the continuing policy of the Federal Government in the national interest to foster and encourage private enterprise in (1) the development of economically sound and stable domestic mining, minerals, metal and mineral reclamation industries, ....

The *Multiple-Use and Sustained Yield Act* of 1960 (16 U.S.C. 528) and the *National Forest Management Act* of 1976 contain similar policy declarations for the USFS.

It is within the context of these statutes and congressional declaration of policy that NWMA finds the Administration's budget proposals relating to private sector job creation, domestic minerals and energy production, and deficit reduction woefully lacking. Instead of allocating budgetary resources to wealth and job creating mineral and energy resource programs, and providing incentives and required certainty to attract mineral investment, the Administration's budget and legislative proposals focus on protection, removing lands from productive use, increasing royalties, fees, and taxes, increasing uncertainty and regulatory burdens and implementing controversial and job killing policies revolving around climate change and sage-grouse conservation. While the Administration talks the job creation talk, their proposals clearly do not walk the job creation walk.

The Administration's job killing budget and legislative proposals include increased fees and a gross royalty/leasing system for seven hardrock minerals that will discourage exploration, development and production of those metals on public lands and increase our Nation's dangerous reliance on foreign sources of minerals as well as energy. The President's FY-2013 budget also fails to address project delays caused by bureaucratic red tape, a broken NEPA process and a failure to address workforce issues.

Finally, if the Administration was truly interested in reducing the environmental impact of abandoned hardrock mines, it would have included Good Samaritan legislation similar to H.R. 3203 introduced by Chairman Lamborn in the 111<sup>th</sup> Congress.

### **Northwest Mining Association: Who We Are**

NWMA is a 117 year old, 2,300 member, non-profit, non-partisan trade association based in Spokane, Washington. NWMA members reside in 44 states and are actively involved in exploration and mining operations on public and private lands, especially in the West. Our diverse membership includes every facet of the mining industry including geology, exploration, mining, engineering, equipment manufacturing, technical services, and sales of equipment and supplies. NWMA's broad membership represents a true cross-section of the American mining community from small miners and exploration geologists to both junior and large mining companies. More than 90% of our members are small businesses or work for small businesses. Most of our members are individual citizens.

### **Bureau of Land Management Budget and Legislative Proposals**

Our testimony focuses on the budget and legislative proposals impacting the hardrock mining industry, namely the proposed gross royalty and leasing system for seven locatable minerals, the abandoned mine land fee for hardrock minerals, regulatory proposals, such as the draconian sage-

grouse conservation measures proposed by the NTT and the Northern Arizona mineral withdrawal (Public Land Order 7787), the failure to address delays in the NEPA/permitting process and replacing and training new professionals to replace an aging workforce. Instead of focusing on enhancing the programs that create jobs, lessen America's reliance on foreign sources of minerals and promote the production of the minerals, food, timber and fiber Americans require, the Department has elevated protection as its budgetary and legislative priority.

#### A. Proposed Leasing/Gross Royalty System for Seven Hardrock Minerals

The President's FY-2013 budget includes a legislative proposal to institute a leasing process under the *Minerals Leasing Act* of 1920 for seven hardrock minerals – gold, silver, lead, zinc, copper, uranium and molybdenum. These seven minerals currently are subject to location under the General Mining Laws of the United States. The President's proposal would include a new leasing process and subject these seven minerals to annual rental payments and a royalty of not less than 5% of gross proceeds. One half of the royalty proceeds would be distributed to the states and the other half would be deposited in the General Treasury. Existing mining claims would be exempt from the leasing system but would be subject to increases in annual claim maintenance fees.

This proposal would have the effect of killing private sector job creation and discouraging private investment in the exploration, development and production of domestic mineral resources. It would increase our nation's reliance on foreign sources of minerals and lower the United States' standing among the twenty-five largest mineral producing countries in the world.

The leasing proposal will increase uncertainty by failing to recognize that unlike coal and oil and natural gas, which are typically located in vast sedimentary basins, economically viable deposits of the seven minerals mentioned in the President's proposal are rare and hard to find. Discovery, delineation and development of metallic ore bodies require years of fact-finding, including ground, aerial and satellite reconnaissance, exploration drilling, environmental baseline gathering, workforce hiring and training, mine and mill planning, design and construction and closure and reclamation.

In a 1999 report, the National Research Council of the National Academy of Sciences recognized just how rare economically viable mineral deposits are: "Only a very small portion of Earth's continental crust (less than 0.01%) contains economically viable mineral deposits. Thus, mines can only be located in those few places where economically viable deposits were formed and discovered."

*Hardrock Mining on Federal Lands*, National Research Council, National Academy Press, 1999, p. 2-3.

On page 24 of the same report, the National Research Council Committee included a sidebar on "How Hard is it to Find a Mineral Deposit?" This is what the NRC Committee had to say:

The art and science of finding new mineral deposits is much better than pure luck, but it is still far from perfect. Moreover, the search for new mineral deposits is costly, time consuming, and without guarantee of success. For example, Roscoe (1971) showed that the number of mineral indications in Canada that had to be investigated to discover a significant mineral deposit was about 100 in 1951 and rose to about 1,000 in 1969. There is no reason to expect that this trend has changed. Similarly, in a probabilistic analysis of exploration experience in the

United States by Homestake Mining Company, Anderson (1982) concluded that from an initial sample of 1,000 reconnaissance examinations (more or less equivalent to casual use activities), 100 drillable exploration targets (roughly equivalent to notice-level activities) would emerge in which there would be a

75% chance of finding one deposit with 3 million ounces of gold. The statistics may not be quite as grim as they first appear, because there are many cases of someone with a better concept, more persistence, or luck finding an economic deposit in a prospect or worked-out mine that several companies have deemed worthless.

Successful projects can be spectacularly profitable, but overall, mining has one of the lowest returns on investment of major industries (Dobra, 1977).

It is not uncommon for mining companies to spend millions of dollars just to identify 100 drillable exploration targets. Sometimes more than \$100 million can be expended before a decision is made to build a mine. At a recent mining conference in Denver, the chief financial officer of a large gold company told the audience that his company was initially surprised when it spent \$2 billion dollars to explore for, develop and build a mine but they now consider that to be a common figure. Bear in mind that all of this investment occurs up front *before* production and the beginning of cash flow. Furthermore, the combination of cyclical price volatility and the variations in the concentration and geologic characteristics of these seven metals within a single ore body can turn ore with economic value into waste rock at a sudden downturn in the market.

These are among many reasons that these metals were not removed from the operation of the Mining Law when the *Mineral Leasing Act* was passed in 1920. Congress recognized then, as it should today, that in order to encourage private enterprise in the development of hardrock minerals, there must be an incentive for those who take substantial risk to explore for, find and develop a mineral deposit. The Mining Law has served this Nation well for 140 years by providing a self-executing process to enter upon federal lands open to mineral entry to explore for, find, use and occupy those lands for all uses reasonably incident to prospecting, exploration, processing and mining. The Mining Law has provided the necessary framework and security of tenure or certainty required to attract mineral investment and take the risk to find that true needle-in-a-haystack, one-in-ten thousand economically viable mineral deposit.

Removing these seven minerals from the operation of the Mining Law and placing them in a leasing system will result in less mineral investment in the U.S. and exacerbate our dangerous reliance on foreign sources of critical and necessary minerals.

The President's proposal came as a surprise because it is inconsistent with Secretary Salazar's testimony before the Senate Energy and Natural Resources Committee on July 14, 2009. While supporting a need to amend the *Mining Law of 1872*, including patent reform and providing a fair return to the taxpayers for the extraction of valuable resources and the creation of an AML Fund that included a Good Samaritan provision, the Secretary never suggested a leasing program. In fact, neither Congressman Rahall's Mining Law Reform bill introduced in the 110<sup>th</sup> (H.R. 2262) and 111<sup>th</sup> (H.R. 699) Congress nor Senator Bingaman's bill (S. 796) introduced in the 111<sup>th</sup> Congress contained a leasing system for hardrock minerals. Both Representative Rahall and Senator Bingaman's legislation recognized the importance of the self-initiation rights under the Mining Law to encourage the search for and production of hardrock minerals.

**B. A Gross Royalty Not Less Than 5% Will Adversely Impact Investment in Domestic Mining.**

A royalty assessed on gross proceeds increases the economic risk of a given mining project investment and acts as a disincentive to investment. This disincentive becomes pronounced when one considers the cyclical nature of commodity prices. In other words, as commodity prices decrease, the rate of return required to justify a mining investment increases. A gross royalty becomes a fixed cost that, in times of low commodity prices, can mean the difference between a mine closing prematurely, resulting in lost jobs, and a mine continuing to operate because it can cover its fixed costs thereby keeping people employed during times of low prices. In other words, a gross royalty raises the “cut off grade” between recoverable ore and waste rock. The life of a mine is shortened by causing what otherwise would be valuable minerals below the cut off point to be lost. A gross royalty prevents conservation of the resource and is not an environmentally sustainable policy. Early mine closures waste public minerals by leaving minerals in the ground. Premature closures of mines means more mineral deposits have to be discovered, more mines built, impacting more land.

Unlike oil, natural gas and coal which are generally marketable as found in place in the ground, hardrock minerals require extensive and costly processing and beneficiation to produce a marketable product. A gross royalty does not consider these costs. A gross royalty is punitive in periods of low commodity prices. During periods of low commodity prices, a mining company would continue to have to pay the gross royalty even if it meant operating at a loss. Since no mine can be operated at a loss for any significant amount of time, the result is that some mines will shut down prematurely creating loss of jobs; loss of federal, state and local taxes; and indirectly adversely impacting suppliers of goods and services to the mine and the mine employees. The economic devastation from a gross royalty would be significant, especially in the rural West where most hardrock mines are located and mining provides some of the best jobs available, jobs that average more than \$75,000 per year.

On the other hand, a net royalty does not cause a mining company to operate at a loss. With a net royalty, operators pay higher royalties when their net is high during periods of robust mineral prices and/or operating costs are lower. When mineral prices are depressed, and/or operating costs are higher, operators pay lower royalties, so the royalty does not cause premature mine closures resulting in job losses. Because mineral prices are cyclical in nature, there have been and always will be periods of lower commodity prices. A net royalty provides the best incentive to explore for minerals on federal lands, regardless of the economic cycle. A net royalty promotes conservation of the resource, ensures a longer royalty stream from operating mines, and promotes job retention.

The Metals Economics Group produces an annual report “World Exploration Trends” which tracks global exploration and industry trends. The 2012 report estimates that nonferrous exploration budgets for 2011 will total \$18.2 billion, a 50% increase over 2010. Despite significant mineral resources, the United States attracts only 8% of total world-wide exploration dollars, while Latin America attracts 25%, Canada 18%, Africa 15%, and Australia 13%. The following report provides insight into why the U.S. lags in attracting job creating exploration dollars.

An internationally respected minerals industry advisory firm, Behre Dolbear, prepares an annual report ranking the twenty-five largest mineral producing countries in the world. The latest report is

entitled 2012 Ranking of Countries for Mining Investment -- Where “*Not to Invest*” and is attached and incorporated by reference. Behre Dolbear considers seven criteria in ranking countries:

- The country’s economic system
- The country’s political system
- The degree of social issues affecting mining in the country
- Delays in receiving permits due to bureaucratic and other delays
- The degree of corruption prevalent in the country
- The stability of the country’s currency
- The country’s tax regime

While the United States ranks high (eight or above on a one to ten scale) for its economic and political system, the United States received a ranking of three with respect to social issues affecting mining; ranked last with Papua New Guinea in permitting delays (scoring 2 on a one to ten scale) and a rating of four with respect to its tax regime. Behre Dolbear considers the total taxes applicable to a mining project, including income taxes, severance and excise taxes, duties and imposts, and royalties. The United States corporate tax rate is 35% plus, which, when combined with state levies effectively makes it the highest corporate tax rate in the world. This high corporate tax rate provides a significant disincentive for mineral investment in the United States. A gross royalty would only exacerbate this disincentive, and any net royalty must take into consideration the overall government take.” According to the study, when the “government take” from combined taxes and royalty reaches 50%, a mining project’s economic viability, during periods of normal commodity pricing, is threatened.

In addition, the Administration doesn’t seem to understand that our lifestyle and standard of living is made possible by mining. Furthermore, it doesn’t understand that the production of solar, wind and geothermal electricity capacity requires minerals. The Administration proposes key funding increases for renewable energy development while proposing new fees and taxes on mineral production, proposing a new leasing system and enacting policies that will adversely impact the security of tenure necessary to attract mineral investment, and failing to address significant workforce issues in the Mining Law program. The bottom line is that all energy production, including renewable energy requires minerals, and lots of them. And they need American minerals – unless, of course, we are willing to trade our unhealthy dependence on foreign oil for a dangerous dependence on foreign sources of critical minerals.

In 1995, the United States Geological Survey reported that the United States was import reliant on 43 nonfuel minerals with a \$51 billion value. In 2011, the U.S. had become import reliant on 67 minerals (an increase of 4 over 2010), and 100% reliant on 19 minerals with a value of \$90.4 billion. The U.S. is more import-dependent on 43 non-fuel minerals than it is on crude oil. Unfortunately, the President’s budget and legislative proposals will discourage mineral production in the United States and further increase our Nation’s reliance on foreign sources of minerals.

### C. Abandoned Mine Land Fee

The President’s FY-2013 budget proposes a new “dirt tax” on hardrock mining to be used for reclaiming abandoned mines. While framed as a fee on the production of hardrock minerals beginning January 1, 2013, the “dirt tax” is based on the volume of material removed or displaced (overburden and waste rock as well as ore), with the receipts distributed through a competitive grant

program. The President's AML proposal of a "dirt tax" of approximately 7.8 cents per ton of the material displaced would apply to hardrock mining operations on private and public lands and is significantly different than any AML fee proposed in the past either through Mining Law Reform bills introduced in the last two Congresses or the Secretary's testimony in July, 2009. What is noticeably absent from the President's proposal is a Good Samaritan provision.

A Good Samaritan law, similar to the one introduced by Chairman Lamborn in the last Congress (H.R. 3203), will do more to bring about the cleanup and reclamation of abandoned hardrock mines than any fee imposed on production or material moved.

It appears the President's proposal is based on the coal AML program administered by the Office of Surface Mining (OSM). As was discussed in more detail earlier in this testimony, increasing fees on hardrock production is counterproductive to private sector job creation, domestic energy and minerals production and deficit reduction. Because most currently producing mines are located in the same mining districts as most abandoned hardrock mines, a Good Samaritan provision would enable mining companies to utilize current permitted processing and tailings facilities, equipment and mine personnel to reclaim nearby abandoned mines without the legal risk of incurring cradle to grave liability under the *Clean Water Act* (CWA) and the *Comprehensive Environmental Response, Compensation and Liability Act* (CERCLA).

On October 2, 2007 at a legislative hearing on H.R. 2262 entitled *Royalties and Abandoned Mine Reclamation*, and last year at a hearing this committee held on *Abandoned Mined Lands: Innovative Solutions for Restoring the Environment, Improving Safety and Creating Jobs*, I provided testimony on hardrock AML issues including the need for Good Samaritan legislation. As I stated at that time, the mining industry supports the creation of a new federal AML fund to be financed from royalties owing under any Mining Law legislation enacted by the Congress to augment the monies available to state AML Funds to address safety and, where needed, environmental hazards at AML sites. Our industry also strongly supports the enactment of comprehensive Good Samaritan legislation like H.R. 3203, which would allow mining companies with no previous involvement at an AML site to voluntarily remediate and reclaim that site in whole or in part without the threat of potential enormous liability under the CWA, CERCLA and other federal and state environmental laws. I have attached a copy of that testimony for the record of this hearing and incorporate it by reference.

Rather than imposing a job-killing "dirt tax" on the volume of material displaced at hardrock mines for reclaiming abandoned mine sites, Congress should pass Good Samaritan legislation and use, in addition to state AML funds, monies collected from existing claims maintenance and location fees that are not used to administer the General Mining Laws or provide for mineral program workforce hiring and training as discussed below. Over the past five years, the amount of claim maintenance and location fees collected has exceeded the amount allocated by the Secretary of the Interior for administration of the General Mining Laws by more than \$16 million per year. We submit that this would be a much better use of those excess funds than depositing them into the General Treasury.

**D. Proposed Sage-grouse Conservation Measures will restrict access to mineral deposits, prevent renewable energy development and exacerbate our reliance on foreign sources of minerals and energy**

BLM proposes an increase of \$15 million to “implement broad-scale sage-grouse planning and conservation activities.” Ten million dollars would be used to amend or revise 98 land use plans to designate priority greater sage-grouse habitat where BLM will set draconian disturbance thresholds for energy and mineral development. Only \$2.5 million is designated for on-the-ground habitat restoration and fuel management. Another \$2.5 million would be used for mapping, assessment and monitoring.

NWMA submits that BLM has it backwards. This budgetary increase should be used on-the-ground and to better implement Manual 6840 *Special Status Species Management*. On page IV – 6 of BLM’s 2013 Budget Justifications, BLM states “[I]n its finding, the FWS said the BLM was not ‘fully implementing the regulatory mechanisms available’ to ensure species conservation.” Instead of fully implementing the regulatory mechanisms available in Manual 6840, BLM has chosen to initiate a planning process around recommendations that include mineral withdrawals and validity examinations in priority habitat areas.

**Neither BLM’s Notice of Intent to incorporate greater sage-grouse conservation measures in land use plans nor IM 2012-043 and IM 2012-044 mention Manual 6840** (emphasis added). For three years, the current administration has attempted to implement land use restrictions that limit or prohibit domestic mineral and energy production and thwart job creation. We saw it with Secretarial Order 3310, the Wildlands Policy; we see it with the northern Arizona withdrawal; we see it with administrative policies that add delays to the permitting process; and now we have greater sage-grouse conservation. The two IM’s mentioned above already have been used to delay the China Mountain Wind Project and reduce oil & gas lease sales in Nevada. The failure to mention Manual 6840 and focus on new regulatory mechanisms instead of better implementation of available regulatory mechanisms begs the question of what is the real purpose of BLM’s sage-grouse conservation measures.

Is it to truly conserve the greater sage-grouse or is it to do what they could not do through the aborted Wild Lands Policy? Is it to conserve the greater sage-grouse or prevent mining, energy development (both conventional and renewable), and multiple-use of public lands? Given the fact the greater sage-grouse habitat covers more than 50 million acres across 10 western states, the greater sage-grouse has the potential of being the spotted owl on steroids as resource dependent communities across the west face economic devastation.

### **Addressing Permit Delays and Workforce Training**

The hardrock mining location and claim fees have brought in between \$51.5 and \$67.3 million over the last five years. These monies are earmarked for administering the Mining Law Program, yet, over the same time period, only \$32.7 to \$39.7 million have been appropriated to run the program. The balance has gone to the Treasury.

During this same time period, Mining Law/Minerals Program managers and BLM/USFS field personnel responsible for the locatable minerals programs have been retiring at an unprecedented rate. Within the next five years, more than 60% of BLM and USFS employees responsible for the respective locatable minerals programs will retire or be eligible for retirement. Yet, there appears to be no effort at the departmental level to address this issue. The President’s FY-2013 budget certainly doesn’t address it.

The 2012 Behre Dolbear report ranking countries for mining investment ranked the United States dead last in delays in receiving permits due to bureaucratic and other delays, and near the bottom with a rating of three out of ten on the degree of social issues affecting mining in the country. With respect to permitting delays, Behre Dolbear ranked the United States tied for last among the twenty-five countries rated stating:

Permitting delays are the most significant risks to mining projects in the United States. A few mining friendly states (Nevada, Utah, Kentucky, West Virginia, and Arizona) are an exception to this rule but are negatively impacted by federal rules that they are bound to enforce resulting in a 7- to 10-year waiting period before mine development can begin.

The delays are not due to environmental regulations being stronger in the United States than in other countries because most countries have environmental regulations equal, at a minimum, to the standards established by the World Bank Group. Rather, it is abuse of the NEPA process, unnecessary bureaucratic red tape and the fact that virtually every mining project is litigated. These delays represent jobs that are not being created, jobs by an industry that, according to the President's Job Council Report, was the only industry to show a net increase in employment since 2007, pays an average wage of \$75,000, and has an indirect job multiplier equal to twice the national average.

With respect to projects on BLM-managed lands, additional, substantial delays result from a BLM Instruction Memorandum issued on December 23, 2009 (IM 2010-043) requiring *all* Federal Register Notices be sent to the BLM Washington Office for review and approval prior to publication in the Federal Register. This Instruction Memorandum also implemented a 12 to 14 step review and approval process that is taking approximately four months per Notice, prior to publication. Included are three procedural notices required by NEPA: (1) Notice of Intent to prepare an EIS which starts the public scoping process; (2) Notice of Intent to publish the Draft Environmental Impact Statement; and (3) Notice of Intent to publish the Final Environmental Impact Statement and Record of Decision. Note that all three Notices are purely procedural—nothing substantive.

Contrast the BLM policy with the USFS policy which allows these purely procedural *Federal Register Notices* to be sent directly to the *Federal Register* by the local forest supervisor. This is not to say that the USFS NEPA process does not have its own problems, rather, merely to contrast the USFS' policy with the BLM's policy that is inhibiting job creation by unnecessarily adding up to a year to what is already a very broken, anti-job NEPA process. We can think of no rational reason for the BLM to require these three procedural Notices to each undergo a four month review and approval process in the Washington, D.C. office prior to publication in the Federal Register. It is no wonder the United States ranks last in terms of permitting delays.

As mentioned previously, claim maintenance and location fees are bringing in \$16-\$20 million a year more than is being appropriated to administer the BLM's locatable minerals program. This is not taxpayer money. This is money from the mining industry, and we believe some of this more than \$16 million per year could and should be used to hire and train the necessary professionals to help break the backlog of permit delays and replace an aging workforce. We believe this should be BLM's and the USFS's number one budgetary priority for locatable minerals.

Among all of the programs administered by the BLM and USFS, hardrock mining is the most technically complex, legally complex and capital intensive. Hardrock mineral deposits result from complex geological forces, and, as discussed earlier, are rare and hard to find. The variation in geology among the different metals as well as variations within a metal require specific geologic and engineering knowledge and training.

In addition, BLM and USFS professionals responsible for managing the locatable mineral programs require an understanding of the General Mining Laws of the U.S. and their relationship with other laws and regulations, including environmental laws and regulations. The technical and legal issues are far more complex than other mineral resources like coal, oil and gas. Additionally, hardrock mine development is the most capital intensive activity taking place on federal lands. Hundreds of millions to several billions of dollars of investment is required, up front, before there is any cash flow or return on investment.

These factors demand professionals with specialized education and training in geology and mining engineering, so they understand the complex technical, legal and capital investment issues associated with hardrock mining.

### **The U.S. Forest Service**

While we have focused our testimony on the BLM's budget proposals, the USFS budget contains many of the same misguided priorities as the BLM, with a focus on protection, ecological sustainability and climate change rather than congressionally-mandated multiple-use, mineral and energy production and job creation. Based on information compiled by the USFS Minerals and Geology Management staff, the nine largest locatable mineral mines producing on National Forest Lands in 2010 produced metals worth \$1.3 billion, more than all other USFS programs combined. This represents wealth creation, high paying jobs and significant state and local tax revenues. It also supports U.S. manufacturing jobs by helping to ensure a domestic supply of minerals.

As mentioned above, the USFS faces similar workforce issues as the BLM. As of January 25, three-quarters of the USFS's certified mineral examiners were eligible for retirement. A December 20, 2010 workforce analysis by the USFS shows 61% of USFS employees eligible for or will be eligible for retirement by 2015. Thus, it is likely that within the next three or four years, the USFS will lose over 60% of its mineral management expertise, yet, little is being done to replace this workforce, and the Administration's proposed budget actually reduces the amount of monies budgeted to manage the mineral wealth of our National Forest System Lands. The budget shows reductions in monies to administer mineral operations, process mineral applications and manage the abandoned mine land program.

As previously noted, the mining industry is the only industry to show a net increase in employment since 2007, and provides high paying jobs with an indirect job multiplier equal to twice the national average. Given these facts, and the economic contribution of mineral production on National Forest Lands, NWMA is at a loss to understand why the USFS is proposing to cut more than \$10 million from its Minerals and Geology Management program. This will only compound permitting delays and exacerbate our reliance on foreign sources of minerals. The proposed budget reduction also prevents the USFS from addressing its workforce replacement needs.

In these times of robust mineral prices, we believe the Forest Service should be increasing its budget request for Minerals and Geology Management, so it can hire and train the professionals needed to administer the program and process plans of operation in a more timely fashion.

## **Conclusion**

The U.S. minerals industry operates in a highly competitive global environment. The search for new mineral deposits occurs around the globe. Major mining companies operate internationally and weigh many factors in determining whether the potential return on mineral investment is worth the geologic, economic and political risk.

There can be no question that mining creates new wealth and provides high paying jobs with an indirect job multiplier more than twice the national average. As mining companies weigh the geology/mineral potential, economic and political risk, they will invest in mineral development where they can obtain access to the land; access to regulatory approvals; access to capital; and access to the resources necessary to build and operate the mine such as people, water and energy. While the United States scores high in terms of its economic and political systems, lack of government corruption and currency stability, it ranks last or near the bottom in terms of permitting delays, social issues and tax policy. Thus, in the Behre Dolbear 2012 Ranking of Countries, the United States is sixth behind Australia, Canada, Chile, Brazil and Mexico.

We also are entering a period of resource nationalism where many countries, led by China, are asserting control over natural resources located within their country. Unlike the Arab oil embargo of the early 70's, countries like China are using resource nationalism not to control the market or the market price for a given commodity, but to attract long term manufacturing jobs. Manufacturing require minerals. Manufacturing concerns require a stable and affordable supply of metals and minerals. In a nut shell, resource nationalism says "if you want our minerals, locate your manufacturing facility in our country."

This is most evident and transparent in China with rare earth minerals. China currently controls 97% of global rare earth production. China has announced that it is cutting back on rare earth exports in favor of internal consumption. Rare earths are required not only in wind turbines and hybrid vehicles, but also in dozens of consumer products like flat screen TV's, computer monitors, and energy saving CFL light bulbs. China is telling these manufacturing concerns that they have a choice. They can hope to obtain the rare earths they need in the global market place at the global commodity price, or they can relocate their manufacturing facility in China and be guaranteed a supply of rare earths at a discount. China has been very transparent in this policy because first and foremost they want to create manufacturing jobs.

Last week, the administration joined with Japan and the European Union to file a complaint with the World Trade Organization over China's policy of restricting export of its rare earth minerals. Instead of settling for Chinese imports, the U.S. should expedite the development of our own supplies of rare earths and other critical and strategic minerals. The best way for the administration and congress to combat China's dominance of critical and strategic minerals production is to enact a National Minerals Policy based on H.R. 2011 and S. 1113 that promotes domestic production and creates high-paying jobs.

If the United States is going to compete in this global mineral environment fueled by resource nationalism, it must adopt policies that guarantee access to lands with mineral deposits, must provide a competitive tax regime, and must reduce permitting delays. We should be embarrassed that we rank last among the twenty-five largest mineral producing countries in terms of permitting delays. The fact a country with a mineral resource base as rich as the United States attracts only 8% of worldwide exploration spending should be a call to action.

Unfortunately, the President's FY-2013 budget and legislative proposals for the BLM's and USFS's energy and mineral programs do not answer this call to action. Instead of advancing policies that will encourage mineral production, job creation and deficit reduction, the Administration's proposals will result in less domestic energy and minerals production, adversely impact private sector job creation, and increase the United States' dangerous reliance on foreign sources of strategic and critical minerals. This will have a negative impact on our balance of payments and will not contribute to deficit reduction, as we watch other countries reap the benefits of mineral investment and the resulting private sector jobs, both in mineral exploration and development as well as manufacturing.

We urge this Committee and Congress to reject the President's budget and legislative proposals and, instead, enact incentives that will encourage investment and production of America's vast mineral resources to supply the strategic and base metals and materials necessary to create and sustain U.S. manufacturing jobs, a robust economy, and our standard of living.

Thank you for the opportunity to provide testimony on these important issues. I will be happy to answer any questions.

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**2012 RANKING OF COUNTRIES FOR MINING INVESTMENT  
WHERE “NOT TO INVEST”**

Since 1999, the Behre Dolbear Group Inc. has compiled annual political risk assessments of the key players in the global mining industry. Over time, our assessment indicates a positive correlation between the growth of a nation’s wealth and the prosperity of its mining industry – only when a country recognizes its critical need to adapt, and restructures burdensome policy, will it truly optimize this economic potential.

While our perspective is often considered provocative, it is our intent to highlight countries whose policies and business conditions promote investment growth in the mining sector. Behre Dolbear welcomes continued feedback from our clients and industry professionals alike. Both positive and negative dialogue enables Behre Dolbear to improve its assessment.

This year’s survey, as it has in the past, concentrates on specific countries, regional issues, and notable trends. Geology and mineral potential were not considered, as the fact that exploration, development, and mining activity are occurring confirms the existence of such potential. Only factors relevant to “political risk” have been considered. We do not make an effort to include mitigating factors such as economic returns or an investor’s relevant experience in a particular country as part of our ranking.

The Behre Dolbear Group of companies is comprised of more than 150 professionals based out of 12 offices around the globe. The views expressed herein reflect the collective responses to our annual internal survey. Our professionals’ opinions are valued as they have the unique opportunity to conduct business and evaluate investments within many different countries. In 2011, Behre Dolbear completed 220 projects in over 55 countries. Our global reach through the depth and diversity of our international involvement continuously builds our perspective on the industry. Our rankings in this annual survey are also based in part on confidential sources and public databases. Behre Dolbear has referred to the *Index of Economic Freedom* (a Wall Street Journal/Heritage Foundation publication), the World Economic Forum’s *Global Competitiveness Report*, and publications from Transparency International. Our ranking by the nature of the factors incorporated in its determination is qualitative, not quantitative.

The 25 countries considered in this year’s survey are ranked based on seven criteria:

- the country’s economic system
- the country’s political system
- the degree of social issues affecting mining in the country
- delays in receiving permits due to bureaucratic and other issues
- the degree of corruption prevalent in the country
- the stability of the country’s currency
- the competitiveness of the country’s tax policy

Each criterion is rated on a qualitative scale from 1 (worst) to 10 (best) that reflects conditions that promote investment growth in the mining sector. Accordingly, the maximum score attainable for a country is 70 points.

The following table displays this year's survey results along with those of the previous two years.

<b>Country</b>	<b>2012 Total Points</b>	<b>2012 Change versus 2011</b>	<b>2011 Total Points</b>	<b>2010 Total Points</b>
Russia	16	0	16	19
Bolivia	17	0	17	18
D.R. Congo <sup>1</sup>	19	0	19	19
Kazakhstan	22	0	22	24
Papua New Guinea	22	0	22	22
South Africa	25	1	24	23
Zambia	26	2	24	23
Indonesia	27	0	27	21
China	28	(-3)	31	35
India	29	(-1)	30	29
Philippines	29	1	28	26
Argentina	30	0	30	31
Mongolia	32	(-2)	34	36
Tanzania	32	0	32	32
Namibia	33	2	31	31
Ghana	36	2	34	36
Peru	36	(-1)	37	33
Botswana	37	0	37	36
Colombia	39	0	39	39
United States	41	0	41	42
Mexico	43	(-1)	44	45
Brazil	45	0	45	42
Chile	51	0	51	49
Canada	52	0	52	56
Australia	57	0	57	61

<sup>1</sup>Democratic Republic of the Congo

This year's survey entails the same countries that were covered last year. Venezuela and Zimbabwe are not on the list for a fifth year even though both contain significant mineral wealth due to their inherently low ranking. Behre Dolbear advises clients to exercise notable caution when considering investments in these countries. The political and social situation in Zimbabwe continues to warrant exceptional consideration in risk mitigation while in Venezuela, Hugo Chavez's nationalization of gold mines and other mineral resource assets severely limits investment return potential. Significant political reform must occur in both countries prior to the restoration of investor confidence.

Looking beyond these countries, the minerals' markets strength is supportive of new investment. Despite the market's low activity during former recessionary cycles, there are now significant investments occurring in locations that were once deemed unviable due to the perception of high political risk. Typically, it takes six years or more until investors will see revenues from a green field mining project. For the inexperienced, the long lead times combined with the potential for material adverse change in business conditions can make the mining business one of the greatest destroyers of capital, as success is subject to navigation of many risks, hence, the rationale for this analysis.

State-owned enterprises (SOE) and sovereign wealth funds (*e.g.*, China, Korea, Russia, India, Singapore, Saudi Arabia, and elsewhere) continue to invest in mineral resource development and production since

their parent countries consume increasing quantities of mineral products, which is correlated to economic growth. SOEs can also comprise a large portion of a country's stock market valuation. They account for 80% of the Chinese stock market capitalization, 60% of Russia's, and 35% of Brazil's. Government-sponsored investment, when compared to private investment, can entail vastly different time and strategic considerations and can have other investment criteria.

Since the start of the current commodity price cycle, market participants seeking to profit from the minerals boom have been investing globally. A relative lack of opportunity has brought attention back to older, out-of-favor mining regions (*e.g.*, Greece, Spain, and the United States) despite the perceived risks. Politically stable countries with stable regulatory environments help create viable resource bases that can provide competitive returns for investors relative to other asset classes. Conversely, mineral-rich nations with less stable or changing political environments (*e.g.*, Australia, Mongolia, Chile, Ghana, and South Africa) can add uncertainty to the development of mining projects, ultimately resulting in downward pressure on returns due to project delays or in extreme cases, project cancellations.

## **THE CURRENT SITUATION**

The commodity price boom that began in 2005/06 began to level off in 2011. Mineral prices are in decline because of the continued slow economic growth of the United States, Europe, and most recently due to moderating growth in China. Nonetheless, many countries continue to pursue non-competitive foreign investment and natural resource development and exploitation policies. Resource-rich national governments, however, continue to question foreign investment precedents at the risk of jeopardizing investor confidence. Behre Dolbear believes that a sustainable minerals industry requires a substantial amount of on-going as well as new capital investment to be successful. The opportunity cost mounting in today's environment is one underscored by waning investor interest due to increased political risk uncertainty. We believe political stability is derived from freedom of choice and quality of life. Improving the standard of living for all can strengthen global political stability and the availability of affordable mineral resources is critical to the success of meeting this goal.

## **2011 IN RETROSPECT – WERE WE RIGHT OR WRONG?**

North America's well-defined mineral endowment continues to attract significant capital investment despite regulatory hindrances due to its competitive standing relative to the quality or its resources, the capability of its existing infrastructure enabling products to access markets, and through the capacity of its human capital resources.

In Central and South America, select countries with strong mining industries have recently received ever increasing interest and benefits from rising commodity prices. However, the recent decline in mineral prices combined with increased inflation and renewed nationalism is causing concern as producer's margins are squeezed. Many countries throughout the region are increasing mineral taxes and imposing other requirements on mining operators.

As predicted, capital available to many African projects continues to increase relative to past years. Countries that have remained stable and those that address corruption and social issues have benefited from increased investment and production. More money from mineral development is going into infrastructure, social services, and better governance. In sub-Saharan and West Africa, mineral deposits continue to attract interest from a variety of large and small listed public mining companies and private capital providers, such as private equity funds as well as SOEs and sovereign wealth funds. Sub-Saharan Africa continues to be relatively stable by avoiding despotic or totalitarian regimes. Behre Dolbear

predicts that investment capital will continue to be put to work in this region, as new precedents are established increasing investor interest. As noted, Zimbabwe and South Africa prove challenging for foreign and domestic investor alike as an uncertain political atmosphere detracts from mineral development.

Asia at large and Australia have continued to attract new investment although government participation in the mining sector has increased in part through government-backed companies. In particular, China's form of neo-colonialism has resulted in a nationalistic backlash in several countries, notably Australia. China's sphere of influence on its neighbors and their resources, while initially welcomed, is coming under increasing scrutiny resulting in foreign ownership and export restrictions.

The Middle East region continued to see more mining, minerals, and metals investments as the region's nations continue to strive to diversify and expand their economies. Low-cost energy will continue to promote the development of energy intensive industries, such as fertilizer, aluminum, and steel. In turn, these sectors consume construction materials, aggregates, ferro, and specialty alloys.

The higher commodity prices have resulted in that old dog of a project (let's call it Fido) to re-emerge under a new name with new sponsorship – (now Phydeaux). It's still a dog, but a higher-class dog. Caveat Emptor!

## RATING THE COUNTRIES

### THE ECONOMIC SYSTEM

Behre Dolbear is a firm believer in the free-market system. In a free-market system, foreign and domestic commerce, combined with individual liberty and the rule of law, ultimately produces wealth, which increases employment and living standards. Adherence to free-market ideals is the major consideration in this criterion.

In supply-constrained markets, protectionist sentiments impede trade, acquisitions, and investment. The globalization of the world economy relies on cross-border free exchange of goods and capital. Federal and local governments are taking a keen interest in natural resource assets. For example, China restricts rare earth mineral exports. There is also a recent dispute between Anglo American and Chile's Codelco over the sale of an interest in Exxon Minerals' old La Disputada copper property. Finally, the Smoot Hawley Tariff Act enacted during the great depression of the United States highlights the adverse impact of protectionist policies on economic growth.

In a free market economy, governments rarely impede foreign investment. However, sensitive issues can arise in transactions involving non-renewable resources. There was no change in the three highest or lowest rated countries in this survey. There were no improved ratings in this year's survey and the ratings for five countries (United States, Mexico, Mongolia, China, and India) declined.

The United States, often referred to as the world's free market, fell by one point due to active government participation in the market.

United States legislation promoted natural gas and renewable energy sources over coal for power generation. Subsidizing and requiring utilities to change generation capacity put consumers on the spot to pay the bill through higher rates. Other market distorting actions included subsidizing the redevelopment of the rare earth minerals industry through government loans and the promotion of "strategic mineral stockpiles."

Mongolia and Mexico's perceived interference in the development of their mineral sectors resulted in both countries falling 1 point. China's restrictions on exports and subsidized investment by state-run institutions led to a 1-point drop from last year's rating. India's revocation of previously granted mining licenses, particularly those associated with foreign firms, led to a 1-point drop in this year's survey.

Australia's rating was almost lowered by 1 point due to continued government interference. The introduction of Strategic Cropping Land legislation in Queensland has removed some large tracts of land from potential coal mining in that state; although in New South Wales, the state government has intervened in the granting of title in some areas (e.g., Liverpool Plains) for open cut coal mining.

On a positive note, as economic reforms continue to move forward, both the Philippines and Namibia improved in this year's survey though neither country's rating changed due to mathematical rounding.

The highest-rated countries in this criterion and their relative change since last year's survey are:

- Australia (9) unchanged
  - Canada (9) unchanged
  - Chile (9) unchanged

The lowest-rated countries are:

- Russia (1) unchanged
  - Bolivia (2) unchanged
  - D.R.C. (3) unchanged
  - Kazakhstan (3) unchanged
  - South Africa (3) unchanged

## **THE POLITICAL SYSTEM**

Democratic countries with free elections rate highest. The fact that some countries hold elections, however, does not mean they are democratic (*viz.*, Russia and Zimbabwe). An additional factor considered in this criterion is security of tenure, *i.e.*, is title to a company's mineral concession secure based on a country's mining law and its prior history of mining operation nationalization. Sometimes complicating title to a deposit are the 'good' intentions of interested parties, including federal and local officials, indigenous peoples, or non-governmental organizations (NGOs) advocating geographic, ancestral, cultural, environmental, etc. claims about land, water, infrastructure, or other economic resources that thwart mining projects.

The higher-ranking countries are those with well-established democratic systems that possess tested mining legislation and protect against governmental or other arbitrary takings of property. Canada, Chile, and previously the United States lead in this category.

No country improved its ranking in this year's survey while three countries fell. The most notable of which was the United States which fell 1 point due to the continue stalemate in its congress; the influence of powerful lobbying organizations and NGOs tilting the playing field. The United Sates is now ranked equally with Brazil and Australia.

Mexico also fell 1 point due to the resurgence of the Partido Revolucionario Institucional (PRI). The party held political power until the election of 2000 yet it may reestablish its electoral dominance and undo the current market friendly policy.

Mongolia's ranking fell by one because of the continually changing elections and respectively changing mining policies.

Last year's lowest rated countries remained in this year's bottom rankings. The political systems of Russia, Bolivia, and China remained unchanged at 1.

The highest-rated political systems are:

- Canada (9) Unchanged
- Chile (9) Unchanged
- United States (8) down 1 point
- Australia (8) unchanged
- Brazil (8) unchanged

The lowest-rated are:

- Bolivia (1) unchanged
- China (1) unchanged
- Russia (1) unchanged

## SOCIAL ISSUES

Social issues continue to be one of the highest risk factors affecting the development of mining projects all around the world. The watchwords in the mining industry have become "sustainable development," "indigenous rights," and "social license," which, while sound in principle, have often been used by opponents to delay or completely halt mining development not to mention, adversely impact established operations.

Common sets of guidelines for sustainability have been developed by the financial industry (the Equator Principles led by the World Bank) and by the mining industry and manufacturers (the Cyanide Initiative) to help govern the development of mineral projects. Despite these achievements, many disparate special interest groups oppose mining projects throughout the world. Oppositional agendas are in many cases, detrimental to the livelihoods of local stakeholders.

A persistent issue, especially in developed economies, is the "NIMBY" (Not In My Backyard) syndrome, where personal prosperity outweighs public's necessity for minerals. Other factors considered in this criterion are the level of poverty, incidence of terrorism or guerilla activity, and disease, *e.g.*, AIDS. These issues affect the well-being and health of a country and affect mining economics in a country.

In these categories, none of the country ratings fell while several improved. The reasons for improvement stems from continued efforts of goodwill to neighbors as well as the governmental recognition of positive economic and social development. Mining development improves many social issues, which in turn fosters community support for mining.

The leading countries in this criterion remain unchanged from last year's survey. Australia rates the highest, with an 8, and Chile is second, with a 7. Colombia is third, with a rating of 6.

Three countries (Mexico, Ghana, and Namibia) ratings rose by 1 point in this year's survey. Mexico is making progress in dealing with a *de facto* war raging between the narco-cartels and the government raising its rating by 1 point. This issue is critical and will continue to impact investment. Both Ghana and Namibia have utilized their mineral resource wealth to improve the lives of their citizenry, which in turn helps supports the mining industry.

Three other countries showed improvement in this year's survey but not enough to change their ratings. Canada, India, and South Africa all showed signs of improvement. In Canada, the issue surrounding indigenous people is becoming much less contentious. In India, the adverse impact of regional issues, Maoists' terrorism, and in places, strong local opposition to mining projects has improved slightly. While showing signs of improvement both India and South Africa still rank near the bottom of this year's survey. Other countries showing signs of improvement include Indonesia and the Philippines where the security appears to be improving.

The countries most effective at managing social issues are:

- Australia (8) unchanged
- Chile (7) unchanged
- Colombia (6) unchanged

Those countries least effective are:

- Bolivia (1) unchanged
- Papua New Guinea (1) unchanged
- India (2) unchanged
- South Africa (2) unchanged

## **PERMITTING DELAYS**

Most countries have environmental regulations equal, at a minimum, to the standards established by The World Bank. The issue addressed here is not the strength of the regulations but the timeframe involved in obtaining permits. Contributing to delays is intervention by NGOs opposed to mining development; groups with legitimate concerns about the effect a project will have on a community or lifestyle; and, often, corruption on the part of bureaucrats in poorer countries.

Permitting delays are a global issue. As communication is facilitated by the internet, issues at operations in one country become the concerns and examples used against a completely unrelated mining project elsewhere. As this situation continues to evolve, the business environment will likely favor firms that aggressively take a proactive stance concerning societal and environmental issues. This will not guarantee success though, as corruption and other factors could still scuttle otherwise viable projects.

Permitting delays are the most significant risk to mining projects in the United States. A few mining friendly states (Nevada, Utah, Kentucky, West Virginia, and Arizona) are an exception to this rule but are negatively impacted by federal rules that they are bound to enforce resulting in a 7- to 10-year waiting period before mine development can begin. The United States rating moved up by 1 point this year as the situation improved somewhat due to the continued economic troubles and a resultant priority placed on job creation. The improved rating has not benefited the overall United States standing in this category, tying for last place with Papua New Guinea.

Those countries having the fewest permitting delays are:

- Australia (8) unchanged
- Mexico (7) unchanged
- Tanzania (7) unchanged

Those countries with the most numerous permitting delays are:

- United States (2) up 1 point
- Papua New Guinea (2) unchanged

## CORRUPTION

Corruption typically is endemic in the poorer nations and those with socialistic or controlled economies or totalitarian regimes. Corruption frequently extends through all strata of a society from the highest levels in government to the lower-level government officials, as well as pervading business practices.

Facilitation fees are often endemic to local business practices in many countries, being more prevalent in Africa, Asia, and Latin America. Investors must be mindful of and monitor corruption from the early stages of exploration and throughout project development and operation. While booming exports of minerals from these and other mineral-rich emerging market nations continue to boost local economies and the local standards of living, concerted due diligence is required to control and minimize corruption.

Australia and Canada continue to rate at 10, the highest in our survey in this criterion. The financial influence (through fund raising) of lobbyists and other purported public-interest groups on the legislative process in the United States was considered to be legal corruption resulting in the United States falling 1 point to a rating of 9.

China's rating also fell 1 point to a 2 as corruption is widespread, and the government's efforts to make progress in fighting systemic corruption has yet to gain traction outside of a few high profile cases.

Several African countries (Ghana, Namibia, and Zambia) through stable governments and improved transparency had their ratings improve by 1 point. Other risers include the Philippines, which rose 1 point due to its improved transparency and increased focus on corrupt practices. Indonesia also continued to improve in this category but not enough to result in a rating change. It was a similar story in South Africa, where the court system has taken a more active role in corruption cases.

Those countries with the least corruption are:

- Australia (10) unchanged
- Canada (10) unchanged
- United States (9) down 1 point

Those with the greatest incidence of corruption are:

- Kazakhstan (1) unchanged
- Russia (1) unchanged
- D.R. Congo (2) unchanged
- South Africa (2) unchanged
- Papua New Guinea (2) unchanged

- Mongolia (2) unchanged
- China (2) unchanged

## CURRENCY STABILITY

History has shown that countries with depreciating or devalued currencies inhibit new investment in their country. Depreciating currencies generate inflation, poverty, and corruption. As investment, money has focused on mineral-rich emerging countries, this trend has led to higher inflation within these countries.

High levels of inflation have historically created political turmoil and civil unrest. Although central banks may attempt to intervene and governments may alter policies, strong global demand for commodities and rising prices can overwhelm such efforts.

Despite record government spending in 2011, the United States dollar retained its safe haven status for those seeking refuge from the European debacle. The Canadian and Australian dollars remained close to parity with the United States dollar with both countries ratings of 9. While not enough to change its rating, Australia's inflation is beginning to be a concern.

Brazil's currency rating fell (not enough to change its numerical standing) because it was significantly overvalued in relation to the United States dollar. Mongolia dropped 1 point in this year's survey in part due to the distorting effect of substantial foreign investment in a small economy undergoing significant mineral development.

China's intervention to slow the appreciation of the Yuan is a policy that continues to be a concern of its trading partners. While its value has been allowed to appreciate, the market view is that it remains materially undervalued. In the short term, a stronger Yuan reduces the competitiveness of its export sector and puts downward pressure on job growth – a key factor impacting stability. Greater transparency in China's economy is long overdue and could be facilitated in part by a reduction of its currency controls. Nonetheless, we feel reform remains elusive, which led to a decline in China's rating by 1-point from last year's survey.

Zambia was the only country in this year's survey to see its rating increase. Inflation at the consumer level continues to show improvement resulting in a 1-point increase in this year's rating.

The highest-rated countries for currency stability are:

- Canada (9) unchanged
- Australia (9) unchanged
- Brazil (9) unchanged

The lowest-rated countries are:

- D.R.C. (1) unchanged
- Russia (2) unchanged
- Zambia (3) up 1 point
- Bolivia (3) unchanged
- Indonesia (3) unchanged

## TAX REGIME

The total taxes applicable to a mining project – duties and imposts, income taxes, royalties, and severance and excise taxes are considered in this section. Behre Dolbear's experience is that once the total "government take" from combined taxes reaches 50%, a mining project's economic viability, during periods of normal commodity pricing, is threatened. Stable and predictable tax policies are essential in evaluating a mining project's perceived risks and viability.

The impact of increasing government debt combined with relatively recent rising commodity prices has inspired officials in almost every minerals-producing nation to consider raising mining-related taxes and fees. Mineral-related revenue, which a few years ago was rising in line with commodity prices has recently decreased due to falling commodity prices, even though the amount of minerals produced has subsequently increased. The tax raising conversations have intensified in efforts to monetize mineral production.

The inspiration for these efforts may have been bolstered by Australia's actions over the past year to increase taxes both directly and indirectly on mining operations. Such discussions can result in uncertainty, delays, and limitations on investment. The past delays at the Oyu Tolgoi copper project in Mongolia present a clear example of how such uncertainty delays mining developments.

In spite of the current climate, Behre Dolbear did not reduce the ratings of any of the countries in this year's survey as last year's survey incorporated much of the current sentiment. Meanwhile, two countries (United States and South Africa) rose in this year's survey. Both countries have historically been in the lowest quartile of this segment of the survey. Due to the current political stalemate and its inability to raise taxes, the United States rating increased by 1 point in this year's survey. South Africa rating also rose by 1 point due to the lowering of the corporate tax rate as well as increasing the efficiency and easing the compliance burden for rate payers.

The highest-rated countries for tax regime are:

- Mexico (7) unchanged
- Canada (7) unchanged

The lowest-rated countries are:

- South Africa (3) up 1 point
- Bolivia (3) unchanged
- Zambia (3) unchanged

## THE RANKINGS

Table 1, "2012 Ranking of Countries," shows Behre Dolbear's composite ranking (out of 70 points possible) of political risk.

The five highest-scoring countries are:

- Australia (57) unchanged
- Canada (52) unchanged
- Chile (51) unchanged

- Brazil (45) unchanged
- Mexico (43) down 1 point

The five lowest-scoring countries are:

- Russia (16) unchanged
- Bolivia (17) unchanged
- D.R.C. (19) unchanged
- Kazakhstan (22) unchanged
- Papua New Guinea (22) unchanged

While there was little movement at the ends of the survey, there was substantial movement in the middle. China and Mongolia fell 3 and 2 points, respectively. This resulted in China dropping from its 13<sup>th</sup> ranking in last year's survey to 17<sup>th</sup> in this year's survey. China's decline is in line with last year's decline where it lost 4 points and declined from 11<sup>th</sup> in the rankings to 13<sup>th</sup>. Mongolia fell from 10<sup>th</sup> to a tie for 12<sup>th</sup> in this year's survey.

Other countries, which fell in this survey, were Mexico, India, and Peru each falling 1 point. Mexico and India maintained their current positions, while Peru's ranking fell from 8<sup>th</sup> to 9<sup>th</sup> place.

On a positive note three African countries (Ghana, Namibia, and Zambia) ratings all increased by 2 points. Ghana moved into a tie with Peru ranking 9<sup>th</sup> in this year's survey. Namibia's ranking also improved raising 13<sup>th</sup> to 11<sup>th</sup> in this year's survey. While Zambia's overall ranking did not improve, it is no longer tied for 19<sup>th</sup> position. The improved stability of these and other African countries government is leading to a revival in long-term African mineral investment, which in turn is improving infrastructure as well the lives of its citizenry which when combined with its mineral wealth is making these countries a more desirous location for mineral investment.

## A FINAL WORD

The initial resurgence in mineral consumption during the first half of 2011 appears to have abated with mineral prices and demand both retreating from recent highs. Producers are still cautiously expanding capacity to meet the expected growing demand from the emerging market consumers. Sovereign investment funds and emerging market sponsored mineral companies will continue to play an important role in the funding and development of mineral resources. These groups' time horizons and investment strategy can be markedly different from traditional resource companies and may provide additional opportunities to those countries with mineral wealth to capitalize on their resources. The competition for mineral resources will make those countries perceived to have the lowest political risk, all other things being equal, able to attract a significant portion of the global mineral investment as well as receive a premium for their resources over countries where perceived instability exists.

The outlook for 2012 remains uncertain, mostly due to the "band-aid" approach the EU is using to resolve the debt problems in Greece, Portugal, Spain, and Italy. This uncertainty has impacted commodity prices since austerity measures or a collapse of the euro as a currency will have potentially serious impacts on the marginal global demand for minerals. Similarly, should fears of a "hard landing" come true in China that would also devastate global commodity demand.

The long-term fundamentals, however, are unchanged and as economies rebound we will revisit the rapid ramp-up of commodity prices again. It is probable that resolution on the direction prices take will occur before this year's end.

**TABLE 1**  
**BEHRE DOLBEAR'S 2012 RANKING OF COUNTRIES**

2012 Rank	Country	Economic System	Political System	Social Issues	Permitting Delays	Corruption	Currency Stability	Tax Regime	2012 Total Points	2012 Change versus 2011
1	Australia	9	8	8	8	10	9	5	<b>57</b>	0
2	Canada	9	9	4	4	10	9	7	<b>52</b>	0
3	Chile	9	9	7	6	8	8	4	<b>51</b>	0
4	Brazil	7	8	5	5	5	9	6	<b>45</b>	0
5	Mexico	7	7	3	7	6	6	7	<b>43</b>	(-1)
6	United States	8	8	3	2	9	7	4	<b>41</b>	0
7	Colombia	6	7	6	6	5	5	4	<b>39</b>	0
8	Botswana	6	5	5	5	5	5	6	<b>37</b>	0
Tie 9	Peru	6	6	4	4	5	6	5	<b>36</b>	(-1)
Tie 9	Ghana	6	5	3	6	4	6	6	<b>36</b>	2
11	Namibia	4	5	4	5	4	5	6	<b>33</b>	2
Tie 12	Mongolia	6	5	5	5	2	5	4	<b>32</b>	(-2)
Tie 12	Tanzania	5	5	3	7	3	4	5	<b>32</b>	0
14	Argentina	5	3	4	6	4	4	4	<b>30</b>	0
Tie 15	India	5	6	2	3	3	6	4	<b>29</b>	(-1)
Tie 15	Philippines	5	5	3	5	3	4	4	<b>29</b>	1
17	China	5	1	3	5	2	7	5	<b>28</b>	(-3)
18	Indonesia	5	6	4	3	2	3	4	<b>27</b>	0
19	Zambia	5	4	3	5	3	3	3	<b>26</b>	2
20	South Africa	3	4	2	5	2	6	3	<b>25</b>	1
21	Kazakhstan	3	3	4	3	1	4	4	<b>22</b>	0
22	Papua New Guinea	4	4	1	2	2	4	5	<b>22</b>	0
23	D.R. Congo	3	3	3	3	2	1	4	<b>19</b>	0
24	Bolivia	2	1	1	4	3	3	3	<b>17</b>	0
25	Russia	1	1	3	3	1	2	5	<b>16</b>	0

# WORLD EXPLORATION TRENDS

## 2012

A Special Report from Metals Economics Group  
for the PDAC International Convention



Metals Economics Group

# WORLDWIDE EXPLORATION TRENDS

## Nonferrous exploration more than doubles in just two years

**M**etals Economics Group's (MEG) 22nd edition of *Corporate Exploration Strategies* (CES) concludes the industry's aggregate budget for nonferrous metals exploration surged to \$18.2 billion in 2011<sup>1</sup>. Despite periods of weakness and volatility, metals prices—the primary driver of exploration spending—have improved significantly since bottoming in early 2009, and have remained well above their long-term trends through 2010-11. Almost all companies have responded by increasing their exploration budgets over the past two years. As a result, the industry's aggregate exploration total jumped 44% in 2010 and a further 50% in 2011, more than doubling from 2009's recent low of \$8.4 billion to the new all-time high of \$18.2 billion in 2011.

<sup>1</sup> Metals Economics Group obtains the data used in our CES series of studies through the generous cooperation of the companies we survey. The individual exploration budgets covered by the study include spending for gold, base metals, platinum group metals, diamonds, uranium, silver, rare earths, potash/phosphate, and many other hard-rock metals, but specifically exclude exploration budgets for iron ore, coal, aluminum, oil and gas, and many industrial minerals.

(All figures are reported in U.S. dollars; all historical exploration figures throughout this report represent dollars of the day and have not been inflation adjusted.)

The PDAC is pleased to partner with Metals Economics Group in making this special report on global exploration and industry trends available to our members and Convention 2012 delegates. The PDAC makes use of Metals Economics Group's services to better understand global exploration trends, thereby helping us to support our members through the development of programs and policy recommendations. Metals Economics Group is acknowledged as the leader in providing comprehensive information, expertise, and analysis to the mining industry, and is the premier source for exploration statistics worldwide.

— Ross Gallinger, Executive Director, PDAC



## BASIS FOR ESTIMATED NONFERROUS EXPLORATION TOTAL

MEG's 2011 exploration estimate is based on information collected from almost 3,500 mining and exploration companies worldwide, of which more than 2,400 had exploration budgets reported in the *Corporate Exploration Strategies* (CES) study. These companies (each budgeting at least \$100,000) together allocated \$17.25 billion for nonferrous exploration, which we estimate covers about 95% of worldwide commercially oriented nonferrous exploration spending. Adding our estimates of budgets that we could not obtain, the 2011 worldwide exploration total reached \$18.2 billion.

Although iron ore exploration remains outside the scope of the CES and is not included in the analysis throughout the remainder of this report, we asked the companies we surveyed in 2011 for the total amount they were budgeting for ferrous activity above and beyond the core targets the CES covers in detail. Including the allocations of a number of pure iron ore producers and explorers that were not otherwise part of this study, we were able to aggregate a total budget of about \$1.84 billion for iron ore in 2011. Although our coverage of iron ore explorers is not as comprehensive as it is for other commodities, we believe the budgets of these companies represent a significant share of the 2011 iron ore exploration total. If we include an estimate for budgets we did not obtain, the 2011 iron ore exploration total was likely more than \$2.5 billion.

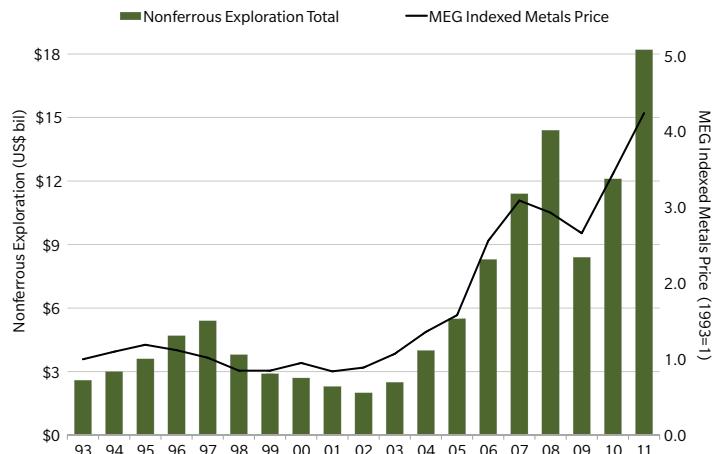
## SUMMARY OF OVERALL TRENDS

Figure 1 shows MEG's estimate of annual nonferrous exploration allocations since the early 1990s relative to a weighted metals price index. The graph indicates the cyclical nature of exploration investment and the correlation between metals price trends and exploration spending. From the bottom of the cycle in 2002, the steep rise in metals prices led to successive budget increases by the majors and meteoric budget increases by the juniors, pushing the industry's exploration total to a new high of \$14.4 billion in 2008—an increase of 620% from 2002.

The boom years came to an abrupt halt in September 2008 as the world fell into the worst economic downturn in decades. Widespread forecasts of a deep and protracted global recession painted a grim outlook for near-term global commodities demand, pushed most metals prices into steep decline, and forced the great majority of companies to slash their 2009 exploration plans. The resulting \$6 billion (42%) drop in exploration spending from 2008's high was the largest year-on-year decline (in both dollar and percentage terms) since MEG began the CES in 1989.

After bottoming in early 2009, the industry recovered much more quickly than predicted, and the global economy improved markedly over the course of 2009 and 2010, before a mixed 2011. Metals prices also improved significantly since bottoming in early 2009, and despite periods of weakness and volatility, remained well above their long-term trends through 2010-11. Almost all companies increased their exploration budgets in response to rising metals prices over the past two years. As a result, the industry's aggregate exploration total jumped 44% in 2010 and a further 50% in 2011, more than doubling from 2009's recent low of \$8.4 billion to a new all-time high of \$18.2 billion in 2011.

**Figure 1: Estimated Global Nonferrous Exploration Budget Totals, 1993-2011**



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Source: Corporate Exploration Strategies

## DRILLING EXPANDS, BUT AVERAGE PORTFOLIO DOESN'T

Table 1 lists the number of CES survey respondents that provided additional metrics over and above their 2011 exploration budgets, showing the 2011 average and average change from 2010. Although there is a wide variation in the scale of exploration programs by major, intermediate, and junior companies, looking at the overall averages by comparable companies allows us to make year-on-year generalizations.

Following the collapse of budgets and drill programs in 2009, the increased budgets over the past two years have translated into significantly larger drill programs. Most companies with comparable figures planned significantly more drilling in 2011 than in 2010, adding an average of 14,000 m—a 41% increase among companies with comparable information. However, the average increase in drilling lags behind the aggregate budget increase by this same group of companies (almost 51%), likely due to rising drilling costs, an increased focus on other exploration techniques, or some combination of these and other factors.

When we compare the number of projects and overall area held for exploration, the average portfolio of assets in the industry appears to have changed little, with comparable companies increasing their number of projects by less than 4% without adding land to the overall area held for exploration. This does not suggest that the companies with comparable data hold the same portfolio that they did a year ago, but simply that the net change in the overall size of the average portfolio was negligible. Using the industry averages, the typical exploration portfolio in 2011 consisted of five projects, each of which covered about 570 km<sup>2</sup>, received a budget of \$1.8 million, and underwent about 6,800 m of drilling.

As their exploration budgets and drill programs have grown, many explorers also face a return to the labor shortages that plagued the industry during the boom years of 2006 through early 2008. Despite the often-reported shortage of experienced geoscientists, most companies increased their exploration groups in 2011. Major and intermediate

companies with comparable information hired on average nine and four new geoscientists respectively, although staffing increases among the juniors were marginal (only one more geoscientist for every three companies). Collectively, exploration companies with comparable data added about 14% more geoscientists to their payroll in 2011 (including both field and office-based), and budgeted an average of \$1.1 million and 3,500 m of drilling for each geoscientist.

**Table 1: Other Exploration Metrics<sup>2</sup> of Major, Intermediate, and Junior Companies, 2011**

<b>Amount of Exploration Drilling Planned</b>	<b>Total</b>
# of Companies	564
Avg Amount of Drilling Planned (m)	34,163
Avg Change from 2010* (m)	13,969
Avg Budget/Planned Meter (US\$)	\$288.4
<b>Active Exploration Projects</b>	
# of Companies	683
Avg # of Projects	5
Avg Change from 2010*	0.2
Avg Budget/Project (US\$ mil)	\$1.8
<b>Area Held for Exploration</b>	
# of Companies	594
Avg Area Held (km <sup>2</sup> )	2,847
Avg Change from 2010* (km <sup>2</sup> )	1.0
Avg Budget/km <sup>2</sup> (US\$)	\$2,929.6
<b>Exploration Geoscientists</b>	
# of Companies	532
Avg # of Geoscientists	8
Avg Change from 2010*	1.4
Avg Budget/Geoscientist (US\$ mil)	\$1.4

\*Average change by the companies that reported comparable information in 2010 and 2011.

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Source: Corporate Exploration Strategies

2 As part of MEG's annual exploration survey, we ask companies to quantify a number of exploration metrics, including the number of geoscientists/geologists employed by their exploration department (both field and office-based); the number of projects being explored; the approximate area held for exploration; and the amount of drilling planned for the year. Although the response rate to this part of our survey is lower than the 2,400 companies for which we were able to quantify exploration budgets, the results do allow us to make year-on-year generalizations among the different company classifications.

## EXPLORATION EXPENDITURES RISE IN ALL REGIONS

Exploration allocations for all regions<sup>3</sup> increased to record highs in 2011, led by the largest dollar increases in Latin America and Africa. Latin America remained the most popular exploration destination, attracting 25% of global spending in 2011, with six countries—Mexico, Chile, Peru, Brazil, Colombia, and Argentina—accounting for the lion's share of the region's total. Buoyed by strong growth in gold exploration in Colombia, Guyana, Brazil, and Mexico, the share of allocations targeting gold in Latin America increased in 2011, while base metals slipped to its smallest share in more than a decade.

Canada has been the industry's second favorite region for the past decade, and continued to take advantage of its large pool of junior explorers and exploration-focused tax incentives to attract 18% of the global total in 2011. Three provinces—Ontario, Quebec, and British Columbia—accounted for more than 60% of the planned Canadian nonferrous exploration spending. Gold remained the leading target in the country, attracting more than two-and-a-half times the base metals budget.

Eurasian countries make up the third largest region, led by allocations for China and Russia, and by four other countries—Kazakhstan, Mongolia, Finland, and Turkey—that each attracted aggregate budgets of more than \$100 million in 2011. Although gold remained the region's top target in 2011, base metals allocations increased at a faster pace due to rapidly growing copper and nickel budgets for Kazakhstan, Russia, China, and Poland.

Africa saw the biggest year-on-year percentage increase of all regions in 2011, claiming 15% of the world total and widening its lead over fifth-place Australia. After slipping to second place in 2010 behind the Democratic Republic of Congo, South Africa regained the top spot for planned spending in Africa in 2011. Burkina Faso rose from twelfth in 2009 to third in 2011, leading the rapid rise in gold exploration in West Africa in recent years. The increased efforts in West Africa translated into gold receiving more than half the African exploration total in each of the last two years; in contrast, since accounting for about a third of African budgets in 2004, diamond allocations dropped to an all-time low of 6% in 2011, primarily due to waning diamond spending in Sub-Saharan Africa, as many companies focus more in countries such as Russia and India.

Exploration spending in Australia kept pace with the world average increase in 2011, maintaining the country's share of the total at about 13%, despite mining reform at both the national and state levels dominating the country's headlines for much of the year. Spending in Western Australia accounted for almost half the country's 2011 nonferrous exploration total, while South Australia saw the largest year-on-year percentage increase. Gold and base metals accounted for the bulk of Australia's 2011 exploration total, with allocations for diamonds, uranium, platinum group metals, and other targets trailing by wide margins.

Gold and copper exploration in the United States kept it in sixth place

3 The annual budget totals for Canada, Australia, and the United States are typically much larger than for most other countries; as a result, MEG also treats these countries as regions in its CES studies.

regionally, ahead of the Pacific Islands. Nevada had the largest share of the country's 2011 exploration total, and three states—Nevada, Arizona, and Alaska—accounted for almost two-thirds of the country's total.

Although gold continued to attract more than half of all spending in the United States, base metals reached its second-highest percentage share in the past decade, based in part on increased copper exploration in Arizona and Utah.

Among the Pacific Islands, allocations for Papua New Guinea, Indonesia, and the Philippines accounted for the bulk of the region's 5% of the world exploration total, with budgets fairly evenly split between gold and base metals. Despite the region's high prospectivity for gold, copper, and nickel, investors continued to be wary of the political and social unrest, uncertainty of tenure, and periodic antimining violence that have plagued the region for years. As a result, we have not seen a lot of new entrants into these countries in recent years, with most exploration conducted by larger producers in and around their existing assets.

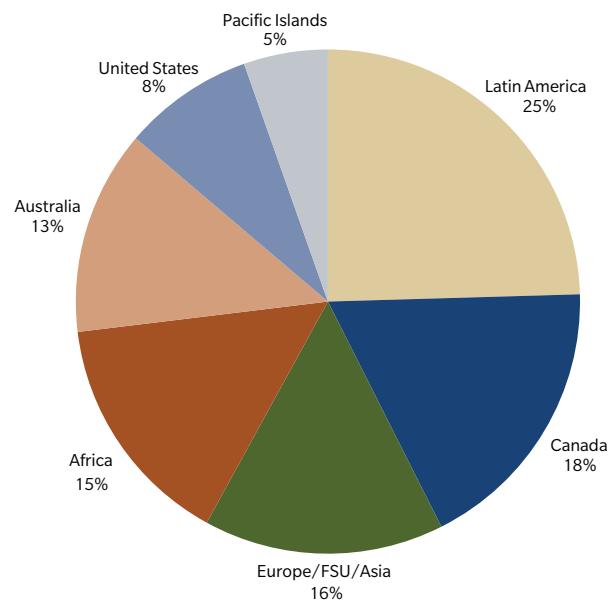
### RISK TOLERANCE RISES WITH EXPLORATION SPENDING

Most countries saw increased exploration investment in 2011, and explorers demonstrated a higher tolerance for risk despite additional concerns and uncertainty about security, policy, taxation, and tenure in many countries. Of the 121 countries for which we documented exploration spending by the industry in 2011, those commonly perceived to be high risk accounted for 23% of the 2011 aggregate exploration total, up from less than 15% in 2010. The potential reward of working in higher-risk areas often increases the industry's appetite for risk during periods of increased exploration spending, but exploration in high-risk countries, particularly early-stage work, is usually the first to be cut when risk levels or uncertainty increase.

**Figure 3: Top Destinations for Nonferrous Exploration, 2011**



**Figure 2: Global Nonferrous Exploration Budgets by Region, 2011**



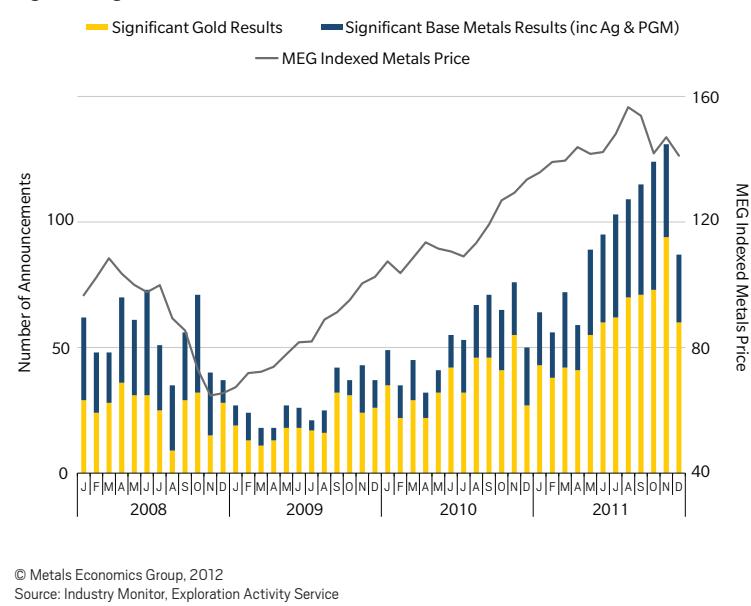
## SIGNIFICANT DRILLING SURGES, WITH INCREASED BUDGETS

Fueled by surging commodities prices, and an accompanying increased availability of risk capital, junior and intermediate companies embarked on unprecedented exploration spending in 2011. Significant drill announcements<sup>4</sup> by these companies followed suit, increasing 73% over 2010's total and hitting new four-year highs between May and November. Compared with the lows of late 2008 and early 2009, when most companies avoided risk and focused their exploration dollars on their existing, more advanced deposits, 2011 saw a rebound in the number of initial finds, new zones, and satellite deposits, as well as from work on expanding existing resources.

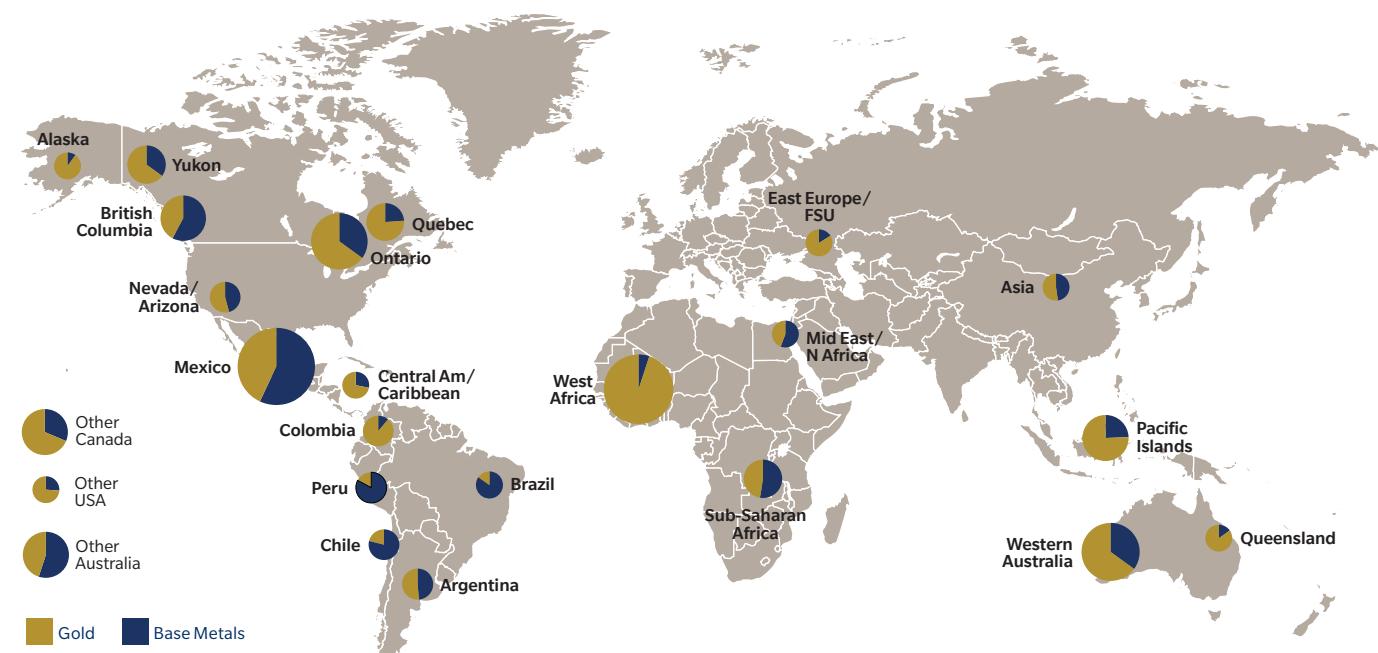
Gold, copper, and silver accounted for 92% of the significant precious and base metals drill results in 2011. The regional distribution of results illustrated in the map below shows good levels of success in West Africa and Colombia (gold), the Andean regions of South America (copper), and Mexico (silver). Canada and Australia—home to, and popular exploration destinations for, many of the world's junior explorers—also had very good numbers for both gold and base metals, exemplifying the value of ease of access to prospective land—both geographically and politically. The relative lack of significant results throughout mainland Asia—considered some of the most prospective and underexplored terrain on the globe—demonstrates that regardless of geology, many publicly-listed juniors are

still hesitant to seriously explore in countries that historically have not protected their long-term interests.

**Figure 4: Significant Gold and Base Metals Drill Results Announced<sup>4</sup>, 2008-11**



**Figure 5: Location of Significant Gold and Base Metals Drill Results Announced<sup>4</sup>, 2011**



4 MEG's Industry Monitor uses our Exploration Activity Services to track significant precious and base metals drill results monthly since 2008. Significant drilling includes initial finds, new zones or satellite deposits, and extensions to existing mineralization—essentially any drilling that adds to the resource potential of a particular project or deposit. For this section, and in the Industry Monitor service, silver and PGM results are included with the base metals (copper, nickel, zinc-lead, molybdenum, and cobalt) to allow a clear picture of the unique trends in gold exploration.

## DECLINE IN EQUITY MARKETS PRESENTS OPPORTUNITIES

With risk capital-dependent junior companies accounting for close to half of annual exploration spending in recent years, the state of equity markets plays a key role in shaping trends and strategies in the exploration industry from year to year. Strong market conditions enabled junior explorers to raise a combined \$7.4 billion for precious and base metals exploration<sup>5</sup> in the final quarter of 2010 and the first half of 2011. Despite reports of drill rig shortages and assay lab backlogs in some key exploration regions, significant drill results trended strongly upward for most of 2011.

Equity markets then struggled in the second half of 2011, and the pace of exploration financings fell back to the levels of late 2009 and early 2010. Since most of the money a junior spends on exploration in a given year is typically raised between the fourth quarter of the previous year and the middle of the current year, if equity markets fail to improve in the first half of 2012, many juniors may have trouble raising the necessary funds to sustain or increase exploration spending in 2012. In contrast, intermediate and major producers with healthy balance sheets are likely to intensify their efforts to replace reserves by increasing their exploration allocations in 2012. If this scenario plays out in the coming months, the juniors' share of overall exploration spending in 2012 will decline.

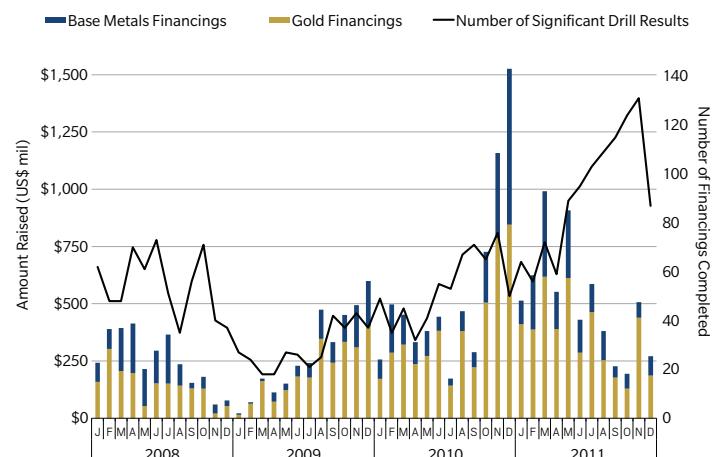
These conditions—historically strong commodity prices, resource-hungry miners with strong balance sheets, and a relative shortage of available risk capital—can create interesting opportunities for the exploration industry. Juniors with promising projects at current and long-term metals prices, but with insufficient access to equity funding to advance them in the short term, are more open to financing, joint venture, or acquisition discussions with larger players, or may look to consolidate with better financed peers, particularly when both are working in the same exploration camps. In addition, if equity markets do not improve relatively early in 2012, majors and intermediates looking to finance or joint-venture with cash-strapped junior explorers are likely to negotiate far more favorable terms than they would have in 2011.

## LOOKING FORWARD

Despite concerns about the global economy and projections of lackluster growth for most countries, China and other resource-hungry emerging and developing economies are still expected to lead global GDP growth and demand for metals over the next few years. On the supply side, the industry still faces many of the limitations that existed prior to the 2008 economic downturn that effectively set back the clock on many developments. While periods of weakness and volatility will likely continue in the near term, most metals prices are expected to remain above their long-term trends and comfortably above the nominal cost of production through 2012.

Most major and intermediate producers remain committed to exploration to replace mined reserves and strengthen and grow their pipelines, particularly while metals prices stay relatively strong. We expect most producers—many of which have much healthier balance sheets than they did a few years ago—to continue to invest in organic growth, resulting in a moderate increase in their aggregate exploration allocation in 2012.

**Figure 6: Significant Exploration-related Financings<sup>5</sup> by Junior Companies, 2008-11**



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Source: Industry Monitor, Exploration Activity Service

5 Exploration-related financings include financings of \$2 million or more for precious or base metals (as reported in MEG's Exploration Activity Services) by juniors, in which the company indicated that all or most of the proceeds were for exploration; proceeds to be used primarily for acquisitions, development, or debt servicing/repayment are excluded. Although the financing data only covers precious and base metals, these target groups account for most of the exploration spending covered by the CES, and are therefore a reasonable proxy for the amount of nonferrous exploration funding available to the juniors.

Exploration spending by risk capital-dependent junior companies may be a different story, however. As the pace of exploration financings weakened in late 2011—traditionally the busiest time of year for junior exploration-related financings as companies cash-up ahead of the upcoming field season—many juniors have had trouble raising the funds needed to sustain or increase exploration spending in 2012. Although early indications are that some juniors plan to increase their exploration budgets in 2012, unless equity markets improve over the first quarter, many will likely be forced to reduce exploration spending this year. We therefore expect a slight decline in spending by the juniors, offset by increased spending by the producers, resulting in a net increase of 5%-15% in exploration spending by the industry as a whole in 2012—a relatively small change compared with the 40%-50% swings of the past few years.

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**Metals Economics Group**  
Suite 300, 1718 Argyle Street  
Halifax, Nova Scotia  
B3J 3N6, Canada  
Phone +1 902-429-2880  
Fax +1 902-429-6593

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