

Expert Opinion on Mine Taxation

Pertinent to

the Sheshinski Committee II for the Review of Policy with Respect to Royalties on Natural Resources
formed by the Israeli Ministry of Finance

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For: Israel Chemicals Ltd.

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I. PURPOSE OF THIS REPORT

Israel Chemicals Ltd. (“ICL”), a firm which mines, processes and sells a variety of minerals and mineral products, has requested a professional opinion regarding specific issues and questions relating to mineral mining taxation. The issues and questions arise in relation to an invitation from the Sheshinski II Committee for the Review of Policy with Respect to Royalties on Natural Resources (formed by the Israeli Ministry of Finance; the “Committee”) for inputs useful in considering possible changes to the Israeli mineral sector taxation system.

This report is organized into sections that address specific questions. The questions are organized in the following order:

- 1) What level of taxation is appropriate for the mineral sector?
- 2) What is the definition of royalty?
- 3) Which types of royalties are common or rare?
- 4) What types of additional or excess profits tax royalties are applied to mining, and what are their attributes?
- 5) If the Government changes its royalty system or introduces a new mining tax and applies these to all mining companies, will the Government expose itself to litigation risk arising from agreements it previously signed with mining companies?

II. METHODOLOGY

The analysis of the questions addressed in this report is largely based on the author’s experience in assisting government mining sector fiscal reform efforts and in drafting agreements between national governments and mining companies. The issues and approaches underlying each of the above questions are presented and discussed in a brief background subsection which is followed by observations about why the question is important when considering changes to the Israeli mineral sector taxation system.

The background sections are intended to provide general insight into the policy issues raised by each question. When devising a mining fiscal system reform, there is no universal “best practice” to guide the reform process, although certain attributes are in almost all cases better than other attributes. What constitutes an optimal approach for one country may be impractical or politically unacceptable in another country. The background sections provide a brief introduction to the issues, including policy implications of commonly used approaches. The intent of the background information is not to present a treatise on mine taxation, but to provide enough information to set the stage for the analysis.

III. EXPERT’S QUALIFICATIONS

I am an expert in mining law, mining sector taxation and agreements between governments and mining companies. During my career, I have been engaged in the practice of natural resources law and mineral economics working for many governments, the private sector, multi-lateral institutions and universities. I have undertaken a wide variety of natural resources assignments related to the development of national mining policies, laws and fiscal systems. My extensive curriculum vitae--including a description of my various assignments--is provided in Annex A.

I have worked for government and mining clients in over 50 nations including Argentina, Bolivia, Botswana, Brunei Darussalam, Canada, Central African Republic, Chile, China, Colombia, Denmark, DR Congo, Dominican Republic, Ecuador, Egypt, Eritrea, Finland, Fiji, Ghana, Greenland, Guatemala, Guinea, India, Indonesia, Japan, Jordan, Kyrgyz Republic, Laos, Liberia, Madagascar, Malaysia, Mexico, Mongolia, Mozambique, Myanmar, Namibia, Nigeria, Papua New Guinea, Peru, Philippines, Poland, Romania, Russia, Saudi Arabia, Sierra Leone, Slovakia, Solomon Islands, South Africa, South Korea, Sudan, Switzerland, Tajikistan, Thailand, Trinidad & Tobago, United Kingdom, United States, Uruguay, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe and others.

I currently work as an independent consultant with a practice in natural resources law and economics. Much of my consultancy work has been to assist governments, either directly or through the World Bank, International Finance Corporation or United Nations projects, in drafting mining laws and providing advice to reform their mineral sector tax systems. I have drafted mining laws, regulations and mining agreements in civil, common law and Islamic jurisdictions. Each of the questions analyzed in this professional opinion are addressed, in one way or another, in the mining and tax laws and agreements that I have drafted or advised on. While the bulk of my consulting work has been for governments, I also do work for the private sector. For example, I have developed global country risk assessment systems for major mining companies such as Anglo American, BHP Billiton and Western Mining. I am familiar with the concerns of mining sector investors, and I have been involved in a number of high profile mining project negotiations and arbitrations between investors and governments, sometimes working for investors and sometimes for governments.

I was formally the founding Director (and Research Professor) of the Advanced Degree Program of Environmental and Natural Resources Law at the University of Denver Sturm College of Law, the founding Director (and Research Professor) of the Institute for Global Resources Policy and Management at the Colorado School of Mines, and the Deputy and Acting Director (and RTZ Senior Lecturer) at the Centre for Energy, Petroleum and Mineral Law and Policy at the University of Dundee. The natural resources law programs at the University of Denver and at the University of Dundee are considered by many mining lawyers to offer the World’s preeminent mining law programs. During my academic years, I taught, among other subjects, international mining law, mineral economics, and natural resources negotiations courses. Many eminent mining lawyers throughout the world are my former students.

I have written extensively on the subjects of mining law and taxation (see Annex B) including books published by the United Nations and the World Bank. I am the lead author of four books that are often referenced by mining professionals—“The Taxation of Mineral

Enterprises”¹, “The Regulation of Mineral Enterprises”², “Mining Royalties”³ and “Global Mining Taxation Comparative Study”⁴. These books are considered by many practitioners to be “standard” references for their work. My most recent publications are on the subject of mining tax reform and resource nationalism.⁵

I formerly sat as a member of the specially convened session of the World Bank Experts Group on Mining Law, the Southern Africa Development Community Advisory Committee on Environmental Mining Regulation, the United Nations Experts Group on Modernization and Rationalization of Mining Law and the UNCTAD Group of Experts on State Participation and Privatization in the Minerals Sector. I was formerly appointed to the Minerals Committee of the Section of Energy and Resources Law of the International Bar Association, the Advisory Committee of the International Minerals Professional Society, various committees of the Rocky Mountain Mineral Law Foundation, the Implementation Committee of the International Institute for Environment and Development (IIED) project on mining and sustainable development, and the North American Committee of Mining Minerals and Sustainable Development (MMSD) project.

Earlier in my career, I was United Nations Chief Technical Advisor UNDTCD (based in Kuala Lumpur, Malaysia) and assisted nations in Southeast Asia with mining policy and mining law development. Prior to joining the United Nations, I was Project Fellow and Coordinator of the Asia Pacific Mineral Trade and Investment Project at the East West Center (Honolulu, USA). The East West Center is a multi-lateral institution, and the Institute that I worked in provided various mining sector policy, fiscal and technical advisory services to nations in the Asia-Pacific region.

I hold degrees in law, mineral economics and civil engineering.

In summary, I am knowledgeable about the questions and issues addressed in this report. Usually, a mining or tax law addresses each of these questions, and when I work with a government to draft a mining or tax law provision or a regulation I explain the various approaches and their respective pros and cons before making a recommendation suitable to their circumstances.

¹ J. Otto (Ed) 1995; The Taxation of Mineral Enterprises, London: Graham and Trotman/Kluwer, London.

² J. Otto & J. Cordes 2002; The Regulation of Mineral Enterprises: A Global Perspective on Economics, Law and Policy; Westminster CO: RMMLF.

³ J. Otto, C. Andrews, J. Tilton, F. Cawood, J. Stermole, F. Stermole, M. Doggett, P. Guj 2006, Mining Royalties: A Global Study of Their Impact on Investors, Government and Civil Society, Washington DC: World Bank, 2006. Also available in Spanish: J. Otto, C. Andrews, J. Tilton, F. Cawood, J. Stermole, F. Stermole, M. Doggett, P. Guj 2007, Royalties Mineros: un estudio global de su impacto en los inversionistas, el gobierno y la sociedad civil, in Spanish, Santiago: Ediciones Universidad Catolica de Chile with the World Bank, 2007.

⁴ J. Otto, M. Beraun & J. Cordes 2000; Global Mining Taxation Comparative Study 2nd edition, Golden CO: Colorado School of Mines. Also available in Chinese as: J. Otto, M. Beraun & J. Cordes 2006; Global Mining Taxation Comparative Study 2nd edition, in Chinese, Beijing: Geological Publishing House of the Ministry of Land and Resources.

⁵ James Otto, Lisa E. Sachs, Perrine Toledano, Jacky Mandelbaum 2013, “Impacts of fiscal reforms on country attractiveness: Learning from the facts,” Yearbook on International Investment Law & Policy 2011-2012, ed. by Karl P. Sauvant, Oxford University Press, pp.345-386. J. Otto, “Resource Nationalization and Regulatory Reform,” presented at International Bar Association / Rocky Mountain Mineral Law Foundation Mining Law Institute, Cartagena Colombia, 22-24 April 2013

Prior to my retention (October 2013) to write this professional opinion and perhaps appear as an expert witness, I had no knowledge of the Israeli mining fiscal system, and had done no prior work for either the Israeli government or for Israel Chemicals Ltd or with its legal counsel Tadmor & Co.

IV. APPROPRIATE LEVEL OF TAXATION

Question: What level of taxation is appropriate for the mineral sector?

Background

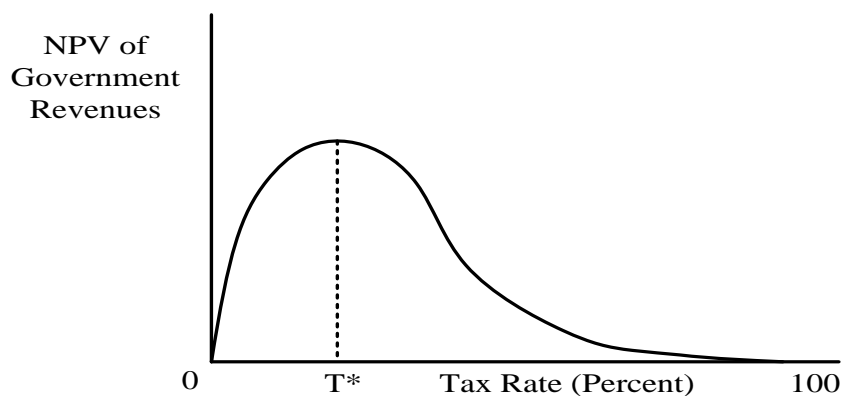
This background section examines the appropriate level of mine taxation from a policy perspective.

There are few events more dispiriting to a national treasury than to witness a run-up in prices for a commodity produced in the nation but to see little immediate commensurate increase in the “tax take” from mines producing that commodity. Although most nations impose a gross revenue based royalty that mirrors price changes (an *ad valorem* royalty), often the income tax in any one year will not correlate to price change. When commodity prices increase dramatically over a short period, the fiscal system may be vulnerable to modification because politicians will seek to accommodate the public and political sentiment that current income or profits based tax take should reflect current price. Most income tax systems are not designed to do this; instead, they take into account a longer term tax calculation that includes revenue smoothing measures such as the carrying forward of deductible losses from prior years and depreciation deductions relating to exploration, development and capital equipment.

The passage below is taken from the book titled Mining Royalties (published by the World Bank, 2006). I acted as lead author of the book and was supported in that effort by seven other notable mineral economists from around the globe.

“The more the government taxes the mineral sector, the greater the share of the wealth created by mining flows to the government. This means, of course, that less of the wealth is flowing to the companies. For this reason, rising tax rates undermine the incentives of companies to carry out exploration, to develop new mines, and even if the increases are sufficiently large, to remain in production at existing operations. Thus, one critical issue for public policy is determining the optimum level of mineral taxation. Clearly, a tax rate that takes all of the wealth is too high, as it kills the goose that lays the golden eggs. On the other hand, a tax rate of zero is likely to be too low, leaving the state with only the non-tax benefits that flow from mining and mineral production. Somewhere between these two extremes is a level of taxation that maximizes the net present value (NPV) of the tax revenues—or more appropriately, the NPV of all social benefits the country receives from its mineral sector. In Figure 2.1(a), this optimal level of taxation is indicated by T.”*

Figure 2.1(a). The optimal tax rate



Unfortunately, in practice it is not easy to determine the optimal level of taxation, as this requires knowledge of how firm behavior is altered in the present and, more importantly, in the future by changing levels of taxation. In addition, the estimation of future tax revenues requires knowledge of the flow of future profits that the domestic mineral sector is likely to generate, which in turn depends on trends in metal prices and production costs.

There are, however, two things we do know about the optimum level of taxation. First, the government can take its share of the wealth created by mining either in the form of taxes or in the form of non-pecuniary benefits. The latter are government imposed requirements on mining companies (or voluntary contributions) that raise production costs. For example, the government may require or pressure mining companies to build and maintain roads in remote regions that are used by the general public as well as for mining. It may force or otherwise encourage companies to provide schools, hospitals, and other social services in areas surrounding a mine. It may insist that companies use local suppliers or domestic workers, or that downstream processing be done domestically. The more such requirements increase production costs, the smaller are the benefits the government can reap in the form of tax revenues, and hence the lower is the optimal level of taxation.

It is also clear that raising the level of taxation shifts the flow of benefits a country receives over time from its mineral sector toward the present. This is because a tax increase will almost always raise tax revenues over the first few years following its implementation. Over the longer run, however, the higher level is likely to discourage exploration and mine development, and so reduce tax revenues below what they would have been. As a result, raising the level of mineral taxation, such as imposing a new or higher royalty, almost always looks successful from the point of view of the government in the short run. It can take several years or longer for the negative effects on tax revenues to become apparent. Moreover, even then, the negative effects are hard to assess since they require comparing actual tax revenues with what they would have been in the absence of the tax increase.” p.8

In my fiscal reform advisory work for governments, I often refer to the “optimal tax rate” figure from the World Bank published volume. The key message is that if the fiscal system is

too onerous, over time the country will realize lower fiscal revenues than could be realized if the fiscal system could be designed to tax at the optimal tax rate.

Some years ago when I was a Professor at the Colorado School of Mines I devised a way in which to calculate a measure of the total impact of taxes (and other payments to government) on a mine. The effective tax rate is defined as:

Effective tax rate. The effective tax rate (ETR) is a measure of “Government Take”, expressed as a percentage of the effective net cash flow, of all amounts payable by the company to the government. ETR is calculated by summing the value of all taxes and other payments to the government paid in each year, then dividing that sum of the total effective annual cash flow. Most governments and published ETRs are calculated on a non-discounted basis, but some governments prefer to discount.

$$\text{Effective Tax Rate} = \frac{\text{value of all amounts paid to government}}{\text{value of project before-tax cash flow}}$$

If one has a fiscal mine model that estimates the mine’s various revenues and costs and all the imposts paid by the mine to the government over the life of the project, it is a simple matter to calculate the Effective Tax Rate (i.e. Government Take). Such a model can also calculate the Internal Rate of the Return, which is a key metric used by most investors in evaluating whether a project merits development or expansion.

In many of the mining fiscal reform projects that I do for governments, one part of the analysis is to model a typical mine and apply the nation’s fiscal (and proposed) fiscal system to it. This estimate of total “taxes” paid to government includes: income tax (after all allowable deductions and credits); royalty; value added taxes; withholding taxes on dividends, loan interest and services; land rent; import and export duties on inputs and outputs; fees and all other revenues paid by the mine to government. For example, for the Government of Peru, I recently examined six new mining royalty tax options including several proposed by legislators. Mine fiscal model results clearly showed the deficiencies in the proposed legislation and provided a solid basis for understanding which other options were viable. The resulting new tax bill was adopted and passed into law last year, and it is based on an informed understanding of its effect on both the industry and the state treasury. As shall be detailed below, Peru opted for profit-based sliding scale royalties, however at the same time eliminated its ad valorem royalty.

An important part of mineral sector fiscal policy is to decide whether the primary tax objective is to maximize the fiscal take in the short term, or in the long term. If the goal is short-term maximization, the system needs to impose a high ETR. If the ETR is too high, individual mines will pay more, but in the long run there will be fewer mining operations and less investment in existing mines, thus fewer taxpayers, a smaller tax base, and a smaller contribution to the treasury. If the ETR is too high, the tax base will not grow over time and revenues will be foregone (companies will not come, explore, and discover more mines, and they will invest less in existing mines and will develop them to a lesser extent). Good tax policy will strive to set the total effective tax rate-- T* in the World Bank diagram--, where an optimal balance is found.

Knowing the ETR and the IRR for mines typical of those in the nation is a valuable tool in tax reform. If IRR is too low, and is below the risk adjusted minimum rate of return (hurdle rate) applied by most companies (typically in the range of 12% to 25% on an inflation adjusted basis) then the system will retard investment by mining companies who, when they do their feasibility studies, will be unable to generate a sufficiently robust IRR to meet the Board's approval. Likewise, if the ETR is too high, a government may want to consider measures to lower taxes so that the size of the tax base and resulting revenues will grow over the longer term, or if too low, to raise taxes.

I would suggest that the Committee may find the report submitted to you by FTI Consulting, at the request of ICL, useful--it contains information on the rates of Government Take in fertilizer producing countries. I have examined that analysis, and it uses modeling tools that are similar to the tools that I use when advising governments on mining sector fiscal reform. The FTI Consulting study calculated that *“a nominal IRR of 18% was generated for shareholders of ICL over the period from February 1992 to October 2013. After adjusting for Israel inflation from 1992 until 2013, the ‘real’ IRR for this investment is 13%.”* This level of profitability would not be considered excessive by most governments with a history of mining operations.

With regard to ETR, FTI Consulting has calculated a form of ETR which it calls GT (Government Take). The study uses a method that I often use when comparing ETR in different countries—the tax systems of countries which produce the target mineral are built into a model mine that has a set revenue and cost profile. The FTI Consulting modeling results indicate that the fiscal systems when applied to ICL's various operations yield GTs that are higher than the GTs of those nations with which Israel must compete to attract mining investors. This is a strong indicator that the existing fiscal system tax level for the studied cases may be higher than the “ideal” tax level as was described above in the World Bank book on mining royalties. I have not tried to validate the results obtained by FTI Consulting but if their results are accurate, they provide a valuable tool for the Committee when determining whether additional taxes are justifiable for the sector. The FTI Consulting results show that ICL is taxed at a higher overall tax level than are its competitors in other nations—a very troubling fact for Israel's tax policymakers to consider.

Governments are prone to raise taxes during that period of the price cycle when prices are climbing or at their peak. Some governments respond by increasing royalty rates. However, if care is not taken in the fiscal system design, when world supply meets or exceeds world demand and prices level and decline, mines may be forced to close if tax burdens are not based on the ability to pay. High *ad valorem* royalties are not responsive to the ability to pay and are particularly harmful to mine economics in a price downturn. It is also important to know that a price super-cycle does not necessarily imply high profit levels. In the short term, existing operations with sunk costs may see large profit increases. However as companies rush to expand existing operations and build new mines, the cost of their capital equipment, staff and services may also soar thus reducing or eliminating profits. When prices inevitably decline, costs may still remain high as equipment loans are repaid and service contracts are honored-- profits may plunge. A well designed mining fiscal system will take into account the cyclical nature of the industry and seek to accommodate periods of both low and high prices. It is for this reason that it is rare to find royalties (which are not based on the ability to pay) much higher than 4 or 5 percent. A few countries during the run-up in mineral commodity prices raised royalty rates above this level, and it can be expected that when prices decline that more marginal mines will be forced to close there than if the royalty rate

had remained at or below 5%. In my opinion, it is probable that those nations who recently raised royalty rates above 5% will lower these rates in the future.

In summary, with regard to the question **“What level of taxation is appropriate for the mineral sector?”** I urge the Committee in its mineral sector fiscal reform effort to pay careful attention to the impact that specific reform will have on future mine-derived fiscal revenues. It is easy to raise additional revenues in the short term by raising rates or imposing new types of royalty taxes, but a longer term perspective can act to maximize the country’s fiscal take. In assessing various reform possibilities, many governments use fiscal mine models to understand the impact of postulated tax reforms on IRR and ETR, and if the Committee is not doing so already, I suggest that use of a mine model or models be considered (or rely on the results of the FTI Consulting study). A high ETR may increase revenues in the short-term, but will reduce long-term revenues by discouraging investment in exploration, mine expansions and new mines. Based on analytical work by FTI, the fiscal system imposes a higher government take on ICL than is imposed on ICL’s competitors by their host governments.

V. DEFINITION OF ROYALTY

Question: What is the definition of “royalty”?

Background

In 2004, I was approached to draft a reference book on mining royalties. My previous published studies comparing mining tax systems across the globe had become standard references used by governments in designing their mining sector fiscal systems and were often found at the negotiating table when governments and companies sat down to negotiate ad hoc mining agreements. At the time, there was no stand-alone reference volume on the narrower subject of mining royalties. Mining royalty is a complex subject, and I enlisted the assistance of seven preeminent mineral economists from across the globe (from Australia, Canada, Chile, South Africa and the USA). The volume appeared in 2006 as a publication released by the World Bank and has since been translated from the original English into Spanish (2007) and Chinese (2013). At the release of the book, the World Bank organized a conference of mines ministers and finance ministers from around the world, and I and others presented the key findings of the book to them. To the best of my knowledge the book is the most comprehensive treatise available on the subject, and it is considered by those in the field as an important, and perhaps the definitive volume, on the subject of mining royalty.

An important starting point in drafting the book was to define what is meant by the term “royalty.” Our research revealed that there are many differing types of “taxes” that are defined by various legal systems as royalties. The consensus definition reached by the eight eminent mineral economist authors of the book is:

“A royalty is any tax type that exhibits one or more of the following attributes:

- *the law creating the tax calls that tax a royalty;*
- *the intent of the tax is to make a payment to the owner of the mineral as compensation for transferring to the tax payer the ownership of that mineral or the right to sell that mineral;*
- *the intent of the tax is to charge the producer of the mineral for the right to mine the minerals produced;*
- *the tax is special to mines and is not imposed on other industries.”⁶*

Thus, royalty can be based on a wide array of calculation methods such as: units of production, value (*ad valorem*), income, profit, economic rent and so forth.

Of course, when intending to change the royalty structure in a given country there are constraints, legal and other, that may prevent the government from implementing the most efficient royalty system. This is why changes based on negotiations and consensual agreements with existing industries are common and many times a legal necessity.

Implication for fiscal reform

⁶ J. Otto, C. Andrews, J. Tilton, F. Cawood, J. Stermole, F. Stermole, M. Doggett, P. Guj 2006, Mining Royalties: A Global Study of Their Impact on Investors, Government and Civil Society, Washington DC: World Bank, 2006, pp.3-6, 3-7.

In summary, with regard to the question “**What is the definition of “royalty?”**” according to the World Bank reference book titled “Mining Royalties” it is: any tax type that exhibits one or more of the following attributes:

- the law creating the tax calls that tax a royalty;
- the intent of the tax is to make a payment to the owner of the mineral as compensation for transferring to the tax payer the ownership of that mineral or the right to sell that mineral;
- the intent of the tax is to charge the producer of the mineral for the right to mine the minerals produced;
- the tax is special to mines and is not imposed on other industries.

The definition of “royalty” as it is applied in the mining industry includes many types of imposts and ranges from simplistic approaches such as a set fee per kg, to an additional tax that is applied when a project rate of return is achieved. When considering fiscal reform, it is important to take into consideration that the imposition of a new type of royalty, perhaps one based on profits or rate of return measures, may result in several types of royalties being imposed. The nations of Chile and Peru have recently reformed their mineral sector fiscal system and have taken this issue into account. A form of additional profits royalty is now imposed in these nations, but for the mines affected, they do not pay ad valorem royalty. It is important to note that in Peru, mines can request fiscal stabilization and can enter into time-limited stabilization agreements with the government. Most large mines have done so and thus are exempted from the new taxes during the period set out in their agreement. Such mines are encouraged to voluntarily contribute the amount that would have been due had a stabilization agreement not been in place. In Chile, most mines also operate under fiscal stabilization agreements. The new tax does not apply to them until their stabilization term expires. However, as an enticement, the government made available an option for such firms to elect to pay by offering a variety of measures that would lock certain rates for a specified period and allow a firm’s other operations to also enjoy such stabilization.

For mines operating under a mineral agreement that includes or implies a royalty “stabilized regime,” such the Dead Sea Works Ltd (DSW) and ROTEM concessions described in a question posed below, such stabilization may preclude application of a new royalty type on some operations or pose a risk of State liability. Before exploring the liability question, I would like to next briefly elaborate on the subject of royalties in general and then discuss excess profits taxes.

VI. COMMON AND RARE TYPES OF ROYALTIES

Question: Which types of royalties are common or rare?

Background

In my experience, governments tend to favor royalty types that are simple to administer. Methods beloved by theoretical economists, such as those based on rate-of-return, rarely stand the test time after tax authorities find them too challenging to effectively administer. The following table is reproduced from the aforementioned book “Mining Royalties.”

“In terms of decreasing administrative efficiency, the most common royalties would rank as follows:--

- i. unit-based royalties based on units of volume or weight.*
- ii. ad valorem royalties based on value of sales.*
- iii. hybrid royalties.*
- iv. profit-based royalties.*
- v. resource rent type royalties” p.3-18*

By far, unit-based and ad-valorem based royalties are the most common type of royalties levied. A few jurisdictions, predominately sub-national governments in Australia and Canada, levy profit-based royalties. Recently, both Chile and Peru introduced profit-based sliding scale royalties. Although Chile ranks in the top ten countries producing potash, it has made the decision not to apply the tax to companies mining fertilizer minerals. In the case of Peru, the new tax replaced its ad valorem royalty. In 2007, when the World Bank published “Mining Royalty” book first appeared, aside from a very limited number of countries in Central Asia that had sub-soil acts which governed both petroleum and mining, no country that I am aware of applied a rate of return based royalty tax to mines. Even in the few Central Asian nations where such taxes were part of the statutory petroleum/mining fiscal regime, mining agreements predominately exempted foreign-invested mines from the rate-of-return based royalty taxes. Since, 2007 a very, very few countries have introduced a form of additional profits based taxes based on rate-of-return (Australia, Liberia). In meetings I held in 2010 with the Liberian tax authority and Ministry of Finance, it was clear that no one in the tax authority knew how to apply the rate of return based surtax royalty. Mines there are just now reopening in that war-torn nation and it will be many years before the surtax becomes applicable. The new mineral resources rent tax (MRRT) tax in Australia, imposed during the high-point in the recent commodity boom price cycle, is highly complex, is currently generating far less income to the government than projected, and is currently under threat of repeal from *The Minerals Resource Rent Tax Repeal and Other Measures Bill 2013* which would abolish the tax from July 1, 2014. Although newly devised, there is substantial pressure to repeal the MMRT or to amend the way in which it is calculated. The MMRT applies only to certain iron and coal mines, not to fertilizer-type minerals.

Implication for fiscal reform

In summary, with regard to the question “**Which types of royalties are common or rare?**” this is, over the long term, often driven by the complexity of tax administration. Simple royalty schemes dominate. Royalties based on units of production are very commonly applied to low-value bulk commodities. *Ad valorem* based royalties, such as those currently applied in Israel, are the most commonly applied royalty type. Royalties based on “taxable income”

or “profits” are applied by few jurisdictions—mainly by sub-national governments in Australia and Canada. Sliding scale “taxable income” based royalties have recently been introduced in Chile and Peru and remain experimental and untested.⁷ Rate-of-return triggered royalties are very rare. Liberia and Australia have recently introduced this type of royalty tax while Papua New Guinea, where the rate-of-return royalty concept was first introduced, has repealed its pioneering additional profits tax in favor of a straight forward *ad valorem* royalty. Liberia is struggling with the implementation of its rate-of-return based surtax royalty, and it remains to be seen whether Australia’s oft criticized rate-of-return based tax will survive the next legislative cycle intact. Kazakhstan which carries a rate-of-return based tax in its statute reportedly exempts mines (but not petroleum projects) from this tax in its negotiated mine agreements. I urge the Committee to take into account the rarity of profit-based royalty in mining industries around the world; it is highly uncommon. Where recently introduced in Peru and Chile it was coupled with eliminating ad-valorem based royalties; in a few countries it was introduced and repealed. I also urge the Committee in its fiscal reform effort to consider tax administration efficiency as an important criterion. Approaches that are complex tend to not only be difficult to administer by both government and tax payers, but may also lead to be time consuming administration and pose litigation challenges when taxpaying mines seek to exploit ambiguities to their favor.

⁷ Chile applies this tax only to very large copper mines. Smaller mines are subject to a different fiscal regime. With the introduction of its new mining tax, Peru repealed its ad valorem royalty.

VII. ADDITIONAL AND EXCESS PROFITS TAXES AND OTHER FORMS OF ROYALTIES

Question: What types of additional and excess profits taxes are applied to mining, and what are their attributes?

Background

With the increase in commodity prices that occurred over the past decade, many governments perceived that companies were earning high levels of profits and could thus pay a greater proportion of their profits to the state. Some nations adjusted their fiscal system by simply increasing royalty rates. At the turn of the century, royalty rates were typically in the 2 or 3 percent range on metallic minerals, today it is not uncommon to see rates of 4 to 6 percent.

Not every mine is highly profitable, however, and high royalty rates can cause marginal mines to close or not be built. For this reason, many major mineral producing nations during the recent run-up in prices left royalty rates essentially unchanged (or little changed). However, a few nations have considered excess and additional profits taxes. In devising an excess or additional profits tax it is important for governments to take great care because if not well devised, they can deter new investment and lead to premature closures of existing operations. Some of the risks include:

- Mineral commodity prices fluctuate more than prices for many other commodities. If the fiscal system takes too great a take in a year when prices are high, the company may have inadequate capital to maintain operations when prices are low. This is exacerbated by the fact that although prices might have declined, obligations to pay back capital costs incurred while prices of equipment were inflated because of an expansion cycle, remain high. This is explained more fully in the section of this report that deals with super-cycles.
- Governments sometimes confuse private sector rates of return with public sector rates of return. What constitutes a reasonable, risk adjusted rate-of-return for a private sector investor is greatly different than the rate-of-return that a government enterprise or bond rate might imply. Rate-of-return based taxes that don't recognize a reasonable private sector rate, can result in capital flight and a lack of new investment.
- Applying too high a discriminatory tax system on the mining sector, can result in domestic investors shifting their capital into other lower tax sectors and in international investors investing in alternative countries.
- Governments can be misled by temporary periods of high prices and profits. Compared to many other sectors, the minerals sector has historically had lower returns than many other sectors such as technology, pharmaceuticals etc.
- Mines have a limited lifespan because their mineral reserves become depleted. Unlike other industries, mining companies must replenish their reserves through exploration or extend the lives of their mines by purchasing costly technologies that allow greater recovery from existing reserves.

With the recent spate of high mineral commodity prices many companies informed their shareholders of record profits. In such an environment, Governments are motivated to look to imposing new forms of taxes. This author has been involved with studies and recommendations for nations seeking to introduce fiscal reforms that impose an excess profits

tax or additional tax on income. However, I should emphasize that the vast majority of nations that I have done fiscal work for, do not consider this option.

Although some mining countries have recently introduced new forms of taxes, as noted above, they are a very small minority. The use of excess profits or additional profits taxes remains the clear exception rather than the norm.

During the early 1980s resource economists argued for the imposition of tax types that would capture resource rents – that amount of money above the amount that a mine needed to pay its bills and to earn a minimum return on its investment. Various schemes to accomplish this were proposed but only a very few nations experimented with them. Papua New Guinea was one of the first to apply this concept with its additional profits tax. Once a minimum rate-of-return was earned an additional tax on profits kicked in. The result was less than ideal and it was told to me by the Papua New Guinea when I was called in to revise their fiscal system that over the twenty years or so that the tax remained law, that only one company paid it and then only for two years. The tax was perceived very negatively by industry and had a dampening effect on exploration investment. When the tax was repealed, exploration investment picked up substantially. More recently both Zambia and Mongolia imposed forms of “excess profits” taxes. Industry reaction was demonstrated by a large drop-off in exploration and investment, and both countries moved quickly to repeal the new taxes. The examples of Papua New Guinea, Zambia and Mongolia teach us that when devising a new tax, great care must be taken so that potential investors are not scared away and current mines are not shuttered. There are only a handful of countries that apply a form of “excess or additional profits” tax.

Implication for fiscal reform

In summary, with the regard to the question **“What types of additional or excess profits taxes are applied to mining, and what are their attributes?”** there are a limited number of approaches that nations have experimented with, some of which were quickly abandoned. Most nations that have applied one of these approaches have been faced with tax administration challenges and achieved far less revenue than projected. Such taxes must be very carefully devised. I urge the Committee to take great care in this regard and to learn from the mistakes of the handful of nations that have experimented with them. The most problematic of the approaches are those based on the imposition of an additional tax once a statutory rate-of-return has been achieved.

Like most nations, Israel does not currently apply an “excess profits” tax on mines. Only a handful of countries have experimented with such taxes and several of these (Ghana, Mongolia, Papua New Guinea, Zambia) have repealed the laws creating them. Several countries (Australia, Chile, Liberia, Peru) have very recently introduced various forms of such taxes but they remain relatively untested. The new Mineral Resources Rent Tax in Australia has especially been subject to attack for its failure to produce expected levels of revenues and for its administrative complexity. In October 2013, the Australian Government released draft legislation set to repeal the Minerals Resource Rent Tax. The *Minerals Resource Rent Tax Repeal and Other Measures Bill 2013* may abolish the tax from July 1 2014, and will be introduced after parliament resumes on November 12, 2012.⁸

⁸ “Australia releases draft legislation repealing mining tax,” October 24, 2013 (Australian Mining)

At the present time, applying “excess profits” taxes to the mineral sector is exceptionally rare. The application of “excess profits” taxes to the oil and gas sector is more common, but the attributes of that sector are significantly different than for mining. This is largely attributable to capital and operating costs of oil and gas projects versus mining projects. Unlike the oil and gas industry whose operating costs are relatively low once a field is developed, mines have continually higher operating costs and lower profit margins which make them exceptionally vulnerable to price downturns. If sufficient profits cannot be earned and saved during times of high prices, a mining operation may need to shutter and close during a price downturn – a proposition that is particularly difficult and potentially damaging in various respects in the Dead Sea in view of its special mining characteristics and the need to continue production at full capacity even when fertilizer prices are depressed. Moreover, unlike an oil or gas operator, which can quickly reopen a shut-in well, it is not a simple nor an inexpensive matter to restart a closed mining operation. Specifically, the Israeli oil and gas industry is a nascent industry. The fiscal regime applied to such a new industry does not have to take into account historical economic performance, whereas any fiscal regime change to an existing industry would have to take into account performance over the entire life of the project.

VIII. IMPLICATIONS OF IMPOSING A NEW ROYALTY ON EXISTING OPERATIONS

In this section, two existing agreements⁹ between the State and mining operations associated with ICL are superficially examined. The intent of the analysis is to determine whether a change in the fiscal system unilaterally applied by the Government to operations under the agreements would pose a litigation risk to the State. All governments have the inherent sovereign right to levy taxes on their mines and to, from time to time, vary the nature of these fiscal systems. However, when a sovereign state enters into an agreement with a company that stabilizes some feature of its fiscal system and then unilaterally abrogates that stabilization assurance, compensation or other forms of relief may be required. I am not an expert in Israeli property rights, constitutional rights, sovereign immunity and contract law, and my opinions and observations are therefore offered as an indication of litigation risk rather than as a formal legal opinion on the merits of potential litigation arguments. Within this context, I begin by examining a rock phosphate agreement followed by a potassium chloride (potash) agreement.

Question: Would unilateral changes by the Government to the Mining Ordinance that affectively abrogates a main purpose of the settlement agreement between the State and ROTEM (rock phosphate agreement) risk the reopening of that settlement to dispute and possible litigation?

In 2010, after a long mediation, a settlement agreement was reached between the State and ROTEM with regard to the calculation of royalty payable under the Mining Ordinance for the mining of rock phosphate. I have examined this settlement agreement, titled “Agreement made and signed on February 15, 2010 between the State and Rotem

⁹ English translations of the underlying agreements (or parts of these agreements) were provided to the author by ICL.

Amfert Negev Ltd. (ROTEM)” to see if the settlement agreement would preclude the State from imposing a revised or additional royalty on ROTEM’s mining of rock phosphate.

The agreement’s preamble states that the approach agreed in the settlement is intended to “fix for the long-term the rate and payment of royalties”.

*“Whereas on the basis of the Mediator's proposal, the parties have reached the agreements set forth in this Agreement and settlement of the Disputes between them, as defined above, as stated, on the basis of a formula that agreed upon **and fixed for the long-term, which will apply to determination of the rate and payment of the Royalties [bold emphasis added], all as set forth in this Agreement.**”*

This concept is repeated and strengthened in section 2 of the Agreement.

2. Validity of the Mines Ordinance and its application to everything pertaining to the relations between the parties to this Agreement

*As stated above in the preamble to this Agreement, this Agreement is designed to settle the Disputes between the parties solely with regard to past debts for Royalties **and with regard to the manner in which the Royalties should be calculated pursuant to the Mines Ordinance.** [bold emphasis added]*

Section 3 removes any doubt that the method of calculation of royalties outlined in the settlement agreement is to apply to not only past royalties due but to future royalty obligations as well.

3.1 *The Royalties to be paid by Rotem to the State under the Mines Ordinance for mining phosphate in the framework of all the mining rights that it received and will receive from the State pursuant to the Mines Ordinance **throughout the entire period of the mining rights (as the case may be) will be according to the basic royalty formula set forth in section 4 of this Agreement [bold emphasis added], will be updated from time to time pursuant to that stated in section 5 of this Agreement, and will be calculated and paid in the manner and at the times set forth in section 7 of this Agreement.***

The royalty to be paid under the Mining Ordinance is 2% of a basis as calculated according to the method detailed under the agreement, which basis is updated periodically according to the method set out in the agreement.

4.1 *In each of the years of this Agreement, the royalty that Rotem will pay to the State in accordance with the Mines Ordinance will be 2% of the amount obtained by multiplying the following: ...*

Without question, the settlement agreement up to this provision has stabilized the basis upon which the royalties are calculated for the period of the mining right.

However, section 11 states:

11.1 *The term of the Agreement will be twenty (20) years from the date of its signing, subject to legislative amendments and changes in the Mines Ordinance, if any.*

11.3 *And it is clarified that this Agreement is based on the provisions of the Mines Ordinance as of the date of the signing of this agreement, and nothing stated in this Agreement in general and in this section 11 in particular will surmount or make conditional any relevant legislative amendment or any amendment made to the Mines Ordinance, if any.*

Section 11 implies that should the Government change the Mining Ordinance, that such changes would apply to ROTEM's operations covered by the agreement. How does one reconcile the agreement's **core purpose** as set out in the preamble "*on the basis of a formula that agreed upon and fixed for the long-term, which will apply to determination of the rate and payment of the Royalties, all as set forth in this Agreement*" and supporting articles with the State's apparent ability under Section 11 to unilaterally modify the settlement through changes to the Mining Ordinance?

In summary, with regard to the question "**Would unilateral changes by the Government to the Mining Ordinance that affectively abrogate the main purpose of the settlement agreement between the State and ROTEM risk the reopening of that settlement agreement to dispute and possible litigation?**" the answer is clearly yes. From a straightforward reading of the provisions of the Agreement between the State and Rotem Amfert Negev Ltd. it is clear that the Agreement clearly states that the operations covered by the Agreement are to be subject to the royalty calculation provisions as set out in the Agreement, that such provisions are not only to be applied at the present but for the future (subject to expiry of term of the operations covered therein). In my opinion, the unilateral imposition by the State of a change to the royalty calculation method, or the imposition of a new or additional royalty (such as an additional profits tax royalty or excess profits tax royalty) under an amended Mining Ordinance would be in contradiction to the settlement agreement preamble terms and provide ROTEM with potential grounds to claim for breach of contract. On the other hand, the State can argue that ROTEM agreed to possible unilateral modification of the agreement (Article 11), but since that article is in contradiction with other sections in the agreement, this presents a clear risk to the Government that the matters resolved through the negotiation of the agreement may again find their way to a dispute settlement process.

The imposition of a new royalty on the operation, such as an additional or excess profits tax royalty, poses a significant litigation risk.

Question: Would the imposition of a new mining tax, or changes to the existing mining royalty system, on potassium chloride operations under the government concession granted to Dead Sea Works Ltd. pose a litigation risk?

The Dead Sea Concession Law, 1961¹⁰ awarded a mining concession to Dead Sea Works Ltd.. The concession law imposed a 5% *ad valorem* type royalty on sales of potassium

¹⁰ Enacted by the Knesset on May 31, 1961. See Dead Sea Concession Law, 1961.

chloride, and contained a provision that “Government can demand a new discussion of the rate of the royalties to be paid for the quantity in excess of the 1,000,000 tons of potassium chloride sold in that Year.”¹¹ Subsequently, production did rise above this amount, and under pressure from the Israeli government a two tiered royalty system was agreed: a 5% rate applying to an initial volume of 1,500,000 tonnes and 10% to production above that volume.¹² However, the amendment act that imposed the new two tier system – known as the “Salt Harvesting Agreement” of July 2012 – also contained a provision that poses a significant risk of intensified arbitral activity. The two relevant provisions are reproduced below.

7. Royalties

- 7.1 *DSW hereby agrees to raise the amount of the royalties to 10% for any quantity of Potassium chloride sold by the company in a given year in excess of 1,500,000 tons. A change in the royalties as stated will apply to a sale in excess of 3,000,000 tons a year, beginning on January 1, 2010, and in excess of 1,500,000 tons a year beginning on January 1, 2012. The complaint in the arbitration that is currently underway in the matter of the royalties will be amended accordingly.*
- 7.2 *If legislation is passed that will change the specific fiscal policy in connection with profits or royalties arising from the mining of minerals at the Dead Sea, including their commercial exploitation (either directly by the State or as a result of the initiatives of others), after the law becomes effective, DSW's agreement pursuant to section 7.1 of this Agreement will not apply with regard to the period in which additional tax is collected as stated in that legislation. **If the aforementioned comes to pass, the subject of raising the royalties that was removed from arbitration due to this agreement will be returned to the arbitration process [bold emphasis added]** and will be deliberated in that framework and the two parties will be entitled, in this matter, to make any claim that they could make prior to the signing of the agreement.*

These provisions should be read on the backdrop of resolution no. 4060 of the Israeli government, which is referenced in the recitals of the Salt Harvesting Agreement, whereby:

“Whereas in the Government Resolution, the government determined that it sees no need at present for making additional changes in its specific fiscal policy in connection with mining the minerals at the Dead Sea, including their commercial exploitation and, therefore, for the time being, it will not initiate, and it will oppose, as the case may be, bills in this matter;”

In summary, with regard to the question “**Would the imposition of a new mining tax, or changes to the existing mining royalty system, on potassium chloride operations under the government concession granted to Dead Sea Works Ltd. pose a litigation**

¹¹ Article 15, Dead Sea Concession Law, 1961.

¹² Article 7, Dead Sea Concession (Amendment No. 2) Law, 1986.

risk?” the answer is yes. Obviously, article 7.2 above poses a substantial risk of a return to arbitration and/or litigation, especially given the government’s statement whereby “*for the time being, it will not initiate, and will oppose*” changes to fiscal policies. Such litigation/arbitration could result in substantial cost to the Government. When determining a compensation award, an arbiter or court would likely be asked to consider direct impacts caused by the changed fiscal system and to additionally consider certain costs associated with the mineral extraction method. This later class of costs is analyzed in the next question.

Question: Is the cost accrued by DSW as a result of its undertakings in the Salt Harvesting Agreement with respect to the salt harvesting project considered "Government Take"?

The Salt Harvesting Agreement has two main components: the royalty provisions discussed in the question above, and the provisions that deal with the method used to dredge or harvest the salt from the Dead Sea evaporation ponds. I understand that each year the water in a specific evaporation pond rises as a result of the operation of DSW. I further understand that from an operational point of view, for the term of the concession, DSW planned to raise the dike surrounding the pond every five years, at an approximate annual cost of ten million dollars, to compensate for the rising water level. I am told that hotels that are located at the shores of an evaporation pond will be damaged if this system continues to be used, and ICL has informed me that DSW is not responsible for the costs associated with such damage. ICL has also informed me that the government desired to maintain the viability of the hotels, and it adopted a salt harvesting plan intended to protect the hotels, at a cost much higher than that of raising the pond dikes every five years. ICL has told me that during the agreement negotiations that DSW was strongly pressured by the government to assume the cost of the government's more expensive plan. ICL has indicated to me that absent such pressure, DSW would have instituted, as would any for-profit company, the lower cost option “dike raising” option.

When a concession holder is requested, coerced to or forced by a government to carry out tasks, or bear costs, that would otherwise be the government's responsibility, or that are meant to advance public or social goals external to what would be necessary to the business of the holder, it can be argued that such costs are also deemed to be "government take" although they are not recorded as revenue by the government. Returning to the extract from the World Bank published book *Mining Royalties* reproduced in a section above, it is clear to the eight world-renowned authors of that volume that “government take” is broader than just direct taxes.

There are, however, two things we do know about the optimum level of taxation. First, the government can take its share of the wealth created by mining either in the form of taxes or in the form of non-pecuniary benefits. The latter are government imposed requirements on mining companies (or voluntary contributions) that raise production costs. For example, the government may require or pressure mining companies to build and maintain roads in remote regions that are used by the general public as well as for mining. It may force or otherwise encourage companies to provide

schools, hospitals, and other social services in areas surrounding a mine. It may insist that companies use local suppliers or domestic workers, or that down-stream processing be done domestically. The more such requirements increase production costs, the smaller are the benefits the government can reap in the form of tax revenues, and hence the lower is the optimal level of taxation.

In summary, with regard to the question “**Is the additional cost accrued by DSW as a result of its undertakings in the Salt Harvesting Agreement with respect to the salt harvesting project considered "Government Take"?**” the answer is that an arbiter or court could find such costs compensable on the grounds that they represent either a form of government take or an otherwise compensable cost. These costs—arguably an indirect form of taxation—are borne by DSW; they not only are expenses that reduce the level of corporate or similar tax levied on the concessionaire, but are also in and of themselves a form of government take. Had DSW not paid the additional costs associated with a non-optimal mineral recovery method, the Government would have probably provided direct relief to the hotels. Thus, the government could either have structured the agreement to provide for higher taxes on the operations from which the government could have addressed the hotel situation itself or chosen the approach in the agreement, to require DSW to use a more costly operations method to extract the minerals thereby obviating the government’s need for it to deal directly with the hotel problem. Based on the above, it is my opinion that an arbiter or court may likely conclude that the difference in cost between the dike solution and the salt harvesting solution is categorized as a government take or otherwise compensable cost.

Implication for fiscal reform

I do not know whether fiscal reform would pose a similar litigation and arbitration risk in other mining concessions as is apparent in the two agreements analyzed above, but dealing with such litigation risk can be quite expensive and time consuming for the government. It is for this reason that many governments apply new fiscal measures to new concessions but renegotiate, exempt or otherwise “grandfather” existing concessions from new measures if such concessions in some way enjoy fiscal stabilization protection or other legal means to preserve the status quo or be compensated. In estimating gains to be made through fiscal reform it is also important to understand the costs that Government may incur.

In my experience, it is often to the benefit of all parties to grandfather or renegotiate a state / private party fiscal agreement rather than for government to risk protracted legal proceedings by taking unilateral action. Take for instance the case of Chile. At the time that it created its new additional mining tax on large copper mines, most of the large copper mines had time-limited fiscal stabilization agreements in place. Rather than risk litigation, the Government provided several options for the affected companies that allowed both the Government and the companies to avoid litigation. Likewise, when the government of Peru was faced with litigation by those having fiscal stabilization agreements after it levied a new ad valorem royalty (around 2002), it encouraged companies to pay on a voluntary basis and provided incentives for them to do so. It followed this same successful strategy with its new operating margin based tax that replaced its ad valorem royalty. In both Peru and Chile, new mines are subject to the new royalty schemes.

I would urge the Committee to determine to what extent existing concessions and agreements preclude the imposition of a new or revised royalty or would pose a liability or arbitration

risk. I am not an expert in Israeli mining concessions and have only read a few concessions but those I have read clearly indicate a high litigation risk.

IX. CONCLUDING STATEMENT

The opinions and observations appearing this report are my own, based on my experience and expertise described above.

Signature:



James M. Otto

Boulder, Colorado, USA

Date: November 4, 2013

ANNEX A: JAMES M. OTTO - CURRICULUM VITA

1. Expertise: Legal, Regulatory and Fiscal Expert (Mining)

2. Name of Firm: Independent consultant

3. Name: James M. Otto

4. Date of birth: 10/02/1954 **Nationality:** USA

5. Education

Institution	Degree(s) or Diploma(s) obtained:
College of Law, University of Denver, 1982	Juris Doctorate
Colorado School of Mines, 1983	Master of Science – Mineral Economics
University of Colorado, 1976	Bachelor of Science – Civil Engineering

6. Membership of Professional Associations

- Rocky Mountain Mineral Law Foundation,

7. Other Training

-

8. Countries of Work Experience (details of assignments see below):

Has undertaken assignments in or for clients in over 60 nations. Examples include:

Argentina, Bolivia, Botswana, Brunei Darussalam, Canada, Central African Republic, Chile, China, Colombia, Denmark, DR Congo, Dominican Republic, Ecuador, Egypt, El Salvador, Eritrea, Finland, Fiji, Ghana, Greenland, Guatemala, Guinea, India, Indonesia, Japan, Jordan, Kyrgyz Republic, Laos, Liberia, Madagascar, Malaysia, Mexico, Mongolia, Mozambique, Myanmar, Namibia, Nigeria, Papua New Guinea, Peru, Philippines, Poland, Romania, Russia, Saudi Arabia, Sierra Leone, Slovakia, Solomon Islands, South Africa, South Korea, Sudan, Switzerland, Tajikistan, Thailand, Trinidad & Tobago, United Kingdom, United States, Uruguay, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe and others.

A full listing of projects is available upon request.

9. Languages (good, fair, or poor)

Language	Speaking	Reading	Writing
English	Mother tongue	Mother tongue	Mother tongue

10. Employment Record

Date: from - to	1987 – present
Employer	Independent consultant (United Nations, World Bank, IFC, numerous governments, mining companies and other clients)

Position held	Natural Resources Law and Mineral Economics Consultant
Description	Review and draft mining laws, regulations and mineral agreements; analyze mining sector fiscal systems; prepare materials, training programs, financial analysis software for mineral project negotiations; etc. (Australia, Brunei, Canada, Chile, China, Central African Republic, Colombia, Egypt, El Salvador, Eritrea, Greenland, Indonesia, Japan, Madagascar, Mali, Madagascar, Mozambique, Namibia, Nigeria, the Philippines, Romania, Russia, Saudi Arabia, Sierra Leone, South Africa, Switzerland, Thailand, Yemen, Zambia and many others)

Date: from - to	1996 – 2007
Employer	College of Law, University of Denver, USA
Position held	Director of Graduate Studies (and Professor), Advanced Degree Programs in Natural Resources and Environmental Law
Description	Responsible for founding, establishing and implementing the masters level programs and courses. At time of departure, the program was the largest natural resources law program in the Americas.

Date: from - to	1996 – 2005
Employer	Institute for Global Resources Policy, Colorado School of Mines, USA
Position held	Director and Research Professor
Description	Responsible for the founding and development of this Institute which provided an international group of natural resources experts available to mobilize for natural resources projects worldwide. (dual appointment with above position)

Date: from - to	1996-2000
Employer	Battlefield Minerals
Position held	Non-Executive Director
Description	One of two external directors of this Canadian junior exploration and mining company. Operations include gold mining in Zimbabwe and exploration activities in Africa, Asia and the Pacific.

Date: from - to	1991-1995
Employer	Centre for Petroleum and Mineral Law and Policy, University of Dundee, Scotland
Position held	Assistant Director and RTZ Senior Lecturer
Description	Responsible for the establishment of a multidisciplinary program in mineral and environmental economics, law and policy and co-ordination of teaching, research and consultancy services related to mineral investment and taxation. At departure, this program was the largest natural resources law program in the world.

Date: from - to	1989-1991
Employer	United Nations DTCD
Position held	Chief Technical Advisor

Description	Coordinator and chief economist/legal advisor for project to develop the Malaysian National Mineral Policy, mining laws (including environmental protection and reclamation), long-term development strategy and new mineral sector fiscal and regulatory system. Other UN staff work throughout the Asia/Pacific region.
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Date: from - to	1985-1989
Employer	Mineral Policy Program, East-West Center
Position held	Project Fellow
Description	Coordinator of the Asia-Pacific Mineral Trade and Investment Project. Worked with international staff to develop and teach mineral and financial analysis training courses, evaluated economics of deposits, developed the Asia-Pacific Minerals Information System, analyzed regional minerals production and trade patterns, and assisted Asia-Pacific governments in resource assessment, financial analysis, fiscal analysis, and mineral, energy and environmental policy development activities.

11. Detailed Tasks Assigned	Work Undertaken
Attorney	<p>Name of assignment or project: Expert’s Opinion for ICSID Arbitration Proceedings (El Salvador)</p> <p>Year: 2013</p> <p>Location: Home base</p> <p>Client: FOLEY HOAG LLC</p> <p>Main project features: Prepare Expert’s Opinion</p> <p>Narrative Description of Project: The Government of El Salvador is currently involved in an international arbitration pertaining to a mining project. Its legal counsel requested a legal opinion be prepared for presentation to the arbiters.</p> <p>Positions held: Expert in mining law (and potential expert witness)</p> <p>Activities performed: prepared Legal Opinion</p>
Attorney	<p>Name of assignment or project: National Mining Policy (Solomon Islands)</p> <p>Year: 2013</p> <p>Location: Home base</p> <p>Client: Ministry of Mines, Energy and Rural Electrification (World Bank support)</p> <p>Main project features: Draft National Mining Policy</p> <p>Narrative Description of Project: The Solomon Islands does not have a mining policy but needs a policy to guide mineral sector regulatory reform. Stakeholder engagements were held by the Government during 2012-2013 to identify issues and approaches.</p> <p>Positions held: Lead attorney working in collaboration with MMERE</p> <p>Activities performed: drafted the Solomon Islands National Mineral Policy for consideration by its Cabinet</p>

11. Detailed Tasks Assigned	Work Undertaken
Attorney	<p>Name of assignment or project: Mineral Resources Development Authority Act (Solomon Islands)</p> <p>Year: 2012-2013</p> <p>Location: Home base, Honiara</p> <p>Client: Ministry of Mines, Energy and Rural Electrification (World Bank support)</p> <p>Main project features: Draft an act to create a Mineral Resources Development Authority</p> <p>Narrative Description of Project: The Solomon Islands would like to transition its mineral sector regulation from a civil service approach to a regulatory authority approach. This bill would create a Mineral Resources Development Authority and amend the mining act to provide for such an Authority</p> <p>Positions held: Lead attorney working in collaboration with MMERE</p> <p>Activities performed: draft act prepared in 2012, final act to be submitted in 2013</p>
Attorney	<p>Name of assignment or project: Review of the Mining Act 1992 Regulations and the Development of the Revised Papua New Guinea Mining Act Regulations</p> <p>Year: 2012-2013</p> <p>Location: Home base, Port Moresby and various locations in Papua New Guinea</p> <p>Client: Department of Mineral Policy and Geohazards Management (DMPGM) and Minerals Resources Authority</p> <p>Main project features: prepare regulations to support draft mining law</p> <p>Narrative Description of Project: The PNG government has neared completion of a revised mining law and requires regulations to support that law. The project is designed to prepare such regulations and to seek stakeholder engagement before they are finalized</p> <p>Positions held: Lead attorney working in collaboration with DMPGM</p> <p>Activities performed: substantive work to commence in early 2013</p>
Attorney Mineral Economist	<p>Name of assignment or project: Review of Simandou Iron Ore Project Legal and Fiscal Arrangements (Guinea)</p> <p>Year: 2013</p> <p>Location: Home base</p> <p>Client: Government of Guinea in association with SNR Denton</p> <p>Main project features: prepare fiscal analysis reports</p> <p>Narrative Description of Project: Rio Tinto and its partners may soon commence construction of one of the world's largest iron ore mines. The arrangements between the company and government are complex and were negotiated and modified over a ten year period. The Government has implemented a process to review all negotiated agreements including the Simandou agreement, and this project is intended primarily to evaluate the fiscal arrangements.</p> <p>Positions held: Attorney / Economist working in collaboration with a team</p> <p>Activities performed: Prepare report</p>
Attorney	<p>Name of assignment or project: Mineral Sector Review Project (Kazakhstan)</p> <p>Year: 2012</p> <p>Location: home base</p> <p>Client: CMAL</p>

11. Detailed Tasks Assigned	Work Undertaken
	<p>Main project features: review the current mineral sector and prepare a master plan to enhance its development</p> <p>Narrative Description of Project: Kazakhstan possesses highly attractive geology yet development of its mining sector has lagged behind its potential. This project was to identify ways in which Kazakhstan can attract investment and achieve its mineral sector potential</p> <p>Positions held: Attorney working in collaboration with CMAL team</p> <p>Activities performed: assist in preparation of CMAL report by identifying impediments to mineral sector investment in Kazakhstan</p>
<p>Attorney</p>	<p>Name of assignment or project: Mineral Sector Review Project (Solomon Islands)</p> <p>Year: 2012</p> <p>Location: Honiara (Solomon Islands) and home base</p> <p>Client: Ministry of Mines, Energy and Rural Electrification (World Bank support)</p> <p>Main project features: review the mineral sector regulatory and fiscal system</p> <p>Narrative Description of Project: The Solomon Islands has known minerals resources but for a variety of reasons has only one small mine. The project examined the regulatory, fiscal system and governing institutions and made recommendations. A central part of the project was to examine options that would bridge challenges between land owners and miners.</p> <p>Positions held: Mineral Policy Advisor</p> <p>Activities performed: prepared the strategic plan for mineral sector regulatory reform and drafted selected mining law and fiscal system legislation for immediate reforms</p>
<p>Attorney</p>	<p>Name of assignment or project: Institutional Analysis of the Department of Mining - Bougainville Autonomous Region (Papua New Guinea)</p> <p>Year: 2012</p> <p>Location: Bougainville, Port Moresby and home base</p> <p>Client: ASI (for government of PNG)</p> <p>Main project features: prepare a master plan to develop a mineral sector regulatory structure and geological survey for the autonomous region of Bougainville</p> <p>Narrative Description of Project: The autonomous region of Bougainville once hosted one of the world's largest copper mines. A conflict emerged resulting in the region breaking away from central government. A peace accord was signed establishing certain autonomous functions for the region including being able to regulate its mineral sector. This project recommended the institutional structures that would be necessary to regulate the mineral sector.</p> <p>Positions held: Attorney working in collaboration with ASI team</p> <p>Activities performed: assist in preparation of institutional master plan, conduct workshops, liaise with central government</p>
<p>Mineral Economist</p>	<p>Name of assignment or project: Mine Fiscal Model Project (Mozambique)</p> <p>Year: 2011 - 2012</p> <p>Location: Maputo (Mozambique) and home base</p> <p>Client: World Bank/Ministry of Mines (MIREM)/Ministry of Finance</p> <p>Main project features: prepare large mine fiscal model, fiscal aggregation mode and</p>

11. Detailed Tasks Assigned	Work Undertaken
	<p>training</p> <p>Narrative Description of Project: Mozambique has a number of large mines being built that will add significantly to national tax receipts. It requires a fiscal model of each large mine so as to better project future revenues flows from them. Additionally, the Ministry of Finance required a means by which aggregate annual fiscal flows from the mining sector and to estimate future sector revenues.</p> <p>Positions held: Mineral Economist</p> <p>Activities performed: a generic large mine fiscal model was prepared based on the statutory fiscal system and then modified in hands-on technical training courses to reflect mining agreement terms. Officers were also trained in the use of a mineral sector fiscal aggregation system.</p>
Attorney	<p>Name of assignment or project: Prepare Petroleum Legislation</p> <p>Year: 2011 – 2012</p> <p>Location: Bandar Seri Begawan, Brunei and homebase</p> <p>Client: Gaffney, Cline & Associates (contractor to Brunei Darussalam)</p> <p>Main project features: prepare petroleum sector related legislation</p> <p>Narrative Description of Project: Brunei is a petroleum producer and has a need to more closely monitor and receive data from oil and gas exploration companies. The Consultant joined, as lead attorney, a team of technical experts from Gaffney, Cline & Associates, from the ministry responsible for petroleum affairs and the Attorney General’s office to prepare suitable legislation.</p> <p>Positions held: Lead attorney.</p> <p>Activities performed: preparation of petroleum legislation.</p>
Attorney / Mineral Economist	<p>Name of assignment or project: Legal and Fiscal Training courses</p> <p>Year: 2011</p> <p>Location: Denver and Salt Lake City, USA</p> <p>Client: mining company (confidential)</p> <p>Main project features: conduct training courses for in-house attorneys and tax officers</p> <p>Narrative Description of Project: The client is one of the “big 5” mining companies, and has operations all around the globe. It requested courses on trends in mining legal and fiscal systems for its senior attorneys and tax officers. Additionally, a special fiscal session was held for the benefit of government officers from a country in which the client has a major mine.</p> <p>Positions held: Instructor</p> <p>Activities performed: prepared and presented global legal and fiscal workshops.</p>
Economist	<p>Name of assignment or project: Analysis of Namibian Mineral Sector Fiscal System</p> <p>Year: 2011</p> <p>Location: home base</p> <p>Client: mining company (confidential)</p> <p>Main project features: prepare analysis of Namibian mineral sector fiscal system</p> <p>Narrative Description of Project: The client was studying the possibility of a major investment in Namibia. The government was proposing changes to the tax system and the company need to better understand the implication of the existing and proposed fiscal</p>

11. Detailed Tasks Assigned	Work Undertaken
	<p>system, to have a basis for discussions with the Ministry of Finance.</p> <p>Positions held: Mineral Economist</p> <p>Activities performed: prepare reports on the Namibian mineral sector fiscal system.</p>
<p>Attorney</p>	<p>Name of assignment or project: Update of Legal and Regulatory Framework for Mining (Mozambique)</p> <p>Year: 2011</p> <p>Location: Maputo (Mozambique) and home base</p> <p>Client: World Bank/Ministry of Mines (MIREM)</p> <p>Main project features: prepare analysis and approaches for mineral sector fiscal reform</p> <p>Narrative Description of Project: Mozambique required an update of its National Mineral Policy, Mining Law, Mineral Title Regulations, Mine Taxation Law, Environmental Mining Regulations and other key legislation. James Otto, who drafted the original legislation around 2000, was requested to prepare suitable amendments.</p> <p>Positions held: Senior Lawyer</p> <p>Activities performed: prepared revised mining legislation in cooperation with government counterparts, participated in stakeholder engagement and briefed senior government officers on report results. Conducted specialized workshops for government officers.</p>
<p>Attorney Economist</p>	<p>Name of assignment or project: Mineral Fiscal Policy and Royalty Reforms in Mexico Project</p> <p>Year: 2011</p> <p>Location: Mexico City and home base</p> <p>Client: World Bank/Ministry of Economia</p> <p>Main project features: prepare analysis and approaches for mineral sector fiscal reform</p> <p>Narrative Description of Project: Mexico mines a variety of minerals many of which were selling at record high prices. The government was interested in an assessment of its current system and alternatives. An analysis of the pros and cons of a variety of different fiscal system reforms was required.</p> <p>Positions held: Attorney/Economist</p> <p>Activities performed: prepare reports in cooperation with World Bank and government counterparts, participate in stakeholder engagement and brief senior government officers on report results.</p>
<p>Attorney Economist</p>	<p>Name of assignment or project: Prepare Fiscal System Report (Peru)</p> <p>Year: 2011</p> <p>Location: Lima (Peru) and homebase</p> <p>Client: Ministry of Economy and Finance</p> <p>Main project features: prepare a report on mineral sector fiscal options</p> <p>Narrative Description of Project: The Peruvian government was under pressure to reform its mineral sector fiscal system and a number of bills had been introduced to do so. An analysis of the pros and cons of a variety of different fiscal system reforms was required. Workshops were held with senior government officers in the ministries of finance and mines, and with the President's economic advisory team.</p> <p>Positions held: Attorney/Economist</p> <p>Activities performed: prepare report and computer model assessing fiscal options, brief</p>

11. Detailed Tasks Assigned	Work Undertaken
	ministries and President’s economic advisory team and hold workshops for stakeholders.
Attorney	<p>Name of assignment or project: Review Draft Bolivian Mining Law</p> <p>Year: 2011</p> <p>Location: work from homebase</p> <p>Client: private client</p> <p>Main project features: review draft Bolivian mining code</p> <p>Narrative Description of Project: The Bolivian government has drafted a mining code and was seeking stakeholder input. A private client requested a thorough review of the draft code to support its submissions to the government. The client currently is contemplating building a mine in the country.</p> <p>Positions held: Attorney</p> <p>Activities performed: review the draft mining code and make recommendation to improve it.</p>
Attorney Economist	<p>Name of assignment or project: Fiscal Specialist for the Konimansur Project</p> <p>Year: 2010 / 2011</p> <p>Location: Tajikistan (work from homebase)</p> <p>Client: International Finance Corporation</p> <p>Main project features: Provide advice on a mining agreement to be used in tendering a large silver deposit in Tajikistan.</p> <p>Narrative Description of Project: The IFC was retained by the Tajik government to assist in the tendering of a large silver deposit. A mining agreement will be set out which the winner of the tender must agree to abide by.</p> <p>Positions held: Attorney / Fiscal Expert</p> <p>Activities performed: review the draft agreement and make recommendation on the fiscal system and on stabilization issues</p>
Attorney Economist	<p>Name of assignment or project: Iron Ore Negotiations Support</p> <p>Year: 2010 / 2011</p> <p>Location: Liberia</p> <p>Client: Government of Liberia</p> <p>Main project features: Train government negotiators, review legal system, provide iron ore negotiations fiscal model, prepare model mining agreement, support negotiations processes, prepare roadmap for legislative reform.</p> <p>Narrative Description of Project: Liberia has substantial deposits of iron ore. After years of internal strife it is now ready to seek new foreign investors and to reassess exiting investors to develop these resources. Lacking internal expertise, an expert was required to build negotiations capacity, review and recommend reforms to the mining law and regulatory system, review and propose changes to the fiscal system, develop fiscal software, train officials.</p> <p>Positions held: Attorney / Transactions Specialist</p> <p>Activities performed: (see description above)</p>

11. Detailed Tasks Assigned	Work Undertaken
Risk Analysis	<p>Name of assignment or project: Country Risk Analysis Workshop</p> <p>Year: 2010</p> <p>Location: Arizona, USA</p> <p>Client: mining company (confidential)</p> <p>Main project features: Lead exploration managers in a country risk assessment workshop</p> <p>Narrative Description of Project: This multi-national mining company has operations in many nations and requested assistance in methods to assess country risk and prospectivity.</p> <p>Positions held: Risk Analyst</p> <p>Activities performed: (see description above)</p>
Mineral Economist Attorney	<p>Name of assignment or project: Assist mining agreement negotiation</p> <p>Year: 2010</p> <p>Location: Ecuador (from home base)</p> <p>Client: private mining company</p> <p>Main project features: Assist in development of negotiations strategy and tools to negotiate</p> <p>Narrative Description of Project: A major mine is planned for development in Ecuador. A new mining law was recently passed requiring a mining agreement. Since the law is new there is no precedent how some issues can be resolved. To assist in better understanding fiscal issues a fiscal mine model was developed that can be used by the parties to grasp the significance of different approaches. Additionally, other issues were identified to guide the negotiations.</p> <p>Positions held: mineral economist and lead attorney</p> <p>Activities performed: (see description above)</p>
Mineral Economist Attorney	<p>Name of assignment or project: Draft New Mining Law and Devise Minerals Sector Fiscal System</p> <p>Year: 2010</p> <p>Location: Southern Sudan</p> <p>Client: Adam Smith International for the Government of Southern Sudan</p> <p>Main project features: Develop a new mining law, mineral title regulations, community development regulations, model mining agreement, mineral sector fiscal system</p> <p>Narrative Description of Project: A peace accord was signed between the North and South of Sudan and provides that certain matters in Southern Sudan may be governed by it, at least until an independence referendum is held. The assignment will provide S. Sudan with the means to regulate mines in S. Sudan. Through a series of stakeholder engagement activities including but not limited to meetings with many government departments, the regulatory and fiscal system framework policy was decided then the law was drafted. Training was incorporated throughout. The work was done as part of a larger project managed by Adam Smith International.</p> <p>Positions held: mineral economist and lead attorney</p> <p>Activities performed: (see description above)</p>

11. Detailed Tasks Assigned	Work Undertaken
<p>Mineral Economist Attorney</p>	<p>Name of assignment or project: Draft New Coal Mining Law and Devise Minerals Sector Fiscal System Year: 2010 Location: Southeast Asia Client: Southeast Asian Nation (confidential) Main project features: Develop a new coal mining law, model coal investment agreement, mineral sector fiscal system, and computer model of the fiscal system Narrative Description of Project: This nation’s mining law was almost a century old and needed replacement. Additionally, the mining sector fiscal system was ill-understood. Through a series of stakeholder engagement activities including but not limited to meetings with many government departments, the regulatory and fiscal system framework policy was decided then the law was drafted. Training was incorporated throughout. Positions held: mineral economist and lead attorney Activities performed: (see description above)</p>
<p>Attorney</p>	<p>Name of assignment or project: Model Community Development Agreement and Guidelines Year: 2009 - 2010 Location: homebase & other locations Client: World Bank Group Main project features: Develop model community development agreement regulations and guidelines Narrative Description of Project: Companies are concerned with the ability of mines to obtain a social licence to operate and nations and communities have an interest in having mines play a positive role in local development. Model regulations and guidelines were drafted that a government can adopt after modification to suit national circumstances. Stakeholder engagement guided the process. Positions held: lead attorney Activities performed: (see description above)</p>
<p>Mineral economist</p>	<p>Name of assignment or project: Framework for Analyzing Copper Industry Investment Year: 2009 Location: homebase Client: International Copper Study Group Main project features: Develop a framework for analyzing criteria that impede the development of copper projects Narrative Description of Project: The ICSG is interested in gaining a better perception about legal, tax and other factors that affect investment in the global copper industry. The study will develop an analytical framework to assist in this effort. Positions held: mineral economist Activities performed: (see description above)</p>

11. Detailed Tasks Assigned	Work Undertaken
Mining law consultant	<p>Name of assignment or project: Mining law drafting assistance (Trinidad & Tobago)</p> <p>Year: 2009</p> <p>Location: Freetown, Trinidad</p> <p>Client: Ministry of Energy and Energy Resources</p> <p>Main project features: Draft new mining law, geological survey law, mine and quarry regulation, oil sands regulations</p> <p>Narrative Description of Project: work with the national drafting team to overhaul the suite of laws that regulate the mineral sector</p> <p>Positions held: Attorney</p> <p>Activities performed: (see description above)</p>
Mining agreement	<p>Name of assignment or project: Assist mining agreement negotiations (Jordan)</p> <p>Year: 2009</p> <p>Location: Homebase</p> <p>Client: Jordan Energy and Mining Ltd</p> <p>Main project features: Provide legal backstopping for the negotiation of new mining agreement pertaining oil shale</p> <p>Narrative Description of Project: generally assist in providing information on detailed negotiation issues</p> <p>Positions held: Attorney</p> <p>Activities performed: (see description above)</p>
Mining agreement consultant	<p>Name of assignment or project: Assist mining agreement negotiations (Kyrgyz Republic)</p> <p>Year: 2009</p> <p>Location: Homebase</p> <p>Client: Allen & Overy , Moscow</p> <p>Main project features: Provide legal backstopping for the negotiation of new mining agreements pertaining to the Kumtor gold mine in the Kyrgyz Republic (government side)</p> <p>Narrative Description of Project: assist with analyzing existing legal arrangements, provide insight into best mining agreement practice, generally assist in providing information on detailed negotiation issues</p> <p>Positions held: Attorney</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Draft New Mining Law for Sierra Leone</p> <p>Year: 2009</p> <p>Location: Freetown, Sierra Leone</p> <p>Client: Adam Smith International / Ministry of Mineral Resources</p> <p>Main project features: Narrative Description of Project: meet with Ministerial and departmental heads, other stakeholders, draft new national mining law</p> <p>Positions held: Attorney</p> <p>Activities performed: (see description above)</p>

11. Detailed Tasks Assigned	Work Undertaken
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Review of Draft Ghanaian Mining Regulations and Fiscal System</p> <p>Year: 2008-2009</p> <p>Location: Accra, Ghana</p> <p>Client: Minerals Commission</p> <p>Main project features: Narrative Description of Project: review mining and fiscal regulations, prepare micro and macro mine models, make recommendations for reform, conduct stakeholder workshops</p> <p>Positions held: Project manager / attorney / economist</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Mining Policy and Legal Reform Stakeholders Workshop</p> <p>Year: 2008</p> <p>Location: Finland</p> <p>Client: Northern Institute for Environmental and Minority Law</p> <p>Main project features: Narrative Description of Project: review optimal mining policy and law reform procedures in stakeholder workshop, advise impacted communities</p> <p>Positions held: Consultant</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Review of Alaska State Mining Law & Fiscal System</p> <p>Year: 2008</p> <p>Location: Alaska Client: Alaska State Government</p> <p>Main project features: Narrative Description of Project: review existing mining law and fiscal system, make recommendations for reform, conduct stakeholder workshops</p> <p>Positions held: Project manager / attorney / economist</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Draft Mining Laws and Mining Regulations for Egypt and Yemen</p> <p>Year: 2008</p> <p>Location: Egypt / Yemen</p> <p>Client: IFC</p> <p>Main project features: Draft new mining law and mining regulations (including those for cadastre)</p> <p>Positions held: Project Manager / attorney</p> <p>Activities performed: Draft new mining law and mining regulations for Egypt and Yemen (including those for cadastre), draft model mining agreement for Egypt, lead in-country workshops</p>

11. Detailed Tasks Assigned	Work Undertaken
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Review of Sierra Leone Draft Mining Law</p> <p>Year: 2007 - 2008</p> <p>Location: home base</p> <p>Client: Adam Smith International</p> <p>Main project features: review proposed mining law and regulations of Sierra Leone</p> <p>Positions held: Attorney</p> <p>Activities performed: review draft mining law and regulations (including those for cadastre), prepare chapter in report including recommendations</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Review of Central African Republic Mining Fiscal System</p> <p>Year: 2008</p> <p>Location: Central African Republic</p> <p>Client: World Bank (through Wardell Armstrong)</p> <p>Main project features: review proposed current mining fiscal system, make recommendations for reform, present findings at meetings/workshop in Bangui</p> <p>Positions held: Mineral economist</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Guinea - Mineral Sector Strategy Advisor</p> <p>Year: 2006-2007</p> <p>Location: Guinea</p> <p>Client: Ministry of Mines</p> <p>Main project features: develop strategy for the renegotiation of Guinea's existing mining agreements</p> <p>Positions held: National Mineral Policy Advisor Project manager (lead strategist)</p> <p>Activities performed: led effort to develop the government's strategy to renegotiate existing mining agreements, prepare report, negotiations training, workshops</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Review of Mining Fiscal System in Romania</p> <p>Year: 2007-2010</p> <p>Location: home-base</p> <p>Client: private client (confidential)</p> <p>Main project features: review mining fiscal system in Romania</p> <p>Positions held: Project manager, economist</p> <p>Activities performed: review fiscal system, model fiscal system, prepare report, provide policy advice, participate in stakeholder engagement activities.</p>

11. Detailed Tasks Assigned	Work Undertaken
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Review of Mining Fiscal Systems in Four South-East Asian Nations</p> <p>Year: 2007</p> <p>Location: Indonesia, Laos, Philippines, Vietnam</p> <p>Client: Japan Oil, Gas and Metals National Corporation (JOGMEC)</p> <p>Main project features: review mining fiscal systems in Indonesia, Laos, Vietnam, Philippines</p> <p>Positions held: Project manager, mineral economist</p> <p>Activities performed: review fiscal systems, prepare fiscal models, prepare report</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Review of Egypt’s Mining Law, Regulations, Mining Model Mining Agreements and Fiscal System</p> <p>Year: 2007</p> <p>Location: Egypt</p> <p>Client: IFC</p> <p>Main project features: review existing mining law, regulations, agreements and fiscal system as a prelude to mineral sector reform effort</p> <p>Positions held: Attorney and mineral economist (through CMAL)</p> <p>Activities performed: review existing mining law, regulations (including mineral title regulations), agreements and fiscal system; prepare reports, participate in government and stakeholder workshops; recommend reforms</p>
Lawyer, consultant	<p>Name of assignment or project: Review of Yemen’s Mining Law, Mining Model Mining Agreement and Fiscal System</p> <p>Year: 2007</p> <p>Location: Yemen</p> <p>Client: IFC</p> <p>Main project features: review existing mining law, regulations agreements and fiscal system as a prelude to mineral sector reform effort</p> <p>Positions held: Attorney and mineral economist (through CMAL)</p> <p>Activities performed: review existing mining law, regulations (including mineral title regulations), agreements and fiscal system; prepare reports, participate in government and stakeholder workshops; recommend reforms</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Mozambique Model Mining Agreement and Fiscal Model for Negotiations</p> <p>Year: 2006 - 2007</p> <p>Location: Mozambique</p> <p>Client: Ministry of Mineral Resources and Energy</p> <p>Main project features: prepare model mining agreement, fiscal model and training</p> <p>Positions held: Project manager</p> <p>Activities performed: prepared model agreement suitable for large mines, developed fiscal model to support the agreement, trained government team to negotiate with the agreement and model</p>

11. Detailed Tasks Assigned	Work Undertaken
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Mineral sector fiscal system analysis</p> <p>Year: 2006 - 2007</p> <p>Location: Zambia</p> <p>Client: World Bank</p> <p>Main project features: as part of a team, prepared analysis of the mineral tax system</p> <p>Positions held: Attorney and mineral economist</p> <p>Activities performed: participated as part of a World Bank team to advise the government on possible reforms so that the nations can achieve higher returns from existing and new mines</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Mineral sector fiscal system analysis and fiscal negotiations model</p> <p>Year: 2007</p> <p>Location: Eritrea</p> <p>Client: Ministry of Mines & Geology</p> <p>Main project features: prepare analysis of the mineral tax system and provide a fiscal negotiations computer model</p> <p>Positions held: Project manager / economist</p> <p>Activities performed: developed fiscal model to support the Eritrean model mine agreement (see below), trained government team to negotiate with the agreement and model</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Model Mining Agreement Development</p> <p>Year: 2007</p> <p>Location: Eritrea</p> <p>Client: Ministry of Energy and Mines</p> <p>Main project features: draft model mining agreement and provide negotiations training</p> <p>Positions held: Project manager / attorney</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Prepare Nigerian model mineral agreement</p> <p>Year: 2006</p> <p>Location: Nigeria</p> <p>Client: Ministry of Solid Minerals Development</p> <p>Main project features: advisory services to government: prepare model mineral agreement (supplement to mining law type), Positions held: Project manager</p> <p>Activities performed: (see description above)</p>

11. Detailed Tasks Assigned	Work Undertaken
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Prepare Nigerian Mineral Title Regulations</p> <p>Year: 2006</p> <p>Location: home-base</p> <p>Client: Ministry of Solid Minerals Development</p> <p>Main project features: advisory services to government - prepare the mineral title regulations (including cadastre) to be used under the new mining act</p> <p>Positions held: Project manager / attorney</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Train Mining Agreement Negotiation Team</p> <p>Year: 2006</p> <p>Location: Guinea</p> <p>Client: Ministry of Mines Geology</p> <p>Main project features: advisory services to government - 1) to present a two day mining policy, law, agreement review to senior government, 2) to train the government mining agreement negotiating team in negotiating skills, agreement terms and the use of financial models</p> <p>Positions held: Project manager / attorney /economist</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: India’s National Mineral Policy: Recommendations for Reform</p> <p>Year: 2006</p> <p>Location: India / home base</p> <p>Client: private client</p> <p>Main project features: prepared an in depth analysis of the Indian national mineral policy and recommendations for reform to be provided to industry and government as foundation for discussions</p> <p>Positions held: Project manager</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: : Detailed Analysis of India’s Mining Law and Regulations and Recommendation for Reform</p> <p>Year: 2005</p> <p>Location: India / home base</p> <p>Client: private client</p> <p>Main project features: prepared an in depth analysis of the Indian mining law and regulations and recommendations for reform to be provided to industry and government as foundation for discussions</p> <p>Positions held: Project manager / attorney</p> <p>Activities performed: Analyze India’s mining law, regulations, prepare report, participate in workshop</p>
Mining policy, law,	<p>Name of assignment or project: Assessment of Mineral Processing Agreement</p>

11. Detailed Tasks Assigned	Work Undertaken
and fiscal system expert, consultant	<p>Year: 2006</p> <p>Location: confidential</p> <p>Client: World Bank</p> <p>Main project features: review draft mineral processing agreement from legal and economic perspectives</p> <p>Positions held: Project manager / attorney / economist</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Strategic Advisor to Mining Company for Negotiating Mining Agreement</p> <p>Year: 2006</p> <p>Location: central Asia</p> <p>Client: confidential</p> <p>Main project features: provide strategic advice to support negotiations effort as required for a multi-billion mining project</p> <p>Positions held: Project manager / attorney</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Analysis of Bolivia's Mineral Taxation System</p> <p>Year: 2006</p> <p>Location: Bolivia</p> <p>Client: private client</p> <p>Main project features: advisory services to government - 1) review mining tax system 2) prepare report for distribution to all stakeholders 3) present results at public forums and to relevant government officers</p> <p>Positions held: Project manager / economist</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Assist Mining Agreement Negotiation</p> <p>Year: 2005</p> <p>Location: Guinea</p> <p>Client: Ministry of Mines & Geology</p> <p>Main project features: advisory services to government - 1) to review draft mining concession 2) prepare financial analysis software to aid in mining concession negotiations</p> <p>Positions held: Project manager / attorney / economist</p> <p>Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Global Study of Cu & Au Royalties</p> <p>Year: 2005</p> <p>Location: home-base</p> <p>Client: Canadian client (confidential)</p> <p>Main project features: prepare report on levels of royalty applied to Au and Cu mines</p> <p>Positions held: Project manager / economist</p>

11. Detailed Tasks Assigned	Work Undertaken
	Activities performed: (see description above)
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Global Study of Ni & Co Royalties Year: 2005 Location: USA Client: UK client (confidential) Main project features: prepare report on levels of royalty applied to Co and Ni mines Positions held: Project manager / economist Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Guinean Mining Taxation System Analysis and Recommendations for Reform Year: 2005 Location: Guinea Client: Ministry of Mines Main project features: advisory services to government - 1) to review draft mining concession 2) prepare financial analysis software to aid in mining concession negotiations Positions held: Project manager / attorney / economist Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Drafting of Mining Law / Regulations Amendments Year: 2004 - 2005 Location: Jordan Client: CMA Ltd / Natural Resources Authority Main project features: advisory services to prepare proposals for the restructuring of the mining sector regulatory system and the Natural Resources Authority Positions held: Project manager / attorney Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: National Mineral Policy Stakeholders Workshop Year: 2004 Location: Guatemala Client: Ministry of Energy and Mines Main project features: a major multi-party workshop of several hundred diverse stakeholders was held by the Ministry of Energy and Mines in conjunction with the UNDP and the World Bank with the intent to formulate a new national policy for the mineral sector Positions held: attorney</p>

11. Detailed Tasks Assigned	Work Undertaken
	Activities performed: participated as an invited expert
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Drafting of Nigerian Mining Law Year: 2003 Location: home-base Client: Adegbite Adeniji Main project features: prepare draft mining law Positions held: Attorney Activities performed: drafted the Nigerian mining law and regulations under a subcontract to a Nigerian law firm</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Analysis of Model Mining Agreement Fiscal Terms / Fiscal Decentralization Year: 2003 Location: Madagascar Client: Ministry of Energy and Mines Main project features: advisory services to government - 1) review mining tax system in model agreement 2) review options for fiscal decentralization Positions held: Project manager / attorney / economist Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Design of Country Risk Evaluation System for Exploration Decision-making Year: 2001 - present Location: United Kingdom Client: one of the World's 5 largest mining companies; confidentiality restriction bars disclosure Main project features: This major mining company has exploration efforts underway in over 25 nations and desired to have an in-house capability to assess country risk in 75 nations and geological potential as an aid to strategic planning. Positions held: Project manager Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Assist Indonesian Government with drafting of new mining law Year: 2001 Location: Indonesia Client: World Bank / USAID Main project features: Provide the government of Indonesia with advice on preparation of</p>

11. Detailed Tasks Assigned	Work Undertaken
	<p>a new mining law and fiscal system.</p> <p>Positions held: Project manager / attorney</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Mining Fiscal Decentralization Workshop</p> <p>Year: 2001</p> <p>Location: USA</p> <p>Client: World Bank</p> <p>Main project features: the merged IFC/World Bank mining group held a workshop for Bank staff and government officials (including PNG officials) to review mining sector fiscal decentralization policies, approaches and problems.</p> <p>Positions held: Project manager</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Review of Mineral Fiscal System</p> <p>Year: 2002</p> <p>Location: Papua New Guinea</p> <p>Client: Department of Mining</p> <p>Main project features: complete a comprehensive review of the PNG mineral sector fiscal system, provide recommendations to government, conduct workshops, brief senior officers</p> <p>Positions held: Project manager / economist</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Recommendations for the Imposition of a State Royalty on Minerals</p> <p>Year: 2002</p> <p>Location: Republic of South Africa</p> <p>Client: National Treasury of South Africa</p> <p>Main project features: prepare briefing report on mineral royalty and assist Treasury officials with preparation of first draft royalty bill</p> <p>Positions held: Project manager / attorney / economist</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Review of Mineral Fiscal System</p> <p>Year: 2002</p> <p>Location: Peru</p> <p>Client: Ministry of Economy and Finance</p> <p>Main project features: complete a comprehensive review of the Peruvian mineral sector fiscal system, provide recommendations to government, conduct workshops, brief senior officers</p>

11. Detailed Tasks Assigned	Work Undertaken
	<p>Positions held: Project manager / economist</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Congo - Review of Mineral Sector Fiscal System to Guide Mining Law and Model Mining Agreement Drafting</p> <p>Year: 2002</p> <p>Location: Congo</p> <p>Client: Ministry of Economy and Finance / World Bank</p> <p>Main project features: complete a comprehensive review of the Congo mineral sector fiscal system, provide recommendations to government for system in new mining law and possible model mining agreement</p> <p>Positions held: Attorney & mineral economist</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Committee work for the MMSD project</p> <p>Year: 2000 - 2002</p> <p>Location: Switzerland & USA</p> <p>Client: International Institute for Environment & Development - Mining, Minerals and Sustainable Development Project (MMSD)</p> <p>Main project features: As part of the Global Mining Initiative 31 mining companies and assorted multilateral agencies and other stakeholders have begun implementation of the Mining, Minerals and Sustainable Development project.</p> <p>Positions held: invited expert</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: UN Sustainable Development and Mining Workshop</p> <p>Year: 2000</p> <p>Location: South Africa</p> <p>Client: UNCTAD</p> <p>Main project features: UNCTAD has organized a series of regional workshops for 2000 & 2001 designed to assist national policy makers with better understanding how to create sustainable economies. The Africa region meeting was targeted at Directors of Mines and emphasized the contribution of mining to economic SD</p> <p>Positions held: Project manager</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Draft Mining Law, Regulations and Model Mining Agreement for Mozambique Government</p> <p>Year: 2000</p> <p>Location: Mozambique</p>

11. Detailed Tasks Assigned	Work Undertaken
	<p>Client: MIREME – Ministry of Mineral Resources and Energy (World Bank Project)</p> <p>Main project features: Preparation of draft new mining law, mineral title regulations (including casdtre), model mining agreement, fiscal system recommendations, workshops for government officers</p> <p>Positions held: Project manager / attorney</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Review of the Mali Mining Fiscal Regime</p> <p>Year: 1999 - 2000</p> <p>Location: home-base</p> <p>Client: World Bank</p> <p>Main project features: Preparation of a short report modeling the Mali mining sector fiscal system.</p> <p>Positions held: Project manager / economist</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Organization, Implementation and Reporting of Mining and Sustainable Development Workshop</p> <p>Year: 1999</p> <p>Location: New York / home base</p> <p>Client: United Nations Revolving Fund for Natural Resources Exploration (UNRFNRE)</p> <p>Main project features: In 1998 the United Nations was considering the future role of the UN Revolving Fund for Natural Resources Exploration, and whether a key part of this role would be a leadership or facilitator role for mining and sustainable development work.</p> <p>Positions held: Project manager</p> <p>Activities performed: Chaired multi-lateral agency meeting, edited book on sustainable development and mining</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Sustainable Development and the Future of Mining Investment</p> <p>Year: 1998 - 1999</p> <p>Location: home-base</p> <p>Client: Metal Mining Agency of Japan</p> <p>Main project features: In 1998 the Metal Mining Agency of Japan was charged with the role of providing input to the APEC/GEMMED meeting regarding sustainable development and mining. The project was responsible for providing draft background papers for the meeting suitable for eventual publication.</p> <p>Positions held: Project manager</p> <p>Activities performed: organized multi-stakeholder meetings, co-wrote and edited book published by the UNEP</p>

11. Detailed Tasks Assigned	Work Undertaken
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Analysis of Two African Nation’s Mining Fiscal System Year: 1998 Location: two African Countries Client: multi-national mining company, confidentiality agreement bars disclosure Main project features: Preparation of a report analyzing the mining fiscal systems of two African countries for a multinational mining company to support their decision-effort regarding mining investment totaling over US\$750million Positions held: Project manager / economist Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Review of the Namibian Mining Fiscal System Year: 1998 Location: home-base Client: Large South African law firm, confidentiality agreement bars disclosure Main project features: Preparation of a report analyzing the Namibian mining fiscal system from a foreign investor perspective. Positions held: Project manager / economist Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Review of the Japanese Mining Law Year: 1997 - 1998 Location: Japan / home base Client: Metal Mining Agency of Japan Main project features: The Japanese government undertook a number of activities to better regulate its mining industry. Positions held: Project manager / attorney Activities performed: analyzed mining law and regulations, prepared report, led workshop</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Review of the Russian Mining Law Year: 1997 - 1998 Location: home-base Client: Metal Mining Agency of Japan Main project features: Preparation of a report analyzing the Russian subsoil act from a foreign investor perspective. Positions held: Project manager / attorney Activities performed: (see description above)</p>
Mining policy, law, and fiscal system expert, consultant	<p>Name of assignment or project: Model Mining Agreement Year: 1997 Location: Philippines Client: Dept of Environment and Natural Resources Main project features: Review and comment on draft model mineral agreements, mediate model agreement negotiations between government and multinational mining company</p>

11. Detailed Tasks Assigned	Work Undertaken
	<p>negotiating consortia (about 7 companies).</p> <p>Positions held: Project manager / attorney</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Analysis of Property Rights Under International Law and the Legal System of Botswana to support Mining Agreement negotiations</p> <p>Year: 1997</p> <p>Location: home-base</p> <p>Client: South African law firm representing multinational mining company client, confidentiality restriction bars disclosure</p> <p>Main project features: Preparation of a report analyzing the property rights of mining lease holders under Botswana and international law, to support mining agreement negotiation.</p> <p>Positions held: Attorney</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Review of Work and Programs of the Minerals and Energy Policy Centre (South Africa)</p> <p>Year: 1997</p> <p>Location: South Africa</p> <p>Client: Danish Embassy</p> <p>Main project features: The MEPC was formed after the change of government in South Africa. It was responsible for developing the Green papers containing the draft national mineral policy of RSA, and various papers for parliamentary subcommittees relating to the national energy policy. MEPC derived much of its funding from donor agencies. I was asked to review MEPC overall effectiveness, quality of its work and staff, budget, ... and to prepare a report for consideration by the donor agency.</p> <p>Positions held: Project manager</p> <p>Activities performed: (see description above)</p>
<p>Mining policy, law, and fiscal system expert, consultant</p>	<p>Name of assignment or project: Preparation of New Mining Law for the Kingdom of Saudi Arabia</p> <p>Year: 1996 - 1997</p> <p>Location: Saudi Arabia</p> <p>Client: Ministry of Petroleum and Mineral Resources</p> <p>Main project features: Development of the new Saudi Arabia mining law and regulations was a high priority of the government as it sought to develop new investment after the Gulf War</p> <p>Positions held: Project manager / attorney</p> <p>Activities performed: (see description above)</p>

11. Detailed Tasks Assigned	Work Undertaken
Mining policy, law, and fiscal system expert, consultant	Name of assignment or project: Preparation of Mining Regulations for Greenland Year: 1995 Location: Greenland (Denmark) Client: Ministry of Environment and Energy Main project features: Review mining regulations, meet with senior officers, draft new regulations, revise draft regulations based on workshop, brief implementing officers. Positions held: Project manager / attorney Activities performed: (see description above)

ANNEX B: JAMES M. OTTO - SELECTED PUBLICATIONS AND REPORTS

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