Sector Licensing Studies

MINING SECTOR

Investment Climate Advisory Services | World Bank Group

IFC International Finance Corporation World Bank Group

MIGA World Bank Group Multilateral Investment Guarantee Agency

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Acknowledgements

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This paper "Sectoral Licensing Studies: Mining Sector" was prepared under the Global Business Operations Product Line by consultant Charles Krakoff, under the guidance of Dr. Stephen Rimmer and Lars Grava, IC. The paper has benefitted from inputs from Peter Ladegaard, Program Manager, Global Business Operations Group; Zai Fanai, Program Assistant, Global Business Operation Group, Kristina Svensson, Policy Div-IBRD Oil, Gas & Mining; and John E. Strongman, consultant for the Policy Div-IBRD Oil, Gas &Mining (World Bank Group).

This is a discussion paper, and the views presented here do not necessarily reflect the views of IC or other areas of the World Bank Group.

Exchange Rates as of January 6, 2009

Kyrgyz Som (KGS):	USD 1 = KGS 39.42
South African Rand (ZAR):	USD 1 = ZAR 9.40
Indonesian Rupiah (IDR):	USD 1 = IDR 11,173
Canadian Dollar (CAD):	USD 1 = CAD 1.20
Chilean Peso (CLP):	USD 1 = CLP 657.16

Measurements

1 ton =	2,000 pounds (lb.)
1 tonne =	2,000 kilograms
1 lb. =	454 grams
1 troy ounce =	31.1034807 grams

List of Abbreviations and Acronyms

AETR	Average Effective Tax Rate
ANZMEC	Australian and New Zealand Minerals and Energy Council
Codelco	Corporaciòn Nacional del Cobre (Chile)
Cochilco	Comision Chileño de Cobre
CONAMA	National Commission for the Environment
COW	Contract of Work
DRC	Democratic Republic of Congo
EBITDA	Earnings before interest, taxes, depreciation, and amortization
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
FIAS	Foreign Investment Advisory Services
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GIS	Geographic Information System
IFC	International Finance Corporation
IIED	International Institute for Environment and Development
IC	Investment Climate Advisory Services
METR	Marginal Effective Tax Rate
MNRF	Ministry of Natural Resources and Wildlife (Quebec)
MUT	Mercator Universal Transverse projection
SCMR	State Committee on Mineral Reserves (Kyrgyzstan)
SGA	State Geological Agency (Kyrgyzstan)
SIMTC	State Inspection on Mining and Technical Control (Kyrgyzstan)
SMS	Surface Mineral Substances
SSM	Small Scale Miner/Mining
USD	United States Dollar
USGS	United States Geological Survey
UTM	Monthly Tax Unit (Chile)
VAT	Value Added Tax
WBG	World Bank Group

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Executive Summary

This report is intended to provide guidance on best practices in mining licensing, based on examples from low, middle and high income countries in Africa, Asia, North America, and South America. It is not a "how-to guide" or a licensing implementation toolkit, but rather identifies certain common features of successful mining licensing regimes worldwide that other national or sub-national jurisdictions might usefully incorporate in new mining laws and regulations or revisions or existing ones. The case studies and other examples of good and bad practice are intended to provide a cross-section by geography and by income level, and they demonstrate that the prevalence of good and bad practices is not simply a function of income level. Tanzania, one of the poorest countries in the world, has in many respects a better licensing regime than either South Africa or the U.S. State of Wisconsin.

In considering these complex issues, it has proven difficult to confine the discussion purely to questions of licensing. Discussion of licensing invariably invokes reference to overall policy and investment climate issues, environmental protection, labor law, taxation, national and sub-national jurisdiction, land tenure, and much more. This report makes no attempt to address all of these in detail but refers to them in reference to their interactions with, and effect on, licensing itself. Far more detailed research on mineral policy, taxation, investment climate, and other issues has been carried out, some of it referred to in this report and cited in the footnotes and bibliography.

The mining sector

Mining is an important component of the economies of many developed and developing economies, but its proportional contribution to national income, exports, and employment can be exceptionally high in many resource-rich poor and developing countries, where it can account for as much as half of GDP and the bulk of export earnings. The small-scale mining sector, insignificant in most rich countries, is an important source of employment and income in many poor countries, and may also account for a significant share of total mineral production.

Business licensing as a form of regulation

Business licensing is practiced almost universally, in developed and developing countries alike. Trade or commercial licenses for retail and wholesale enterprises, health certificates for restaurants, and liquor licensing for bars and bottle shops are required in most jurisdictions. Protecting the environment, public health and safety, quality of life, and national security are almost everywhere the object of some form of licensing for most kinds of commercial or industrial activities.

Many countries in the past also practiced general industrial licensing as a way to advance national industrial development strategies by encouraging investment in the desired "strategic" sectors and discouraging it in other sectors, an objective also achieved in part by sector-specific incentives. General industrial licensing has also been seen as a way to control the use of scarce resources such as land, water, and energy.

This kind of industrial licensing, common in the 1960s and 1970s, began to wither in the 1980s and 1990s as worldwide trends for economic liberalization gained force. Today, only a small number of countries maintain a system of general industrial licensing – India and Egypt among

them – though even these countries have abolished unnecessary licensing in many sectors and streamlined it in others. Most countries have recognized that public health and safety and the environment can be protected more effectively by more targeted regulation than by blanket licensing. They have recognized, moreover, that many national and local interests can effectively be protected through clear regulation and enforcement rather than imposing obstacles to investment in the form of advance licensing requirements.

Mining, all agree, is special. It is special because of the high initial capital investments required and long development and payback periods, but it is special mostly because it entails exploitation and depletion of a non-renewable resource. Mining shares this characteristic with oil and gas and forestry industries but with few others. As a consequence, mining is subject to licensing, even in economies where many other forms of licensing have been abandoned. It remains one sector in which some form of licensing, independent of specific health, safety, or environmental regulations, is practiced in virtually every jurisdiction, in liberal market and socialist economies alike.

Indeed, from a liberal market perspective licensing in the mining sector makes sense. Mining licensing, at least in North America, was initially an extension of the earlier system for staking mining claims which, because of the lack of a clear legal framework, often led to bloody disputes over prospecting and mining rights. In many jurisdictions surface property rights and mineral rights are separate, and there needs to be a framework for managing these rights that favors neither side, but which also does not depend entirely on case-by case negotiations and decisions. Minerals in many countries are declared to be the property of the State, even where the mining industry is dominated by private investment and operation. Even in jurisdictions that allow private ownership of mineral deposits, the State often acts as custodian of these resources and controls their allocation and use.

Licensing can be seen as a way of imposing a legal framework for the allocation of scarce resources and for balancing competing interests and claims in a way that, ideally, honors the rights and interests of investors and protects the rights of communities and individuals in a fair-handed way, while also recognizing the overall national interest in developing a country's mineral wealth. This report, therefore, does not address the question of whether there should be licensing in the mining sector. That has been asked and answered. Instead, it explores the experiences in mining licensing and regulation of many countries and sub-national jurisdictions in search of some practices or principles that provide useful lessons for other jurisdictions trying to amend, modify, or create a good regulatory framework for the mining industry.

It is important to note that best practices in licensing and regulation regimes may differ substantially between those applicable to large-scale, formal sector mining and those applicable to small-scale, often informal, mining.

Typical licenses in the mining sector

Typically, there are at least two, and sometimes three or even four, kinds of licenses in the mining sector, each associated with different fees and different conditions, as summarized below:

1. **Prospecting or exploration licenses** grant a company an exclusive right to search for commercially exploitable mineral resources within a defined area for a specified period and attach conditions to the "search" process. Often there is also a pre-exploration or reconnaissance license granted for preliminary survey and testing work. Prospecting license areas may be very large – covering 1,000 km² or more – but the duration tends to be fairly short, though it may be renewable; and

2. **A production license** grants a company the exclusive right to extract minerals from a defined area for a specified period., Sometimes a retention license is used, which grants an exclusive right over a deposit with no immediate requirement to develop the mine (this may be useful when current market conditions make development unfeasible in the immediate term). A production license generally covers a much smaller area that a prospecting license, but is granted for a longer duration.

3. **Other** – such as small scale mining licenses.

Key findings

In mining, as in many other endeavors, there is no such thing as a single "best practice" or set of best practices applicable in every circumstance. Laws, regulations, and practices must develop and be applied in a specific social, cultural, economic, geographic, environmental and political contexts. What works in Maine, USA may not work in Carletonville, South Africa or West Papua, Indonesia. Nevertheless, it is possible to identify numerous features of licensing laws and practices common to countries in which mining contributes positively to national economic and social development goals. It also focuses on features of licensing common to countries in which the mining sector has the potential to make a larger contribution to development (e.g., where it generates benefits for some and uncompensated and/or disproportionate costs for others). This review of licensing practices therefore seeks to identify certain principles that are embodied in most good mining regulatory regimes. It also identifies some of the different ways various countries and sub-national jurisdictions have put these principles into practice. In spite of national and regional variances, most good mining regimes that effectively balance investor rights, individual and community rights, and government policy objectives and revenue requirements include all or most of the common elements, which can be considered best practices in mining licensing:

- **Clear legal authority**: It is important to have a mining law and regulations that explicitly supersede any other legislation such as investment laws or commercial codes that may provide contradictory instructions. This is best accompanied by a single regulatory and administrative body that exercises exclusive responsibility for allocation of mining rights. In many countries the investment code explicitly does not apply to mining investments and the authority of an investment promotion agency or investment authority explicitly

excludes mining and petroleum investments, which typically are left to the relevant sectoral ministries. In countries like Kyrgyzstan, the lack of clear distinctions makes it harder to attract the right kind of investments while increasing the likelihood of environmental or social abuses by mine operators, and of labor and civil unrest. Clarity of authority is especially important in countries in which sub-national jurisdictions also have responsibility over mining, where the respective rights and responsibilities of each layer of administration should be precisely defined.

- **Security of tenure and, subject to relevant regulatory requirements, transferability of exploration and mining rights**. Security and transferability of mining rights substantially reduce investment risk, since they protect investors against arbitrary revocation of claims and allow smaller companies to undertake exploration in the expectation that they can sell their rights to a larger and better-capitalized company once a discovery is made.

- **Exclusivity of exploration and mining rights in designated concession areas:** Some countries grant exclusivity on a claim only for one or more specified minerals, allowing others to explore and exploit deposits of other minerals in the same area. This can create confusion and lead to disputes, and reduce security of rights, which in turn can deter investment. Allowing exclusivity also allows exploration companies, even if deposits of the primary mineral they seek prove commercially unattractive, to benefit from discovery of other deposits that may be commercially exploitable.

- **Non-discrimination between local and foreign nationals** (exceptions may be made for artisanal and small-scale mining): Discrimination does not necessarily keep out foreign investors, but it does enable local nationals to earn rents from possession of mining rights that they cannot develop themselves. This raises the effective investment cost and may make some otherwise viable projects unattractive to foreign investors.

- **Preferential rights to convert exploration licenses into production licenses**: Few companies will undertake a risky investment without security that they will be able to exploit and profit from discoveries they make.

- **Low or moderate surface/land rent charges**: High up-front rents or land use fees raise the cost and risk of investment and put a strain on cash flows in a project's startup phase. Governments can collect sufficient revenues from sales-based royalties and income taxes.

- **Moderate and fixed royalty schedule**: "Moderate" is hard to define, but most jurisdictions tend to assess royalties at around 3% of sales proceeds, sometimes up to 5% for precious metals and gemstones. Royalties are based on revenues not profits, so a company may pay royalties even if it is unprofitable. This is not necessarily wrong, since royalties are a way to compensate the state for extraction of a non-renewable resource, but excessively high royalty rates can make it harder for companies to remain in business, especially in early phases of development and production. Royalty rates, which should be accessible public information, should be the same for all companies and established in law rather than by negotiation. They should not be changed except by legislative act, ideally in consultation with the mining industry.

- **Transparent licensing procedures**: These provide predictability and certainty for mining companies, communities and other stakeholders regarding the terms and conditions applying to mining, as well as processes which will be used to review and – where appropriate – reform mining terms and conditions contained in licenses.

- **Precise mining cadastre**: Security of tenure, exclusivity, and transferability of mining rights all depend on clear identification and registration of mining claim areas. Geographic Information System (GIS)-based mapping systems are best, but not all countries yet have the resources or capacity to install and use them.

- **Clear and uniform policy on government ownership**: There is nothing necessarily wrong with partial government ownership of mining ventures. Tanzania, considered to have one of the better mining policy and regulatory regimes among developing countries, claims a right to 10% state ownership of any mining project. Government ownership conditions, however, should be specified in law and applied uniformly to all companies. To do otherwise can foster corruption and create unfair competition among mining companies.

- **Protection against speculation**: Many jurisdictions are justly concerned that exploration and mining rights will be acquired by companies that don't explore or develop their claims. In mining, the risk of this is minimal. In virtually all jurisdictions exploration and exploitation licenses are accompanied by requirements with respect to investment and operation. Though these can sometimes be waived temporarily through issuance of a retention license, the basic principle is that exploration and mining rights, if not used, revert to the state after a specified period. The risk of speculation in mining rights tends to be less in any case, since subsoil rights are usually severed from surface rights. In such cases, converting a mining claim area into a commercial or residential development is therefore impossible.

- **Special licensing and regulatory regime for small-scale mining**: Small-scale mining can be a source of employment and revenue in rural areas, together with the low management, technical, and financial capacity, and informal status of many small-scale mining operators requires a different regime, which often involves support and assistance to small-scale miners as much as it does control and regulation.

Table 1 summarizes key issues in mining, including identifying the main types of licenses, rationale for regulation and licensing, potential problems arising from licenses, ways to minimize these potential problems and good practice.

TABLE 1
Selected Issues in Mining Licensing

	Why Regulate?	Why License?	Problems Associated with Licensing	Ways to reduce or eliminate problems	Good practices
Exploration / Prospecting Licenses	Protect the environment Protect public health & safety Protect vulnerable communities Prevent conflict over claims	Ensure clarity & accountability Facilitate collection of taxes & royalties Better planning of mineral resource development	Lack of transparency Excessive fees Insecure rights Poorly defined claims Excessive documentary requirements and proof of capabilities	Security of tenure Use first come-first served or auction system Charge only nominal surface rent/lease payment Install GPS-based mapping & claim registration system	Create a secure and transferable property right via. licensing First come-first served system Install GIS-based mapping & claim registration system Transparent licensing requirements and procedures Ensure exclusivity over licensed claims
Production / Exploitation Licenses	Protect the environment Protect public health & safety Protect vulnerable communities Prevent conflict over claims Protect worker rights and safety	Ensure accountability Facilitate collection of taxes & royalties Ensure cleanup & rehabilitation Better planning of mineral resource development	Lack of transparency Excessive fees Insecure rights Non-automatic transferability of exploration to production license Conflict between national and sub-national interests and/or authorities May not focus on health, safety and other key risks	Security of tenure Avoid excessive surface rent or lease payment Install GPS-based mapping & claim registration system Clearly defined rights and responsibilities	Create secure transferable property right via. licensing Install GIS-based mapping & claim registration Transparent licensing requirements and procedures Clear environmental, planning laws & regulations Guarantee first refusal on production license to holder of exploration license Ensure exclusivity over licensed claims

	Why Regulate?	Why License?	Problems Associated with Licensing	Ways to reduce or eliminate problems	Good practices
Small-Scale Mining (SSM)	Encourage informal miners to enter formal sector Protect livelihoods Reduce exploitative practices Protect environment, health, and safety Alleviate poverty among artisanal and small-scale miners	Give formal status to mine operators Grant and protect legal rights and claims of mine operators Create property rights & increase access to finance Increase revenue collection Stimulate investment	Lack of licensing leaves operators in legal limbo, with no security of property rights and limited access to capital Applying normal licensing procedures to small scale miners can be costly and difficult Regulatory failure – SSM has no effective incentives to protect workers, the environment or local communities	Simplify licensing procedures and reduce cost Security of tenure Ensure transparency and fairness	Recognize smaller claim size for SSMs Create a secure and transferable property right via licensing Provide extension services to SSMs on environmental, safety, marketing, and technical matters First-come first-served approach to licenses Draft a simple code of conduct for SSMs

The following table 2 summarizes good licensing practices and identifies examples of developing countries where mining licenses display international good practice.

Table 1
Selected Good Practices in Selected Countries

	Tanzania	Ghana	Indonesia†	Kyrgyzstan††	Chile	Namibia
Clear legal and administrative authority	✓	✓			✓	✓
Security and transferability of tenure	✓	✓			✓	✓
Exclusivity	✓	✓			✓	**
Non-discrimination			✓			
Transferability	✓	✓			✓	***
Preferential right to convert exploration into production license	✓	✓			✓	✓
Low or moderate surface rent/ lease payment	✓	✓	✓		✓	
Moderate and fixed royalty schedule*	✓		✓	✓	✓	✓
Transparent policy and licensing procedures	✓	✓			✓	✓
Mining Cadastre †††	✓	✓		✓††††	✓	✓
Special regime for small-scale miners	✓	✓	✓	✓	✓	✓

* Ad valorem basis is generally considered preferable to other means of assessing royalties.
** Non-exclusive for prospecting and exploration licenses except for Namibian citizens; exclusive for mining.
*** Only with written permission of the Minister of Mines.
† New Mining Law of December 2008.
†† New Draft Mining Law.
††† With or without GIS.
†††† Kyrgyzstan has a well-functioning national property register that covers mining concessions, though there is no separate mining cadastre.

Introduction

Background

Purpose of the Report

This report is intended to provide guidance to good practices in mining licensing, based on examples from a range of case studies from low, middle and high income countries in Africa, Asia, North America, and South America. It is not a "how-to guide" or a licensing implementation "toolkit". Rather, this paper identifies certain common features of successful mining licensing regimes worldwide that other national or sub-national jurisdictions could usefully incorporate into new or existing mining laws and regulations. The case studies and other examples of good and bad practice are intended to provide a cross-section by geography and by income level, and they demonstrate that the prevalence of good and bad practices are not simply a function of income level. For example, Tanzania, one of the poorest countries in the world, has in many ways a better licensing regime than either South Africa or the U.S. State of Wisconsin. In addition to three longer case studies documented in this report, covering Kyrgyzstan, Chile, and Quebec, the report also provides substantial detail on licensing practices in the mining sector in Botswana, Namibia, Indonesia, South Africa, Tanzania, Ghana, Mongolia, and many other countries.

In documenting and discussing the use of mining licensing in a range of countries, it is difficult to confine the discussion purely to questions of licensing. Discussion of licensing invariably invokes reference to broader policy and investment climate issues, including environmental protection, labor law, taxation, national and sub-national jurisdiction, land tenure, protection of local communities and much more. This report makes no attempt to consider or address all of these important issues in detail, but refers to them and their interactions with, and effect on, licensing. Detailed research on mineral policy, taxation, investment climate, and other issues has been carried out elsewhere but is referred to in this report and cited in the footnotes and bibliography.

The Importance of Licensing in the Mining Sector

Why is it important to research licensing practices in the mining sector? As this report shows, mining is an important component of the economies of many developed and developing economies, but its proportional contribution to national income, exports, and employment can be very high in many resource-rich poor countries. History is replete with examples of countries that have misused or squandered their mineral wealth and, in the process, distorted or destroyed much of their economies, political processes, and social fabrics. Indeed, "the resource curse" has become a common term to describe the phenomenon, which can include increased corruption, civil unrest, civil war, and overvaluation of the currency leading to the shrinkage or collapse of agriculture, manufacturing and other trade-related sectors and increased unemployment.

As a consequence, the practices of mining companies and of the governments of the countries or territories in which they operate have come under increased scrutiny and pressure from environmental and social activists. Some of these pressures are the product of ideology (such as general anti-development or anti-capitalist sentiment), but many are based on real abuses and failures. Governments around the world have responded to these pressures in different ways. For example, in the U.S. state of Colorado several county governments imposed severe restrictions on mining to the extent that most commercial scale mining was effectively banned. In the face of ongoing challenges in the courts, five counties have prohibited open pit cyanide heap leach gold mining – by far the most common commercial gold mining technique – mainly in reaction to the Summitville mining disaster in 1993, in which waters laced with heavy metals and cyanide escaped from a poorly constructed holding pond, polluting the Alamosa River and groundwater wells. The company operating the mine declared bankruptcy, necessitating the largest-ever federal environmental cleanup, at an estimated cost of USD$250 million – more than the USD$200 million worth of gold extracted over the life of mine. Despite the scale of the disaster, an outright ban can be an unnecessarily remedy in cases where regulatory, licensing and inspections systems are working well.

Other solutions, such as the World Bank-administered Extractive Industries Transparency Initiative (EITI), involve a wide range of government and private sector participants seeking jointly to promote transparent development of mineral resources while also protecting the physical and social environment. Though EITI concentrates on transparent disclosure by mining companies of what they pay to governments and by governments of what they receive, the process of implementing EITI standards can have a wider effect on improving overall governance of the mining sector. There is some discussion that EITI itself may expand its reach to encompass wider management and governance issues.

It would be an exaggeration to suggest that bad licensing practices cause all of the social and environmental problems which can be associated with mining, but they are nonetheless an important contributor. Licensing practices that allow under-capitalized or incompetent firms to undertake mining projects for which they are manifestly unqualified, or allow mining projects to proceed without appropriate and effective requirements for environmental protection and mine reclamation, can lead to environmental disasters that can generate significant costs on local communities and require costly clean-up by governments, NGOs and/or donors. Licensing reform can help avoid or mitigate future disasters. For example, many countries now require mining companies to deposit a bond sufficient to pay for future clean up and reclamation as a condition for obtaining a mining license.

Bad licensing practices can also impede investment in mineral resources that, if properly regulated, can contribute to economic and social development. Indonesia and Democratic Republic of Congo are two examples of mineral-rich countries that have failed to attract adequate investment in mining and that have – especially in the DRC – failed to ensure that government receives appropriate revenues and spends those revenues for the benefit of the country. Better licensing cannot eliminate these problems, especially with respect to how government mining revenues are spent. However, it can help keep out unscrupulous mining operators, encourage investment by responsible companies and provide clear roles for companies, governments and other stakeholders.

It is probably not possible to establish a template for best practices in licensing in the mining sector that all countries could adopt and employ with equal success. There are too many variations in national development policy and strategy, history, culture, geography, geology, and

level of development for this to happen. At the same time, it is possible to identify countries at all income levels in which mining has provided important social and economic benefits that outweigh any negative effects and where any losers from mining activities (such as traditional land owners) are properly and fairly compensated. It is equally possible to identify licensing practices that help countries to realize these benefits while avoiding or mitigating most adverse consequences. Conversely, it is possible to identify countries, many of them victims of the "resource curse," and to identify poor licensing practices that have contributed to this problem.

As many countries today are in the process of introducing or contemplating new mining legislation, examples of good and bad practices from a diverse range of countries and territories presented in this report may serve as a useful guide and resource to legislators, regulators and other stakeholders.

The report is divided into three sections.

- **Section A** provides a brief overview of the mining sector, including data on the size and relative importance of the sector globally, overall growth trends and particular issues and risks which are relevant to the discussion of regulation and licensing in this sector. Also, it provides an overview of licensing principles and a description of kinds of economic activities in this sector subject to licensing, noting similarities and divergences across countries. Specific rationales for licensing regulation in the sector and the potential advantages and disadvantages of using licensing are also described. The section also provides an overview of licensing reform experience from different regions of the world.

- **Section B** applies a diagnostic framework and template to analyze licensing design and administration processes. Case study examples from South Africa and Indonesia are used to illustrate good and bad practices, respectively, to licensing of mineral prospecting, exploration, development, and production.

- **Section C** takes the discussion to the national and sub-national levels and cites four case studies, from Kyrgyzstan, Canada (Quebec), Chile and Ghana. It illustrates good and bad practices at the macro level and focuses on the underlying objectives and principles used for licensing in the mining sector and an overall summary of the effectiveness, efficiency and transparency of licensing (both as described in laws and regulations and as experienced in practice by applicants for licenses). The legal basis for licensing is also described and commentary on features of licensing regulation and/or administration in the country and sectors that is particularly good, innovative or bad is offered.

Examples from other jurisdictions are also included throughout the report to illustrate particular issues or points. These include U.S. Federal mining legislation and laws and practices in the states of Colorado and Maine, as well as in Mongolia, Chile, Kazakhstan, Zambia, Guinea, Nigeria, Sierra Leone, and Mozambique.

Mining Sector Overview

Defining the mining sector

Mining is the extraction of minerals from the ground or the sea.

The earth's crust contains 2,400 minerals exploited for various purposes, of which 100 are of economic importance. Minerals are typically grouped into three categories: energy minerals (e.g. coal, oil and gas, oil shale, uranium, and geothermal resources), metallic minerals (e.g. lead, copper, cobalt, gold, iron, aluminum, chromium, molybdenum, and silver) and industrial minerals (minerals used in construction, agriculture, and personal adornment, including sand, gravel, clay, limestone, and gemstones). Water is sometimes considered a mineral resource as well.

Governments tend to treat oil and gas and water very differently from other kinds of extraction. In most countries oil and gas fall under the jurisdiction of a different ministry or agency from the one that regulates mining of metallic or industrial minerals (including uranium and coal), and water usually falls under yet another ministry or agency. Licensing procedures and costs tend to differ substantially among the three kinds of extraction, as do taxation and royalty payments. The analysis provided in this report, therefore, covers all kinds of mineral extraction except for oil and gas, water, geothermal energy and water.

Economic impact of the mining sector

Mining is an important contributor to economic growth, employment, income and wealth generation, government revenues, and exports for developed and less-developed countries alike. Mining, in addition, provides essential minerals without which the most basic and the most advanced industrial production would be impossible. Mining is also of immense geopolitical significance. The quest for minerals has been a fundamental force throughout human history. For example, many of the world's current conflicts have their roots in imperial expansion going back at least to the 15th century, much of it driven by the need to acquire both precious and industrial minerals to raise and equip armies and to build industry. What Joseph Conrad in Heart of Darkness termed "the vilest scramble for loot that ever disfigured the history of human conscience" continues today in the civil war in Democratic Republic of Congo, which has claimed an estimated four million lives over the past 10 years. The rapid industrial development of emerging economies – especially China, but also in many other countries – has vastly increased the demand for minerals and other commodities, and has significantly altered international markets and political and economic relations among countries.

Different countries depend on mining to very different degrees. According to the U.S. Geological Survey the value of primary non-fuel mineral production in the United States, the world's largest producer, amounted to $68 billion in 2007[1]. This represents only 0.5% of American GDP. Coal production amounted to a further $30 billion, about 0.2% of GDP. The value of processed non-fuel minerals, however, was $575 billion, or 4% of GDP. The value added to GDP by industries that consume processed minerals – mainly construction, consumer durables, and some consumer non-durables – amounted to $2,210 billion, or 16% of GDP. In 2007 the mining and

primary minerals processing industries employed more than 1.5 million people, about one per cent of the total labor force. Production workers in these industries earn higher wages than most other industrial workers. In 2008-08 U.S. coal and metals miners earned an average of $1,020 per week, as compared to the average weekly construction wage of $841 and the average weekly manufacturing wage of $725. Mining workers in other countries – including many emerging economies – earn significantly more than workers in other sectors. Mining is even more important economically to other countries. In 2007 Canada's non-fuel primary mineral production amounted to C$40.4 billion (about $37.8 billion), or about 4.2% of GDP[2], while federal and provincial revenues from royalties and corporate and personal income taxes levied on the mining sector totaled C$5.25 bn or roughly one per cent of total government revenues[3]. Australia's non-fuel minerals production of a$48.8 bn (US$41.2 bn)[4] in 2006-2007 accounted for 5.1% of GDP, while total mining and minerals processing accounted for nearly 9%.

In many emerging economies, mining accounts for an even larger portion of economic activity. In South Africa mining contributes about 5.8% of GDP – down from about 14% in the 1970s and 1980s - but remains the country's largest source of formal private sector employment, with 460,000 workers[5] or 3% of the economically active population. Chile's mining sector produces 7.3% of GDP and nearly half of export revenues[6]. In Mali, 2007 mining revenues were FCFA 300 bn, or $609 million, representing 9.1% of GDP, while mining taxes and royalties amounted to 18% of total government revenues[7]. Kyrgyzstan's mining sector accounts for over 10% of GDP and nearly 50% of total industrial production[8]. Mining accounts for 11% of Zambia's GDP and about 85% of its total export revenues[9]. In Botswana, mining accounted for 39% of 2007-2008 GDP, down from 42% the previous year. The sector also generates 90% of the country's exports and 50% of government revenues[10].

These figures understate the true importance of mining to these economies. Mining feeds downstream metals beneficiation, processing, and manufacturing, and is a big consumer of energy, water, inland transport, and shipping services as well as equipment, spares, and other goods. All industries show some form of multiplier with regard to output, employment, and individual earnings, but the multiplier in the mining sector tends to be higher than in other sectors. In the United States, for example, the mining output multiplier is 1.6, meaning that every dollar of mining output creates an additional $1.60 in output in other areas. The jobs multiplier is 1.8, meaning that for every direct job created in the mining industry another 1.8 jobs are created elsewhere in the economy. The earnings multiplier is 1.7, meaning that for every dollar earned by employees in the mining sector a further $1.7 is earned elsewhere in the economy. The figures may vary from one country to the next and from one year to the next, but the multiplier effect remains real. The Australian and New Zealand Minerals and Energy Council estimated for South Australia's mining industry an output multiplier of 1.0, an income multiplier of 2.0, and an employment multiplier of 3.0. These were the highest multipliers of any industry sector and nearly twice the state average[11]. Multipliers are due not only to direct linkages between mining companies and their suppliers and customers, but also to the salaries and spending of mine workers, which create employment and earnings in a wide range of sectors, including housing, construction, health, education, wholesale and retail distribution, consumer durables and non-durables, and much more.

Overall, mining provides a significant source of high paying employment in many countries and can be an important factor in facilitating economic development, trade, progress and poverty reduction.

Recent trends in the mining sector

The mining sector is highly cyclical with significant movement prices over time, in response to changing market conditions and broader geo-political and other factors. For example, commodity prices experienced an almost unprecedented boom in the five years to mid-2008, when the financial crisis and recession provoked a deep slump. After reaching highs in the 1970s, prices for minerals and other commodities such as food, oil, and gas stagnated and even declined for nearly 20 years[12]. Although the run-up in prices from 2003 to 2008 clearly reflects some speculative excess, it also reflects the growing demand from large emerging economies, especially China and including other countries such as India, Brazil and several countries in the Middle East. The current world-wide economic slowdown also has resulted in China's, India's and other large countries GDP growth declining, along with a decline in the prices of minerals and other commodities. As a consequence, several large mining projects, including development of the world's largest cobalt-nickel deposit in Cameroon and a huge iron ore mine in Guinea, were put on hold in 2009. Development of the $3 billion Oyu Tolgoi copper mine has been slowed and 40% of the work force laid off because of falling copper prices. Some of these developments, however, may have as much to do with the difficulty of raising capital as with depressed mineral prices. The stock price of Rio Tinto, one of the two main non-government partners in the venture, fell by 76% during 2008.

The recent economic crisis, volatility in mineral prices and mining company valuations, and the temporary suspension of many mining projects, are temporary phenomena unlikely to affect long term trends. Barring a world economic contraction of the order of the Great Depression, a long term upward trend for minerals demand and prices seems almost certain. As this trend picks up again, probably within the next few years, many of the mining projects placed on hold will be revived as the price outlook improves and it becomes easier to raise capital. Countries, especially emerging economies, are likely, on the one hand, to try to attract a large share of new mining investment but may, on the other hand, be tempted to exploit the upturn in demand and prices to impose additional restrictions and taxes on mining companies to the detriment of the mining sector in that country.

Special Treatment of the Mining Sector

Governments of highly mineral-dependent economies are engaged in a perpetual tension between the wish to encourage investment to develop the country's mineral resources and the desire to capture as large a share as possible of the revenues those mining investments generate. This often results in special treatment of the mining sector by government authorities, as discussed in the following commentary.

Tax Treatment

Depending on the state of the national economy and other variables, new mining investments may be granted very favorable or very onerous tax treatment. In Sierra Leone, one major mining company – the first significant investment after the end of the civil war – was granted nearly tax-free status, while other companies that invested only a few years later paid up to 60% marginal

tax rates on profits. Mining companies in many countries often receive very generous investment incentives even as the normal tax regime can be quite onerous. In Nigeria, for example, mineral producers face a normal marginal effective tax rate (METR) of as much as 38%, but with various tax incentives the rate falls to -25%[13]. The "gold formula" used to calculate taxes for gold miners in South Africa can result in tax rates as high as 45% or as low as zero for companies whose profit to revenue ratio is less than 5%[14].

Governments often impose special taxes on mining companies, especially when commodity prices are high, so as to capture a greater share of revenues. Both Namibia and South Africa have recently introduced mineral royalties, though these remain a contentious issue with miners, especially in Namibia, which has a basic corporate income tax rate of 37.5%[15]. These laws have also sought to impose higher royalties on raw mineral exports in an effort to encourage domestic beneficiation and processing. Mongolia in 2006 introduced a 68% windfall profits tax on gold when the international price is above $500 per ounce and on copper when the price exceeds $2,600 per ton, though there is some indication that the government may now be considering a reduction in the rate. Zambia, where minerals constitute 75% of total export earnings, has also considered imposing a windfall profits tax that would raise the average tax rate from 31.7% to 47%.

In mineral-dependent countries, licensing often falls victim to competing interests, so that in many countries (Sierra Leone and Mozambique are particularly good examples) it is not uncommon for each mining company to operate under an individual and different licensing, regulatory, and fiscal regime. Although larger mining companies may be granted the most favorable treatment, this is not always the case.

State Ownership

Many emerging economies, often with the encouragement of international financial institutions, try to structure mining agreements in such a way as to guarantee a certain percentage of government ownership of mining companies. This approach has reached its apogee in Botswana, where Debswana, which operates the country's diamond mines, is a 50-50 joint venture between De Beers and the Botswana government, while Debswana, in turn, owns 10% of De Beers.

Although some state-owned mining companies continue to be privatized – the Czech government in 2006 completed the privatization of the entire coal industry – the dominant trend seems to be for governments to try to increase their shares in mining companies – especially those in which they may already have a minority stake - usually through outright purchase or by taking shares in lieu of a portion of royalty or tax payments, although the threat of cancellation of mining rights can also motivate companies to invite greater government participation.

The government of Kazakhstan in 2009 engineered a stock swap that gave it a 22.2% share in Kazakhmys Plc, a leading producer of copper, gold, silver, and zinc, whose shares are jointly listed in London and Kazakhstan. Russia's government also increased its share of Polyus, the country's largest gold producer, to 44%, and reportedly aims to acquire a majority stake in the business as well as, possibly, acquiring a controlling share of Norilsk Nickel[16]. The government of the Democratic Republic of Congo in September 2008 announced its intention to increase its share of the $1.9 bn Tenke Fungurume copper and cobalt joint venture with Freeport-McMoran from

17.5% to 45%, and has also announced its intention to take a 51% stake in most new mining ventures[17].

There is nothing a priori wrong or problematic with full or partial state ownership of mining companies. Indeed, in some cases it can reduce tension between governments and mining companies and can moderate government's efforts to increase taxes, fees, and royalties, since the dividends they receive will diminish as taxation rises. Tanzania's mining law, considered a best-practice example for Africa, provides for the state to hold a 10% equity share in mining companies. CODELCO, Chile's main copper producer, is 100% state-owned, and Chile is widely considered to have one of world's best mining regulatory regimes. From the perspective of having good practice mining outcomes, the most important consideration is not whether mining companies are publicly, privately or jointly owned. Rather, the key issue is that **companies with some state ownership should be treated through mining specific regulations and licenses exactly the same way as wholly private ones**.

Renegotiating existing mining agreements is more problematic. Many governments insist on such renegotiation, arguing that the original agreements were signed when the country was in a weak position and had few other options, so favored miners' (or others) interests over the national interest. Whatever the truth of these arguments, post hoc renegotiations tend to be accompanied by the explicit or veiled threat of license revocation, leaving the miners with few options. **This sort of practice deters further investment, since it creates greater uncertainty and increases the risk premium investors will demand**.

Licensing and other regulation has become a tool that governments can use to reduce the adverse effects of mining and/or to increase their share of mining revenues. This phenomenon is not confined to developing countries. As illustrated in Box 1, the United States has also sought to increase royalties and impose stricter conditions on mining, though this may be as much for environmental as for revenue concerns.

Licensing and regulation can be introduced or altered to achieve legitimate public goals in a fair and transparent fashion. But licensing and regulation often are instituted with other goals in mind: namely, to enrich a few well-placed individuals in an unfair, opaque, and immoderate fashion, which also disadvantages local communities and the broader national interest. In many countries, developed and developing alike, these two approaches may coexist, so that a reasonable licensing system can occasionally be hijacked for illegitimate purposes. The remainder of this paper will seek to examine the rationale for licensing and both good and bad examples and experiences of mining licensing in a variety of countries with the aim of proposing some guidelines for good practice in the field.

Box 1

Proposed Reform of Mining Legislation in the United States

The U.S. House of Representatives in November 2007 passed the Hardrock Mining and Reclamation Act - HR 2262 to replace or correct many provisions of the current U.S. Mining Law, passed in 1872. The 1872 law, which applies to all mining claims on land owned by the Federal Government, stated that "all valuable mineral deposits in lands belonging to the United States…are hereby declared to be free and open to exploration and purchase, and the lands in which they are found to occupation and purchase, by citizens of the United States…under regulations prescribed by law, and according to the local customs or rules of miners, in the several mining-districts, so far as the same are applicable and not inconsistent with the laws of the United States." The law specified procedures and conditions for granting claims, one of which was that, to maintain mining rights, the claim-holder is required to perform at least $100 of improvements per year. A claim-holder having expended $500 or more on labor or improvements to the claim can then apply for a patent, which gives ownership rights to the land, for a one-time payment of $5.00 per acre for lode or vein claims and $2.50 for placer claims. The 1872 Law was amended by subsequent legislation, but most of its provisions remain intact, although the 1976 Federal Land Policy Management Act put an end to sale of public lands and declared that public lands would henceforth remain in public ownership. The 1872 Act contained no provisions for environmental protection or restoration of disused mines, and provided for no Federal royalty payments.

HR 2262 contains several controversial provisions, including:

- The right of the Secretary of the Interior to deny an operations permit to a project that otherwise complies with all environmental laws and regulations if the Secretary determines that the operation will cause undue degradation to public lands and resources. "Undue degradation" is defined in very broad terms;
- Requires the Secretary to grant withdrawal petitions by states, local authorities, or Indian tribes for cultural, historic, or environmental reasons unless he deems such petitions contrary to the national interest.
- A 20-year permit with provision for a single 20-year renewal, subject to mandatory 10-year review and quarterly inspections;
- New and more stringent environmental requirements that may be incompatible with existing environmental laws;
- Imposition of a 4% gross royalty on mines currently operating and 8% on new operations;
- Harsh enforcement mechanisms and penalties.

The Act has been criticized on the grounds that it will increase uncertainty for investors by reducing security of tenure, which in turn is likely to curtail mining exploration and production on public lands. This may potentially contribute to job losses, increase dependence on foreign mineral production, and render U.S. mining uncompetitive by imposing some of the highest mineral royalties in the world.

Sources:

Northwest Mining Association, www.nwma.org;
National Association of Manufacturers, www.nam.org;
The 1872 Mining Law, http://goldplacer.com/1872MiningLaw.htm;
Kosich, D., "Is Hardrock Mining and Reclamation Act Sound U.S. Economic Policy?" 5 November, 2007, http://www.mineweb.com/mineweb/view/mineweb/en/page60?oid=39281&sn=Detail

Regulation of the Mining Sector

Rationale for government regulation

- All governments regulate the mining industry and sector. The rationale for regulation can include:
- Ensuring public health and safety;
    - Environmental protection
    - Zoning/planning
    - Hazardous materials control
    - Safety and effectiveness of medicines
    - Plant and livestock protection
    - Safety of food supply
- Controlling the use of – and protecting – scarce and finite resources
- Ensuring local communities (including indigenous communities) are protected and/or are compensated for any adverse affects resulting from mining
- Protecting worker safety and worker rights;
- Compiling and disseminating information on industrial production;
- "Correcting" misallocation of resources by the market and/or misuse of market power; and
- Collecting revenues – either through cost recovery or mining specific taxation.

Mining regulation is often a focus of these concerns. For example, environmental, planning, public safety, and worker protection are critical concerns of public authorities in regulating the mining sector. For the mining industry, however, government efforts to correct perceived or potential misallocation of resources by the market are often the paramount concern, which underpins much of the regulatory framework. Many countries explicitly regulate the mining sector to ensure an equitable distribution of mining proceeds, to use mineral wealth for the benefit of the country, and to protect artisanal and small-scale miners who are especially vulnerable to exploitation. Mining companies fear that excessive regulation aimed at redistributing the mineral-dependent wealth can increase investment and operating costs to a point at which some projects will become unviable. Though few would argue that governments have no business trying to achieve a more equitable distribution of wealth, governments

themselves often fail to consider the longer-term effects of regulation on investment, job creation, and government revenues.

In many countries, however, these longer-term concerns may be trumped by competing interests in the division and distribution of proceeds from mining, especially in countries in which mining is central to the national economy. Governments are sensitive to charges that they are giving away national resources and failing to spread benefits to the people. The government of Zambia, which instituted very low mining taxes in 1998, was harshly criticized for failing to capture an adequate share of mining revenues, and in February 2008 announced its plans to cancel tax breaks for copper mining companies. Indonesia in December 2008 passed a new mining law after three years of parliamentary debate, one purpose of which was to increase provincial governments' share of mining taxes and fees, and to increase domestic value addition by foreign mining companies.

Distribution of mining revenues within a country can also be a source of instability. In Nigeria, where oil and gas revenues rather than mining revenues have dominated the economy since the first commercial shipment of oil in 1958, the distribution of these revenues to state governments has been a source of political instability, coups d'état, corruption, and civil war since the country became independent in 1960. According to the Revenue Watch Institute, an organization that "promotes the responsible management of oil, gas and mineral resources for the public good,"

> *"Oil, gas, and mining companies make payments directly to governments in the form of royalties, bonus payments and taxes, providing the state with an autonomous flow of funds that is independent of its citizens. These windfalls reduce the need for taxation and thereby eliminate a key motivator for citizens' scrutiny of public finances. Extractive income gives governments ample resources to buy political support through patronage, and legislatures often have little or no budget oversight. Thus the connection between citizens and the public purse is weakest in resource-rich countries where the need for well-informed, vocal and active public oversight of government funds is greatest… In the absence of public awareness or participation in government processes for revenue collection and distribution, corruption and mismanagement of public finances are free to thrive. World Bank and IMF studies have concluded that the extractive sector is a major determinant of corruption in the economies of resource-rich countries, and this partly explains the poor development outcomes[18]."*

The challenge for policy makers and governments is not merely to improve statutory regulations but to ensure their correct application and use. Statutory licensing procedures themselves may be fair and transparent, but their application may not be. A good example of this is the excellent DRC mining code enacted in 2002, which enabled licenses to be granted very quickly throughout the country. The system fell apart, however, since the government had neither the institutional capacity nor an effective cadastre system to keep track of mining rights and collect the appropriate fees. Corruption too may have played a part, as it has in many countries in which government officials negotiate special deals with mining companies even when the law prohibits such practice. Curtailing these extra-legal maneuverings can be a daunting task. In other jurisdictions licensing and regulatory uncertainty can be the result not of corruption, but of interest groups using legal means to block an investment for a variety of reasons, including concerns about environmental risks and adverse effects on local and/or indigenous communities.

Uncertainty therefore can constitute a big deterrent to exploration or investment even in countries with good, transparent, and fair legal and regulatory systems. The Fraser Institute, in its 2007-2008 survey of mining companies, reported that Finland and Quebec ranked lowest among 68 jurisdictions surveyed in perceived uncertainty concerning the administration, interpretation and enforcement of existing regulations as measured by the percentage of respondents – fewer than 10% in both cases – who considered such uncertainty a mild, strong, or complete deterrent to investment. Perhaps unsurprisingly, DRC, Mongolia, Philippines, Venezuela, Kazakhstan, and Zimbabwe fared worst, with over 90% of respondents considering regulatory uncertainty as a deterrent to investment. More surprising was the poor performance of many high income jurisdictions, including the United States. Although Nevada ranked just behind Finland and Quebec, with about 12% of respondents considering regulatory uncertainty a "mild deterrent" to investment, and Utah scored well with about 14%, between 70% and 80% of respondents considered Minnesota, Montana, and Colorado unfavorable environments for investment. Indeed, these US states had poorer scores than Mali, Colombia, Tanzania, Zambia, and Papua New Guinea (and much worse scores than Botswana, Namibia, Ghana, and Burkina Faso, among other developing countries)[19].

The stakes, however, are much higher in poorer countries that depend much more heavily on mining. Even Arizona, the largest minerals producer in the United States, derives less than 5% of its GDP from mining. In high income countries a less than optimal licensing and regulatory system, though it may deter some investment, is not economically or socially catastrophic. This is not always the case in poorer countries. Nevertheless, mining development, if managed properly, can provide a way to create a better environment for long-term, sustainable growth and development.

Eliminating unnecessary regulatory uncertainty, whether it is caused by corruption, by overlapping and unclear laws, authorities and regulations, or by litigation, is therefore essential. Although mineral wealth can lead to widespread corruption and an unhealthy dependence on a single sector, corruption is not an inevitable consequence of resource wealth, even in the poorest countries. Botswana, whose economy is highly dependent on diamonds, has managed its wealth wisely by investing in infrastructure and avoiding most of the worst excesses of corruption that so often plague similar economies. As a result, Botswana is now a middle income country (per capita GDP at an official exchange rate of more than $5,200), while many other countries that possess even greater mineral wealth remain mired in poverty.

What is regulatory "Good Practice" and is this approach employed in the mining sector?

There is substantial agreement on regulatory good or best practice across the political spectrum, mining companies and activist organizations.

A 2002 report by the International Institute for Environment and Development (IIED) and the World Business Council for Sustainable Development advanced several propositions for **what constitutes good practice**[20]:

- "The negative effects of minerals and metal products on the environment and human health should be minimized through all phases of the minerals life cycle;
- Responsible stewardship of minerals should be promoted throughout the life cycle;

- In its use of non-renewable resources, the present generation needs to consider the needs of future societies;

- Authoritative, independent sources are critical to ensure that information is trusted and to respect the right of stakeholders to have access to accurate and relevant data;

- Access to information is linked to the ability of individuals to secure and defend fundamental rights to resources. Information must be collected and distributed in an equitable manner to ensure this;

- Systems of accountability and verification are essential to monitor the performance of companies, governments, and civil society;

- Participatory and democratic decision-making structures should be adhered to;

- Decisions should be decentralized and taken as close as possible to the stakeholders most directly affected."

These are principles that any responsible mining company would agree to, even if there is disagreement over the extent to which these principles are applied.

A 1998 report on World Bank assistance in mining sector reform observed that:

> *"Although the policy, legislative and regulatory solutions adopted by various countries may have different features, some common themes are apparent. 'Successful' countries have well articulated policies and legal and institutional frameworks which support small and large scale mining without imposing uneconomic fiscal burdens. Future minerals development models will differ from past best practice because of the requirement that the developments must be sustainable and pay due regard to both environmental and social impacts[21]."*

This report cited several examples of "successful" countries that had adopted and implemented good practices. These included:

- Chile
    - non-discriminatory policy towards foreign direct investment in the minerals sector;
    - assurances of fair investment dispute settlement through international arbitration;
    - State ownership of minerals, which allows the State to grant constitutionally protected property rights and access to them and permission to prospect where no existing exploration or mining rights have been granted;
    - transferability of exploration and mining licenses.
    - grant of licenses on technical grounds;

- ability to refer adverse decisions to the courts.

- Ghana
  - government's commitment to private sector minerals development;
  - new mining law and regulations, passed in 1986[22], which confirm the State's ownership of mineral deposits and its right to grant licenses to exploit them; allow foreign enterprises to obtain prospecting, exploration and mining rights; and confer the powers to issue, amend and revoke licenses on one State agency which also has the requisite technical expertise to assess applications.

An analysis of mining licensing in Egypt prepared for the IFC suggested the following as best practices:

- "The procedures of issuing different types of licenses should include controls for screening non-serious applicants. This can be done through adjusting the Licensing Fees and careful investigation for the Applicant's Financial Situation before issuing the License.
- Limiting the need to have an Exploration License, as a mandate for issuing the Exploitation License, only if there is a real need for that; e.g. when the subject piece of land is virgin and / or there is no enough information about it.
- Shortening the Licensing Cycle time as much as possible through simplifying the Licensing procedures, reducing the number of steps in each procedure as possible and minimizing the number of involved Agencies by setting coordination mechanisms between EMRA and these Agencies.
- Minimizing the exposure time of the Applicant to the Process.
- Publishing the necessary processes describing data for the Applicants, such as the Licensing Procedures, Time and Cost, e.g. on Websites.
- Availing the required forms to the Applicants for free
- Defining Corruption Indices and following them up in public.
- Publishing related laws and regulations published and preferably in different languages[23]."

A 2003 World Bank review of the mining sector in Mongolia suggested that there exists a growing consensus that good practice in mining legislation entails:

"transparency and fairness, clarity, non-discretionary mineral license administration, conclusive decision making within specific time frames, non-discrimination, uniform standards and administrative procedures, lead agency coordinating authority, and coordination with other legislation and regulatory authorities[24]."

A World Bank report on the potential for development of the mining sector in Afghanistan identified the following policy and regulatory reforms essential for the sector to grow:

- **State ownership of mineral rights**: Previously, it was difficult to identify the owners of mineral deposits. The new Constitution grants ownership of all mineral resources in their natural state to the government and designates the government as the custodian of these resources;

- **A clear legal basis for access to mineral rights**: In the absence of a mining law, the rights of private parties to explore, extract, and sell minerals was unclear. This led to a free-for-all with minimal governance. A new minerals law explicitly establishes:

    - the right of private entities to obtain mineral exploration and production licenses from the government

    - that mining rights granted by the state are property rights protected by the Constitution from expropriation without fair compensation

    - The State's authority to enter into commercial contracts with private entities with respect to mineral rights

- **Uniform and transparent rules for granting mineral rights**: Case-by-case negotiation of mineral rights creates uncertainty and unfairness, and imposes a heavy regulatory burden on the government. A good mining law should set out the terms and procedures and general conditions of mining licenses applicable to all investors. Specific features can include:

    - a first come, first served principle for granting exploration rights

    - review of work and financial plans submitted by the investor

    - specified duration of rights, conditions for renewal, and provision for rights to revert to the State in case of abandonment

    - time limits for processing of applications

- Transparent taxation (including license fees, surface rents, royalties, etc.), fiscal incentives (if any), qualification standards, and compliance procedures, at rates competitive with international norms;

- Clear identification and definition of mandates of government institutions with respect to granting of mineral rights and regulation of the mining sector;

- The role of the State as a regulator of private mining activity rather than as an explorer, operator, or equity partner;

- Proper governance, oversight, and equal treatment of those SOEs that do engage in mining activity, and a clear path to eventual privatization of these companies;

- **Security of Tenure**: The assurance that an exploration license-holder can obtain a production license if it makes a commercially viable discovery. The lack of such assurance can deter investment and foster corruption;

- **Transferability of Title**: Given the large investments required to develop a mine, a junior company that has conducted exploration and obtained a production license may seek to sell its rights to a larger company that has greater financial and technical resources;

- **General Best Practices in Investor Protection**: There is a fairly common standard for protection of investor rights, which should apply to the mining sector as well as other industrial and service sectors. These include the right to keep and repatriate profits, the right to international arbitration or other alternative dispute resolution, the right to acquire and hold foreign exchange, and guarantees against expropriation.

- **Appropriate and transparent environmental, health, safety, and social protection laws**: These should include clear description of standards and rules, clear designation of responsible government entities and their rights and powers, and clear specification of inspection and compliance procedures and conditions;

- **Special regulation of small-scale mining**: Small-scale or artisanal mining is often an important source of employment and income for rural populations. Normal rules applicable to large mining companies may be inappropriate for the limited technical and financial capacity of small-scale miners. Some flexibility in the law, which ensures appropriate environmental, health, and safety standards but which makes it possible for small-scale miners to continue to operate, is desirable, and is applied by many countries[25].

Almost all of the good or best practices identified by these reports are incorporated in the laws, regulations, and practices of countries widely considered having good mining regimes. The variations are relatively minor.

The Egyptian "best practices," include, for example, "controls for screening non-serious applicants... [through] careful investigation of the Applicant's Financial Situation." Many good-practice jurisdictions, including Quebec and Chile, do not view "non-serious applicants" as a problem requiring regulation, especially for exploration licenses, and instead focus on specific requirements for compliance with laws and regulations pertaining to land use, environmental protection, and other important public concerns. But, especially in jurisdictions with weak monitoring and enforcement capacity, some due diligence on investors, at least for production licenses, may be indicated. The environmental disaster at the Summitville, Colorado gold mine serves as a cautionary example. From 1984 to 1991 the use of cyanide leaching with inadequate safeguards killed all aquatic life in a 17-mile stretch of the Alamosa River and contaminated other streams and groundwater in the area. After the state authorities shut down the mine in 1991 the mine owner, Galactic Resources, declared bankruptcy, leaving the U.S. Environmental Protection Agency with over USD$250 million in clean up costs.

State ownership of mineral resources, as proposed in the World Bank report on Afghanistan, is a common practice that can make it easier for government authorities to allocate mining rights in a fair and transparent manner, and can ensure security of tenure in the form of a secured and transferable property right. This system has proven highly effective in Chile, Canada, and many

other countries, though it is not a necessary condition in jurisdictions such as the United States and South Africa, which have highly developed property rights and cadastral systems.

It is hard to conclude much that is precise from these various prescriptions, apart from the necessity of transparency and sustainability.

The role of regulation in balancing different interests

In most countries and in most industries, permission to operate a business involves some balancing of private and public interests; national, regional, and local interests; and the interests of investors, communities, and individuals. Even in the most market-oriented societies, businesses do not operate free of regulation or supervision and must satisfy various conditions pertaining to national security, public health and safety, environmental protection, competition policy, land use planning and zoning, and worker rights and safety. Some of these conditions apply to small restaurants and shops as well as to huge industrial concerns.

As noted above, mining is a special case because of the size and scale of investments and operations involved; its economic impact on employment, investment, exports, and government revenues; and its potential social and environmental effects on fragile ecosystems and communities. In poorer countries the potential effects of mining investments are larger, relative to the overall economy, than in high income countries. Information about how to best manage and regulate the mining sector is patchy in some countries. For example, governments of many other poor countries lack sufficient knowledge, experience, and capacity to negotiate mining agreements and regulate mining activity in ways that protect and advance the national interest. That said, some developing and emerging economy governments (such as Botswana, Namibia, Ghana, and Chile) have acquired a high degree of sophistication regarding the technical and financial dimensions and management of the risks of mining.

Even in a jurisdiction in which all levels of government have adequate capacity to evaluate and regulate well several complex issues associated with the mining sector, there are frequently issues and problems that are complex and difficult to manage. For example, conflicts can arise between investor rights and community rights, as well as over competing concepts of the public interest (e.g., job creation versus wilderness preservation). This occurs frequently in the United States, where projects are often delayed or halted by lawsuits that can go on for years. Poorer countries too must find an appropriate balance between environmental and social protection and potentially substantial contribution to poverty alleviation and generation of funds needed for social and physical infrastructure development.

Governments, mining companies, local communities, and other stakeholders often have overlapping and/or diametrically opposed interests, which cannot easily be reconciled. As Box 3 illustrates, when the interests of a local community are allowed to prevail, the results may not be to everyone's liking or in the general national interest, but it would be hard to conclude from this that national or regional interests should always and everywhere trump local ones. Indeed, one best practice principle mentioned by the Mining and Minerals Sustainability and Development Initiative is adherence to participatory and democratic decision-making, which generally involves a maximum possible devolution to lower tiers of government, even if national governments and mining companies may not always be pleased with the results.

At the same time, a fully democratic licensing process as in the Warren, Maine example, can lead to long drawn-out procedures that may cause many potential investors to walk away as they balance the cost of continuing against the eventual benefit of winning the license, taking into account as well the opportunity cost they incur by not pursuing other investment opportunities that may be developed in significantly less time.

Box 2

Good Legal Practices in Mining Regulation: Lessons from Latin America

A 1995 World Bank review of the legal frameworks for mining in several Latin American countries observed:

"Successful mining legal regimes minimize the potential for corruption and reduce lengthy processing time by eliminating discretion in implementation of the law. This includes eliminating any requirement for a mining right applicant to demonstrate either the existence of a commercially viable deposit, or the applicant's financial and technical ability to carry out a work program; eliminating or standardizing work/investment/production requirements; establishing clear procedures for the issuance of mining title; specifying the obligations of holders of mining rights and the means of complying with them; and limiting the grounds for their cancellation. The title holder should have exclusive rights to explore for, or exploit, all concessionable minerals within a concession. There is no efficient way of administering multiple concession rights for district minerals within a single concession area… Further findings include:

"Security and transferability of title: The successful Latin American Mining law regimes treat security of title as the top priority. The law should also recognize the right of the title holder to transfer both exploration and exploitation concessions to another investor or other third party. This flexibility improves liquidity for investors, enables them to obtain financing, and is a necessary condition for the development of an active mineral property market."

"Modernizing the Cadastre: Modernization of the mining cadastre is an essential prerequisite for a mining sector driven by private investment. The law should require that concessions conform to a regular geometric shape, and that they be identified by their MUT (Mercator Universal Transverse projection) coordinates. The key legal issue is integration of existing concession rights when a new system is introduced so as to minimize potential conflicts and disputes.

"Access to Land: A common problem in unreformed mineral law regimes is that huge areas have been reserved for potential future exploitation by state entities in perpetuity by government fiat. Mining law reform needs to liberate such reserves and limit the ability of government to create reserves in the future…

"Non-Discrimination: The mining code should not contain any discriminatory eligibility criteria for holding of mining rights. Legal provisions which prohibit foreigners from owning mining titles have the effect of restricting capital formation in the domestic mining industry. Legal reforms should also ensure that under the law parastatal mining companies do not receive preferences over private sector mining companies and investors.

"Surface Rentals: Most Mining Codes require the concession holder to make regular payments of a per hectare fee in order to retain the concession. The best practice is characterized by having low surface rentals during exploration, when they constitute a significant share of total cost, and higher rentals during exploitation in those countries with a two-concession system. Rates should be set in the mining code or regulations and indexed for inflation. An alternative is the use of annual minimum work or investment requirements but these require monitoring and enforcement which many countries are ill-equipped to provide.

"Transparency and Accountability: Licensing of mining concessions must be transparent and accountable. A mining law should be explicit about the procedures for obtaining, maintaining and terminating mining rights; specify timeframes within which applications must be filed and licenses must be issued; provide for notice periods and an opportunity to be heard before any significant action is taken; require that all decisions affecting solicited or acquired rights be in writing; and provide opportunities for administrative and/or judicial review of decisions."

Source: "Characteristics of Successful Mining Legal and Investment Regimes in Latin America and the Caribbean Region," World Bank Industry and Mining Division, 1995

In all aspects of mining regulation there is a tension among many different objectives, which may include maximizing near-term government revenues; encouraging foreign direct investment; fostering growth of employment, income, and exports; protecting the environment and public health and safety; protecting and developing local communities and/or autochthonous populations; and using mineral wealth to achieve long-term development goals. To these must be added the immediate political pressures to which governments may be subject, which include rising nationalist sentiment, budget shortfalls, and popular demands to benefit in the near term from a country's abundant resources. There is no single answer to how these conflicting demands should be balanced, nor even if those demands can be balanced fairly. Good practice in mining licensing, therefore, has more to do with the process by which decisions are reached than with the character of the decisions themselves.

Box 3

Local Authority in Maine: Good or Bad Practice?

Mining is not a big industry in the state of Maine, in the northeastern United States. Though a substantial amount of quarrying and non-metallic mining occurs, there has been almost no metallic mining for the past century. The state does, however, have deposits of various metals, including nickel, copper, cobalt, and zinc, which several mining companies have explored.

Maine did not, in fact, have a mining law until 1991, though it did have an agency, the Maine Mining Bureau, created in 1955 to administer and encourage minerals development on State lands. At that time there had been no metal mining since 1918, when a copper mine in Blue Hill closed. In 1960 a Canadian company, Roland F. Beers, Inc., began exploratory drilling of copper and nickel deposits in the towns of Warren and Union, under the first state mining license granted in more than 50 years. No production occurred at that time, But exploration continued, and in 1965 Knox Mining Company (formerly Ronald F. Beers, Inc.) discovered a substantial copper-nickel-zinc deposit and conducted further exploratory drilling from 1966 to 1974. The mine was not developed, however, due to adverse economic conditions. In light of renewed interest in the Warren deposit by Knox Mining, the Town of Warren in August 1989 amended its Land Use Ordinance and introduced a Site Plan Review Ordinance, the combined effect of which was to require public hearings and Planning Board approval for any mineral mining, quarrying, crushing or processing operations, and set conditions for environmental review, traffic impact assessment, and reclamation plans.

The State of Maine in 1991 passed a new mining law, which specified conditions for granting mining prospecting, exploration, and production licenses, but which also stated, "*Nothing herein shall repeal or supersede any additional requirements imposed by statute, rule of another agency, or municipal ordinance*"

Knox announced plans to carry out a baseline study as a basis for a detailed environmental and economic impact assessment of their plans to conduct mining, crushing, and leaching operations. At this time it was not clear whether the company, if it eventually obtained town approval, would then have to get State approval, and there was some discussion of having the company apply for State approval before seeking approval from the Town Planning Board, which would have been less costly and time-consuming for town officials, especially if the application were rejected at State level. In the event, Knox never carried out this study and never formally applied for a production license to the town or the state. The company gave no official reason for its decision, but it is likely that the problems inherent in developing a large mining operation in an inhabited semi-rural area (the nearest residence was some 500 feet from the proposed mine site) and the perceived probability that their application would be denied caused them to abandon the project.

Some observers might conclude that this is an example of bad practice in mining licensing since it 1) involved unclear and/or duplication in the roles of multiple layers of government; and, 2) allowed a small group of citizens in one small town to block a project with potential statewide benefits for job and revenue creation. Others might argue that this is an example of good practice, since it allowed citizens of the Town of Warren to decide for themselves through a democratic process whether the benefits of the project outweighed the risks. State law required the Town to evaluate the project in terms of existing planning ordinances, and prohibited the introduction of new ordinances or resolutions targeting a single company. At the same time, partly because Maine had almost no mining industry and had not granted a mining license in years, there was some confusion in the process, especially whether town review and approval should precede or follow state approval. Logic would suggest that state review should come first, but this did not occur. As a result, the process was slower and more costly for all parties than it might have been.

Sources: Maine Geological Survey; Maine Land Use Regulation Commission; Town of Warren, Maine Town Offices; Peter Krakoff, Town of Warren Planning Board, personal interview.

Licensing and the Mining Sector

Licensing is a form of government regulation that imposes on businesses (or individuals) a range of conditions, obligations and rights that regulate entry into markets and conduct within markets. As noted above, licensing is one of several themes within the overall administration of regulations that affect the mining sector. Other regulatory requirements can include company registration, conditions on foreign ownership, customs, taxation, and work and residence permits for expatriate employees etc.

In many countries mineral resources are deemed the property of the state, regardless of who owns or holds usage rights to the surface land. But even in jurisdictions in which underground minerals on private land are privately owned, governments typically regard development and exploitation of these resources as a public interest in a way that other sectors of the economy are not.

As a recent analysis of industrial licensing in Egypt[26] pointed out, general industrial licensing is no longer practiced in most countries. Mining licensing, by contrast, is an almost universal practice in both developed and developing countries. Mining often takes place on public land, the use of which can be vigorously contested. Mining can produce greater environmental damage than most other industries, it often takes place in remote and ecologically sensitive areas, it often requires supporting infrastructure such as roads, dams, and power plants. It can profoundly change the lives of local and/or indigenous populations. Mining is also a dangerous activity, so considerations of worker safety and workers' rights come into play. In some countries, mine workers' unions tend to be powerful, while in other unions are not active etc.

In most countries for most industries, these concerns are handled by different government ministries or agencies responsible for different regulatory requirements. Ministries of land set conditions for use of public lands. Environment agencies or ministries ensure compliance with environmental laws and regulations. Labor ministries set conditions or standards of employment and worker safety. Ministries of health, food and drug agencies, and agricultural ministries set and apply standards for food processing and pharmaceutical industries. Ministries of transport regulate the movement of cargo by land, air, and sea. Most of these ministries or agencies have powers to inspect company premises and impose fines or penalties on violators. Though industrial licensing was previously common in many countries, since the 1980s there has been a marked evolution away from this practice and devolution of responsibilities for specific matters to competent ministries or agencies. Even India, once known for the "License Raj," has phased out general industrial licensing in all but a very few specified sectors.

But mining, even in the most dedicated free market economies, remains subject to sector-specific licensing. Licensing laws and practices, however, vary widely. Much of this report examines licensing laws and practices in several countries with the aim of identifying good and bad practices that may help guide other countries as they develop or reform their own mining laws and regulations. This section concludes with a summary

(Box 4: Comparison of good and bad practice for exploration and production licenses) presenting good and bad practices in the mining sector from two countries: South Africa and Indonesia.

Licensing in the mining sector has always differed from the practices in other sectors. Typically, there are at least two, and sometimes three or even four, kinds of licenses, each associated with different fees and different conditions, as summarized below:

- Prospecting or exploration licenses grant a company an exclusive right to search for commercially exploitable mineral resources within a defined area for a specified period and attach conditions to the "search" process. Often there is also a pre-exploration or reconnaissance license granted for preliminary survey and testing work. Prospecting license areas may be very large – covering 1,000 km² or more – but the duration tends to be fairly short, though it may be renewable; and

- A production license grants a company the exclusive right to extract minerals from a defined area for a specified period., Sometimes a retention license is used, which grants an exclusive right over a deposit with no immediate requirement to develop the mine (this may be useful when current market conditions make development unfeasible in the immediate term). A production license generally covers a much smaller area that a prospecting license, but is granted for a longer duration.

License fees and charges – often called "surface rents" – are lower per unit of territory for exploration than for production licenses. The fees, terms, and conditions for these can vary widely, and constitute much of what makes for good or bad licensing practices.

Licensing and the Distribution of Mining Wealth

Conflicts over the distribution of mining or other resource wealth are among the main causes of corruption and civil unrest in poor or developing countries that have great mineral resources.

Used properly, mining revenues can contribute substantially to a country's development, as many countries, including Botswana, Namibia, South Africa, and Chile illustrate. In many other countries mining (along with petroleum) has produced a "resource curse," which can tear apart a society and social fabric, as exemplified in countries like Sierra Leone, Democratic Republic of Congo, Sudan, and Angola, or at the very least contribute to endemic corruption, despotism, civil unrest, deterioration of agriculture and industry, crumbling infrastructure, and general lawlessness, as has occurred throughout much of the history of Bolivia and Nigeria.

Even when the worst effects of the "resource curse" are not felt, too many countries have squandered their resources and have little to show for it, as has occurred in Gabon, Cameroon and Nauru. Disputes over mineral resources are most often based on disagreements over the distribution of mineral wealth. Provinces, regions, or states, as well as indigenous groups, often complain that they receive minimal benefit from mining that takes place in their territory, while often suffering from environmental degradation and destruction of traditional ways of life. The response in many countries has been to introduce more stringent environmental controls and to require mining companies to invest in public infrastructure such as roads, power plants, water and sewage systems, schools, and hospitals etc. in the areas in which they operate. As useful as these initiatives may be, they don't always attack the root of the problem of unequal distribution of mineral wealth.

It would be an exaggeration to suggest that reform of mining licensing procedures can address all of these problems, but it can have a profound and positive effect.

Sub-national Licensing

Countries in which responsibility over licensing is devolved to sub-national levels, such as Canada, the United States, and Australia, appear to have fewer such conflicts, since states or provinces are free, within the broader framework of national policy, to set their own mining policies, which can include the right to tax mining activity. Each sub-national jurisdiction can strike its own balance between the benefits that mining brings and the risks and damages that can accompany it. The case of Quebec, explored in detail in this report, as well as the experience of the Town of Warren, Maine, also outlined below, illustrate two of the many different approaches to sub-national licensing.

Certain conditions must be in place for sub national licensing and regulation to work effectively, including appropriate national policies on business, investment, and environmental protection. It also helps to have effective rule of law and sub national governments that can afford to establish and staff their own regulatory bodies that possess sufficient technical and financial expertise. Finally, it works best in an environment where transparency and community consultation, through public discourse and comment etc, are encouraged or even required in licensing decisions. Furthermore, devolution of regulatory responsibilities to sub national government may not work well in centralized countries, and can be exceptionally hard to implement even in a federal state such as Nigeria, where mining and other resources comprise a huge portion of national income.

That said, decentralization of the regulation and licensing of mining is not just an option for rich countries. In India, where mining accounts for about 2% of GDP, authority over licensing and regulation of the mining sector is the domain of state governments, except for uranium and iron, which require prior consent of the central government. Indonesia's Law #22 of 1999 states that "… regional government has full authority to promote and develop the national resources available in its region and is fully responsible to maintain the sustainable environment based on the existing regulation[27]." Indonesia's new mining law, passed on December 16, 2008, devolves even more authority to provincial and municipal levels of government. This law is likely to have a detrimental impact on the development of the mining sector in Indonesia.

Ownership and Allocation of Mineral Rights

Licensing is fundamentally about ownership and allocation of mineral rights. The role and rights of the State may vary with respect to both, as can the mechanism by which usage rights are granted or transferred.

Ownership

In most countries all mineral resources belong to the State regardless of ownership of the surface land. No one can legally extract and sell any mineral commodity without first obtaining authorization from the government.

The United States is one of the very few major mining countries, along with South Africa, in which mineral deposits can be privately owned. In both Australia and Canada, for example, mineral rights are vested with the State.

In the original land grants to settlers in the United States, the British Crown retained no mineral rights, nor did the colonies and later the state and federal governments in subsequent grants to individuals. Property owners thus had both surface rights and mineral rights, a form of complete private ownership known as a "fee simple estate". Under fee simple estate the owner controls the surface, the subsurface and the air above a property, and has the freedom to sell, lease, gift or bequest these rights individually or entirely to others.

In some U.S. states, such as Wyoming, surface and mineral rights are severed, while in others they remain unified. In practice, however, since most mineral extraction in the U.S. takes place on land owned by the Federal Government, which also owns the subsurface rights, most minerals are owned by the government, which then leases their exploitation to private companies.

With the advent of commercial-scale mining, ownership has became much more complex, so that even in countries in which private ownership of mineral resources is allowed, such ownership may be severed from ownership of the surface. Ownership of mineral resources can be sold, leased, or otherwise transferred without reference to surface land ownership. Both law and negotiated contracts guarantee certain rights to owners of both the surface and the subsurface. Mineral rights owners must be granted access to the deposits and the right to exploit them by the surface owner, but the miner must pay compensation for any damages to surface property and may be required to restore the land and improvements to their original state.

Even where the surface and subsurface are privately owned, government authorization is normally required for any mining to take place, and projects must conform to all applicable land use, environmental, and other laws. Exploration and mining licenses typically are still required for privately owned deposits, and the State often imposes land use fees and royalties, though the mine operator will also have to pay fees and/or royalties to the property owner to acquire or lease the mineral deposits.

Usage Rights and Their Allocation

In most countries – the U.S. is almost the only exception – the government controls the allocation of rights to explore and develop mineral deposits, and even in the U.S. mining rights on all public lands are controlled and allocated by the government. State ownership does not preclude the creation of a secure property right attached to a mineral lease or concession. In many countries, including the United States, Chile, Tanzania, Ghana, Lao PDR, Namibia, and Papua New Guinea, mining/production licenses are transferable, though transfer of prospecting and exploration licenses may not be allowed or may be subject to certain restrictions.

Auction or First-Come First-Served

Most countries – including most that are considered representative of good practices – allocate prospecting/reconnaissance and exploration licenses on a first-come first-served basis. Russia is an exception, in that all licenses are issued by auction to the highest bidder. China also auctions licenses for tracts that have already been prospected or explored, but issues licenses on a first-come first-served basis for unexplored claims. In Russia, auctioned licenses typically include both exploration and mining rights. The price paid at auction is in lieu of the surface rent that other jurisdictions often assess, and is often less expensive than a corresponding surface rent or land use rent might be. In 2006, Russia conducted an auction of exploration and mining rights for the 242-km² Apsakan gold mining area in the Amur region, which had been previously prospected with encouraging results. The fee paid at auction was USD$237,000, about USD $980 per km² or just under USD $1.00 per hectare[28]. This compares with Indonesia, where mining license rents range from USD $1.50 to $3.00 per hectare and with Sierra Leone, where the 4 km² Koidu diamond mining area is subject to an annual "lease rent" of USD $200,000 plus a "surface rent" of USD $32,258 for use of the surface above the deposit[29]. It is far less than the fees and rents in the new Kyrgyzstan mining law.

Each method of rights allocation has its advantages and disadvantages. An auction system, if it is conducted openly and fairly, establishes a market price given available information about prospectivity and regulatory (and other risks) and will reflect bidders' assessments of the probable risks and rewards. It thus lacks the arbitrary nature of other countries' lease and rent schedules, some of which appear to have been established with scant reference to financial viability, prospectivity or risks. It also helps avoid both the reality and the perception that mining rights are granted unfairly or corruptly, and also protects investors by bundling together exploration and extraction/production rights. Especially if the government has amassed sufficient geological data from previous prospecting or exploration activities prospective bidders can assess risks, calculate projected returns on investment, and submit well informed bids. An auction system also helps filter out frivolous applications; since it is highly unlikely that mining companies would spend hundreds of thousands of dollars (or more) for rights to a concession they have no intention of developing.

An auction process, however, is less suitable for countries with large unexplored areas, especially those countries subject to substantial economic and/or political uncertainty. In these jurisdictions potential investors are less willing to incur substantial up-front costs. Nigeria, for example, is trying to revitalize a once-vibrant mining sector that collapsed in the 1970s and 1980s, so has minimized barriers to entry with a first-come first-served system and negligible surface rents: $0.25 per hectare per year for exploration and $1.00 for mining.

The overriding principle in allocating exploration and mining rights is that any method adopted should be transparent and accountable, and include not only fairness but also timeliness and recourse to fair and speedy adjudication of disputes. Especially in the United States, activist groups can and do file lawsuits and obtain temporary injunctions against a project for various environmental reasons. These reasons may be valid, but the process can be open-ended and delay mining projects for years. A good practice system, while encouraging a fully open process of public consultation and redress, tends to impose a reasonable time limit within which a decision must be rendered.

Non-Discrimination and 'competitive neutrality'

Mining is dominated by private sector firms in most countries, many of which have also privatized state-owned mining concerns and created legal frameworks that focus on competitive markets and private sector development of the mining industry. Where publicly owned mining firms are active, the operation of competitive and effective markets requires that government authorities not favor state-owned firms at the expense of private firms in matters of taxation, access to finance, or licenses to explore and develop mines etc. Such non-discrimination is sometimes called „competitive neutrality' and is a cornerstone of competition policy and effective markets. Likewise, it is also important to avoid unnecessary or harmful discrimination between foreign and domestic mining firms. For example, Chile has a robust and dynamic mining sector. The state-owned Codelco remains the largest mining company and Chile has avoided discrimination in Codelco's favor and continues to attract substantial private mining investment – both domestic and international. Codelco, in fact, pays a higher percentage of its earnings in taxes than any private mining company. Indonesia, whose previous mining law required foreign companies to enter into joint ventures with domestic entities, abandoned this requirement in its 7th generation Contract of Work framework, as well as in the new mining law of 2008.

Non-discrimination should also extend to the screening of applicants for exploration or mining licenses. Many countries scrutinize the bona fides and the financial and technical resources of applicants as a way of screening out "unserious" ones. Some countries require that an applicant, especially for a production license, demonstrate that it has the financial resources needed to develop the mine. This approach ignores the reality of mining exploration and finance, in which junior companies may undertake risky exploration and preliminary development of deposits prior to raising capital or bringing in a larger partner with greater technical, financial, and marketing resources. Furthermore, discrimination against smaller mining companies can hinder the discovery and development of mineral deposits, including smaller ones that the major companies are less likely to be interested in, and it can also impede the development of domestic mining companies.

Security of Tenure and Contract

Mining is a capital-intensive industry in which a huge initial capital investment might not generate a positive return for many years. Any regulatory and licensing framework that does not guarantee security of mining rights for the expected life of mine is therefore likely to deter investment, since it raises risks and/or lowers the expected return on investment. In addition, an

environment in which governments frequently try to renegotiate the terms of a mining license or contract or to take or increase their equity share in a mining project creates uncertainty that also deters investment. Beyond any specific regulations, conditions, taxes, or royalties, mining investors – like all other investors – want certainty. Indeed, in order to raise capital at least cost and/or commit capital to a given project, they want to have all possible assurances that the rights they are granted in their license will not be withdrawn or altered in an arbitrary manner.

Security and certainty can be achieved in many ways. In Chile, a mining concession creates an inalienable property right that is treated as any other asset under normal commercial law. This may be the most iron-clad form of security, but it may be hard for many countries to adopt because of Constitutional and/or other legal impediments.

The creation of a property right tantamount to ownership of mineral resources, as occurs in Chile, is also potentially controversial. Its advantages are many, and include enabling smaller and undercapitalized companies to pledge that property as collateral to raise financing efficiently and at least cost. Potential criticisms include the contention that once the property right has been created the resources are managed for private benefit rather than the national interest. Therefore, a balance is required which encourages the development of mining, provides security of tenure for mining companies and also ensures that risks and windfall gains are shared between mining companies and the state in a transparent, predictable, fair and equitable manner.

Other ways to guarantee security of tenure are through legally enforceable contract, as in Indonesia's former practice of Contracts of Work (COWs), or through entirely clear and transparent licensing practices and conditions that prevent arbitrary administrative withdrawal of licenses, as is the case in Quebec.

Security of tenure also depends on preferential access to a production license for the discoverer of the deposit. Investment in exploration is unlikely if the investor has no assurance of being able to secure rights to exploit mineral deposits it discovers. Automatic or preferential access to production licenses for holders of exploration licenses is even more important now, given the increased attention paid to environmental matters and the rights of local and/or indigenous peoples. Mining obviously raises important environmental concerns, which begin not with mine development and production but with exploration. Separating exploration from production risks dividing and diminishing accountability among different companies, which can impede legitimate efforts to recover compensation in the event of environmental damage. It can also deter investment, since the investor in development and production may inherit contingent liabilities from the exploration company, which cannot always be identified or quantified in advance. Successful and sustainable mining operations also need to engage with local communities and indigenous peoples from the outset. Without continuity of stewardship from exploration to production this can be much harder to do effectively.

Security of tenure depends to a large degree on exclusivity of rights to a given claim or concession. Some countries, including Kyrgyzstan, allow more than one entity to explore and exploit a given claim for different minerals, which can lead to nasty disputes over conflicting rights as well as logistical nightmares if two companies are allowed to work the same claim area.

Finally, it is hard to secure any exploration or mining rights if claims and concessions are not well defined. This is best achieved with some form of GPS or other mapping system and electronic filing of claims, as used in both Chile and Quebec, together with a proper mining cadastre.

Taxes, Fees and Charges

All taxes, fees and charges are, effectively, a tax on use of public lands and depletion of non-renewable resources. While there is no universally acknowledged "best practice" for mining taxes, fees and charges, good practice points to the following trends:

- **Up-front payments such as surface rents or land-use fees should be moderate**, since otherwise they can place a heavy fiscal burden on companies that have not yet begun to generate revenues and/or where prospectivity is uncertain[30].

- **Simplicity**. A good system for imposing taxes, fees and charges is clear, transparent and non-arbitrary.

- **Avoidance of double or triple taxation** is desirable. Kyrgyzstan's proposed new fiscal regime for mining, which adds a new "land tax" on top of existing royalties and the bonus tax on reserves, constitutes double, if not triple, taxation.

During times of high profitability, the financial gains are usually shared between businesses and governments via taxes on company profits. However, in some countries a further windfall profit tax or resource rent tax are also used with the objective of attempting to capture "rents" from elevated prices, which can in turn temporarily enable mining companies to earn profits far higher than their threshold rate of return (or above what policy makers consider an acceptable profit margin). The 2008 debate in the United States over imposing a windfall profits tax on oil companies when the price of oil was at historic highs highlighted the difficulty in determining what constitutes a "reasonable" profit margin or return on investment and, hence, a windfall profit. Mining is not a regulated utility like water or electricity, in which concession agreements with private companies with significant market power and thus specify a rate of return as a reference for raising or lowering user tariffs. The volatility in mineral prices and production costs and volumes can cause huge swings in profitability from one year to the next. Tax policies that confiscate all or most windfall profits expose mining companies to much lower returns when mineral prices are low or exchange rates unfavorable. Without the ability to use windfall profits to offset low profits in some years, mining companies are likely to adopt a much more conservative approach to investment. South Africa's "gold formula" is one way around this problem, since a company earning 5% profit or less pays no taxes, while progressive rates of up to 45% are applied for profits above this level. This provides an incentive for companies to continue to work marginal mines, but the formula applies only to gold, has never been applied in other countries and may deter profit maximization.

Indeed, many recently introduced taxes, such as Mongolia's windfall profits tax, appear ill-considered and may sacrifice the long-term development of the country's mineral resources for short-term revenue gains. Over-zealous efforts to capture a larger share of mining proceeds may sometimes force the closure of a mine (especially when market prices for minerals decline), prevent new investment in marginal mines and/or deter some new investments altogether.

All countries have the right to change their tax codes as they see fit. That said, to maintain a climate of stability and certainty that the mining industry requires it can help if changes in taxation do not specifically target the mining industry and also if any changes are approved and introduced in accordance with established legislative rules and procedures.

Many countries offer some form of tax stabilization as a way of preserving the value of mining rights. Chile offers tax stabilization at a total rate of 42% of profits over 10 years, though a company can opt for the lower corporate income tax rate, royalties, and other payments that could fluctuate over time. Kazakhstan, Uzbekistan, Argentina, Peru, Burkina Faso, and many other countries offer some form of tax stabilization either for a fixed term or for the life of mine.

In Indonesia, tax stabilization was formerly written into Contracts of Work (COWs) for the life of the contract, although this (along with COWs) has been abandoned in the new mining law. The entire COW concept was exceptionally useful in securing tenure and providing certainty and stability in a country like Indonesia, where rule of law is weak and corruption has been endemic. In recent years, in which many countries, tempted by rising commodity prices, sought to impose new royalties or windfall profits taxes and to demand a greater share of mining company profits through ownership or profit sharing, the stability of a COW would have been a welcome protection.

Tax stabilization, however, should be approached with caution, since it can lead to unequal competition if different mining companies that have obtained their licenses at different times are subject to different tax rates.

The Financial and Administrative Burden of Licensing

In most jurisdictions studied, licensing fees tend to be insignificant compared to the cost of exploration and development or to the royalties and taxes paid on mineral production and profits. In a wide range of jurisdictions, from Nigeria to Chile to Quebec, licensing fees and ground or surface rents (which can both be considered a form of license fee) are relatively small. Whatever the merits of the tax and royalty regimes in these places, their governments do not impose additional entry barriers in the form of high initial licensing fees and charges.

It is, however, often difficult to distinguish between licensing fees and charges, and other kinds of mining fees, rents, royalties, and taxes, since the nomenclature may vary widely from one country to another. Countries and/or sub-national jurisdictions naturally want to capture a reasonable share of the revenues and profits derived from their mineral resources, but there are different ways to achieve this. **As a general rule, for a government that wants to encourage mineral exploration and production, excessive licensing fees and onerous licensing procedures can dissuade companies from prospecting, exploring, and mine development, since they represent costs that may be recoverable only after a long period, if at all.** Mining is a risky activity in most circumstances. Any licensing conditions that require a substantial up-front expenditure only add to this risk and deter investment, while the revenues governments obtain are far less than those they might capture from royalties and taxes on production and/or sales.

Best practice examples support this conclusion. The better mining licensing and tax regimes tend to impose moderate or minimal license fees which are based on the cost of providing regulatory services to the mining sector. By contrast, the land tax and "bonus" proposed in Kyrgyzstan's new draft mining law, which are essentially different kinds of licensing fees, are onerous in the extreme. Rather than generate any meaningful government revenue, they are likely to deprive the government of future taxes and royalties, while creating ample opportunities for ex gratia payments that end up in private pockets rather than the public purse.

Similarly, Indonesia's new mining law replaces a simple first come-first served licensing approach with an auction or tender for both exploration and production licenses, with no guarantee that

the holder of the exploration license will be granted a production license. This may prove to raise the up-front costs of both exploration and production licenses, and to increase the financial risk for exploration companies. Increased risk will raise the required returns on investment and may therefore make otherwise viable mineral deposits unprofitable and leave them unexploited.

Small-Scale Mining (SSM)

Licensing and regulation of small-scale mining presents a completely different set of challenges from those of large-scale mining. Though there is no universally accepted definition of small-scale mining, and though different countries may base their definitions on some combination of level of mechanization, value of production, fixed investment cost, and employment, small-scale mining operators face different challenges from medium- and large-scale miners and merit different licensing and regulatory treatment. The costs and regulatory burdens to which larger mining companies are subjected would drive many, if not most, small miners out of the formal sector or out of business altogether. As it is, a large proportion of individuals and enterprises operate in the informal sector, partly because of the burden of compliance.

In Tanzania, for example, mall-scale mining employment is estimated at 550,000, 50% higher than in medium and large-scale mining. An estimated 95% of the participants in small-scale mining operate informally. In Zimbabwe, the 350,000 large-scale mine employees are matched by an estimated 350,000 small-scale participants, 85% of them in the informal sector[31].

One key element of best practice for small-scale mining is to recognize the distinct nature of the sub-sector and to apply different sets of regulations, fees, and taxes from those applied to large mining enterprises. In some countries this is accomplished through entirely different laws governing large-scale and small-scale mining. The more common practice is for an umbrella mining law to contain special provisions for small-scale mining, which may combine smaller claim areas and shorter lease or rights duration with lower fees and simplified registration procedures. Tanzania's 1998 Mining Act, which many experts consider an example of best practice in small-scale mining regulation, grants separate status to small-scale and artisanal miners, with different stipulations concerning mineral rights; environmental, health, and safety approvals; and duration of tenure. Tanzania grants a five-year "Primary Mining License." Crucially, unlike many other countries that discriminate against small-scale miners, Tanzania allows small-scale mining rights to be transferred and mortgaged. This has enabled small-scale miners to obtain credit and to enter into joint ventures with larger companies. Where many countries restrict small-scale mining licenses to citizens, Tanzania allows minority foreign participation in small-scale mining ventures. Among other benefits, this transfers valuable know-how and technology to SSMs.

These processes can vary substantially. Box 4 highlights the contrast between South Africa, which has a fairly effective mining licensing regime and Indonesia, which formerly had a fairly good system that has been rendered much worse by the introduction of a new mining law in December 2008.

Box 4

Comparison of good and bad practice for exploration and production licenses

Good	Bad
Location: South Africa The Mineral and Petroleum Resources Development Act of 2002 establishes the State – through the Department of Mineral Resources and Energy - as the **custodian** but not the owner of the nation's mineral resources. The objects of the act are clearly enumerated and include: 1) promote equitable access to the nation's mineral and. petroleum resources to all the people of South Africa; 2) expand opportunities for historically disadvantaged persons, to benefit from the exploitation of the nation's mineral and petroleum resources; 3) promote economic growth and mineral and petroleum resources development; 4) promote employment and advance the social and economic welfare of all South Africans; 5) provide for security of tenure in respect of prospecting, exploration, mining and production operations; 6) ensure that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting social and economic development; and, 7) ensure that holders of mining and production rights contribute towards the socio-economic development of the areas in which they are operating. **The Act:** is accompanied by detailed implementing regulations, which reduce ambiguity as to the meaning of certain provisions of the law; • clearly establishes the rights attached to a mining, exploration, or production right (in South Africa, a prospecting or mining "right" is the dominant form of license. A mining "permit" is granted only for small mines with life-of-mine of 2-5 years)), and the conditions attached to the exercise of such rights; • specifies the duration of rights and terms and conditions of renewals; • grants the holder of a prospecting right the **exclusive** right to apply for a mining right on the same land or for the same mineral deposit; • specifies that in interpreting any provision of the Act,	**Location: Indonesia** Indonesia's law on Mining of 1967 and subsequent regulations and amendments vest **ownership** of minerals in the national government, though other provisions of law allocate 20% of mining royalty revenues to provinces and districts. The Fraser Institute's *2007/8 Annual Survey of Mining Companies* ranked Indonesia 62nd of 68 jurisdictions in the Policy Potential Index, which measures the effects of government policies on mining exploration. Indonesia also ranks near the bottom on "Uncertainty concerning the administration, interpretation, and enforcement of existing regulations." 63% of companies surveyed identified this as a "strong deterrent" to investment or said they "would not pursue investment due to this factor." A World Bank report on Indonesia's investment climate for mining remarked that Indonesia had missed out on the rise in mining investment in 2003-2004 because of its "unattractive investment environment." The same report showed that total investment in exploration, feasibility studies, development, and fixed assets fell from a peak of over US$2.1 billion in both 1997 and 1998 to less than US$400 million in 2001. This drop occurred well before the new law, even in preliminary draft form, had been circulated, so it reflects problems under existing law, which many observers consider far better than the new law. Indonesia's new law is a serious impediment to investment, but uncertain and non-transparent administration, interpretation, and enforcement even of existing regulations is at least as great a problem. 83% of respondents considered "Regulatory Duplication and Inconsistency (includes national/provincial, interdepartmental overlap, etc.)" a significant deterrent to investment. It is not clear whether these responses are a reaction to existing law or the new law, which substantially increases duplication and inconsistency. **Previous mining law:**

Good	Bad
the interpretation most consistent with its overall objectives shall prevail, and that in any instance of conflict between the Act and common law the Act will prevail. • stipulates that any administrative process or decision taken pursuant to the Act must be conducted within a reasonable time and in accordance with the Provision of Administrative Justice Act of 2000. All decisions must be issued in writing and accompanied by written justification; • repeals or amends previous legislation that conflicts with the Act; • recognizes rights granted under previous legislation and provides for a five-year period to convert old-order rights into new rights recognized in the Act; • recognizes individual property rights and provides a mechanism for those whose property has been expropriated to seek compensation from the State. • Establishes a precise and reasonable schedule of fees payable for prospecting and mining rights.	• Under the 1967 Law on Mining, two separate licensing regimes are in place: one for foreign investments and one for domestic. Domestic mining licenses (KPs) are authorized by Heads of Regency (districts), provincial Governors, or by the national Minister of Minerals and Energy depending on location and whether the licensed area straddles two or more jurisdictions The law requires KP holders to demonstrate capacity to exploit minerals but in practice this is rarely applied and KP holders then bring in foreign companies to explore and develop the mines. • Foreign companies are licensed through an Indonesian company set up under wholly foreign or joint domestic-foreign ownership. Licenses are granted via a Contract of Work (COW), which specifies all rights and obligations and terms and conditions (including taxation and any incentives) for both the mining company and the government, and covers all phases of exploration, development, production, processing, and export. There are several stages in a COW, covering general survey, exploration, feasibility study, construction, and production, each with specified duration and renewal conditions. A production COW is valid for 30 years and may be renewed indefinitely for successive 20-year terms. • The content of COWs has changed and there have been 7 successive versions. But each version applies to all mining investments at the time it is in effect, with minimal scope for modification. New versions of the model COW do not invalidate provisions of existing COWs, which are binding contracts between Government and the investor. The COW has the status of a special law, meaning that it overrides other provisions of general Indonesian law (i.e., in matters of taxation). Under a COW the investor acts as a contractor to the government for the exploration and exploitation of certain specified minerals. • Indonesia has a unit-based royalty system, e.g.,: $225 to $235 per kg for gold, $45 to $55 per tonne for copper, Ad valorem rate is high when prices are low, but low when prices are high.

Good	Bad
	• New Law: • Indonesia's new mining law, passed December 16, 2008, introduces several changes, the most important of which are: • Replacement of the COW with separate licenses for exploration and production, and no exclusive right for company with exploration permit to convert to production. • Shortening of term of production permit to 20 years with one 20-year renewal allowed. • Requirement that mining companies conduct "processing" domestically, but it is unclear how that is defined. Companies with existing COWs have 5 years to comply with this requirement and to convert COWs to new "IUP" license • Decentralization: IUPs can be issued by national, provincial, or district governments depending on location, size, and other factors • Government can set aside "State Reserve" areas in which state enterprises have priority. Producers in State Reserves pay an additional 10% royalty. • Licenses are granted through tender instead of upon application. • Holder of rights to extract one mineral on a given area have no automatic right or even first refusal right to exploit other minerals on the same territory. • In the absence of any implementing regulations, there is great uncertainty as to the exact meaning and implications of the new law. Most observers judge that the new law will create greater uncertainty, especially for foreign mining companies, and may impede new investment.

Comment: South African law recognizes the economic importance of mining and the importance of impartial laws and procedures to successful mineral development while also acknowledging important social and environmental concerns. It seeks to ensure transparency, fairness, and accountability, and protect the rights of mining investors as well as those of local communities and workers. b) Indonesia in December 2008 passed a new mining law, which in many respects is worse than the law it replaces in that it creates greater uncertainty for investors and reduces the term of mining rights. The previous Contract of Work system was considered an example of "best practice" by PriceWaterhouseCoopers' 1998 comparative survey of mining tax regimes for the certainty it provides.

Good	Bad
Who Issues and Administers the License: Mining, exploration, and production rights are granted by the Minister of Mineral Resources and Energy or his/her designee. The Mineral and Petroleum Resources Development Act of 2002 Regulations call for establishment of a Minerals and Mining Development Board to advise the Minister on matters related to mining policy and all matters related to the application of the Act. The Board includes representatives of Government, business, labor, and civil society.	**Who Issues and Administers the License:** Minister of Minerals and Energy, provincial Governors, or Heads of Regency (district) according to the type of license, which in turn depends on size of operation and level of foreign ownership. Parliamentary and Presidential approval is required for mining licenses with foreign equity participation.
Comments: Given the importance of mining to South Africa's economy, centralized and standardized rules and procedures take precedence over local authority. All stakeholder groups are represented on the Minerals and Mining Development Board, which plays a central role in setting and implementing minerals development policy.	
Rationale for the License: To ensure sustainable development of mineral resources and to provide equal access (and preferential access for previously disadvantaged populations) to those resources.	**Rationale for the License:** To ensure government control over natural resources belonging to the nation and to ensure appropriate compensation for use of non-renewable resources.
Comments: The rationale in the South African case strikes a balance between the need to develop mining as an important component of economic growth, and broad policy objectives related to Black Economic Empowerment (BEE), and social and economic protection.	
Licensing Steps: Submit completed application form, available online or from the Department of Mineral Resources & Energy, to a regional office of the Department. Application for a prospecting right must include: • Particulars of applicant • Statement of participation by historically disadvantaged South Africans • Description, coordinates and plan of land area • Type of minerals • Method(s) of prospecting • Duration of prospecting operation • Prospecting work plan • Proof of applicant's technical and financial capability	**Licensing Steps:** A company wishing to conduct exploration must apply for a COW. Approval may take several months, but the company can obtain a permit for preliminary survey, issued by the Department of Mines, valid for one year (renewable) on deposit of a refundable interest-bearing bond of $5.00 per ha. The COW must be submitted by the Minister of Mines and Energy to the Parliament, with a copy to the Indonesian Investment Board (BKPM). The Minister submits Parliament's response to the President, and BKPM submits a recommendation to the President. If the President approves, the Minister signs the COW on behalf of the government. The new law lacks regulations, which should detail licensing procedures.

Good	Bad
to carry out work program and required environmental mitigation • Copies of title deeds to land • Statement of existing prospecting or mining rights held by the applicant • Application fee (a nominal amount) • Copies of personal identity document or certificate of incorporation • Company resolution to undertake project. Application for a mining right is similar, except that it also requires a detailed financial plan and a social and labor plan (containing details on employment, training, career progression, statement of local social and economic impacts, and plans for infrastructure development, poverty eradication, worker housing and health care, and procurement plan to include participation by previously disadvantaged contractors). Once the mining right is granted by the Department the right holder then completes an environmental impact assessment and prepares an environmental management plan, which are also reviewed and approved by the DME. Once these approvals are given the investor typically prepares a Bankable Feasibility Study (BFS), which addresses all financial, technical, marketing, social, infrastructure, and environmental aspects and risks. Financial institutions, in order to invest in or lend to the project, will have a check list of approvals they will require. These are not legally mandated approvals, but typically include sign-off by local government authorities, the Department of Land Affairs (certifying land ownership), the electric utility (to certify availability of power), the Department of Water Affairs & Forestry, the Department of Environmental Affairs & Tourism, and the South Africa National Roads Authority (for traffic impact).	

Comments: The South African system officially requires contact with a single ministry and its representative office in the area of the mine. In Indonesia's previous regime, foreign mining investors had contact with the Ministry of Minerals and Energy

Good	Bad
Fees: Application fees from R100 to R1,000 ($10 to $100); Prospecting license fees:R1,000 to R1,400 annually for claims up to 1,000 ha., and R1.00 to R3.00 per ha. Mining right fees: There are no mining right fees or rents, but a royalty on gross mine revenue.	**Fees:** Annual surface rents "dead rent" ranges from US$0.025 to $0.05 per ha for general survey to $1.50 to $3.00 per ha. for production, depending on type of deposit.
Benefits: The system is relatively transparent and impartial, and the licensing process takes account of the views of all stakeholders. Though many consider the new mining royalties excessively high, other fees for prospecting or short-term extraction, are moderate. **Drawbacks:** The new Act replaced the certainty of the law of property with a state licensing system based on administrative law. This may have been a necessary step, given the political pressures to increase black ownership in the mining sector, but as a consequence it increased the discretionary power of the Minister of Mineral Resources & Energy and his designees to grant, refuse, suspend, or cancel prospecting and mining rights, based on potentially immeasurable social objectives. As a result, between May 2004, when the Act came into effect, and May 2007, fewer than 50% of applications for prospecting rights and only 24% of mining rights applications were approved.	**Benefits:** The old law provided certainty to production companies in the form of a contract in which all terms and conditions of an agreement between government and a mining company were specified in detail and could not be unilaterally changed by government. The new law provides for greater decentralization, good in theory but lacking detailed regulations on how it should be implemented. **Drawbacks:** Under the new mining law 1) The discoverer of a deposit has no automatic or first refusal right for a license to develop and exploit it. 2) The certainty of a contract of work, in which all arrangements between government and a mining company are spelled out in a detailed and binding contract, has been replaced by a system of licenses granted by tender. If the tender process is not perfectly transparent, this is worse than a negotiated contract. 3) The term of production licenses has been shortened. 4) Mining companies must perform processing in Indonesia, though processing is not defined. 5) Reservation of State lands and an additional 10% royalty on all minerals extracted on State lands opens the door for unilateral declaration by government of new State Reservations, which would raise the royalty for all miners operating on those lands to internationally uncompetitive levels..

Case Study 1: Kyrgyzstan: Bad Practices Becoming Worse

Main Issues in Mining Licensing in the Kyrgyz Republic

Kyrgyzstan presents a case of a transition economy trying to revive its mining sector following an economic collapse and institution of a new Constitution and body of laws. Some countries have managed this transition well, but Kyrgyzstan is not among them. Indeed, new laws currently under consideration would create an even worse environment for mining investment. The main issues include:

Discretionary Powers

The current legal framework for mining contains substantial scope for discretionary behavior by government officials in the award of mineral rights. There are few statutory limits on Presidential power in respect of mineral licensing, and although there are no indications that this power has been abused, the potential exists for people close to the President to award licenses in a non-transparent fashion.

Legal Ambiguity and Uncertainty

Three laws - the Law on Subsoil, the Law on Concessions, and the Law on Licensing – all assert authority over mining, though many provisions of these laws are contradictory. The Law on Concessions states that mining concessions are to be awarded by tender, while the Law on Subsoil says they will be awarded by direct negotiations.

Renegotiating Agreements

Government efforts to take or increase an equity share in existing mining companies or to strike a new profit-sharing agreement or to impose new, company-specific taxes on them create uncertainty that may discourage future investment by both new and existing license holders. These agreements are negotiated on a case-by-case basis, which reduces transparency and encourages corrupt behavior. Also, these negotiations are often conducted under implicit or explicit threats that government might nationalize the entire company or impose other drastic sanctions if the foreign shareholders are not willing to meet its demands.

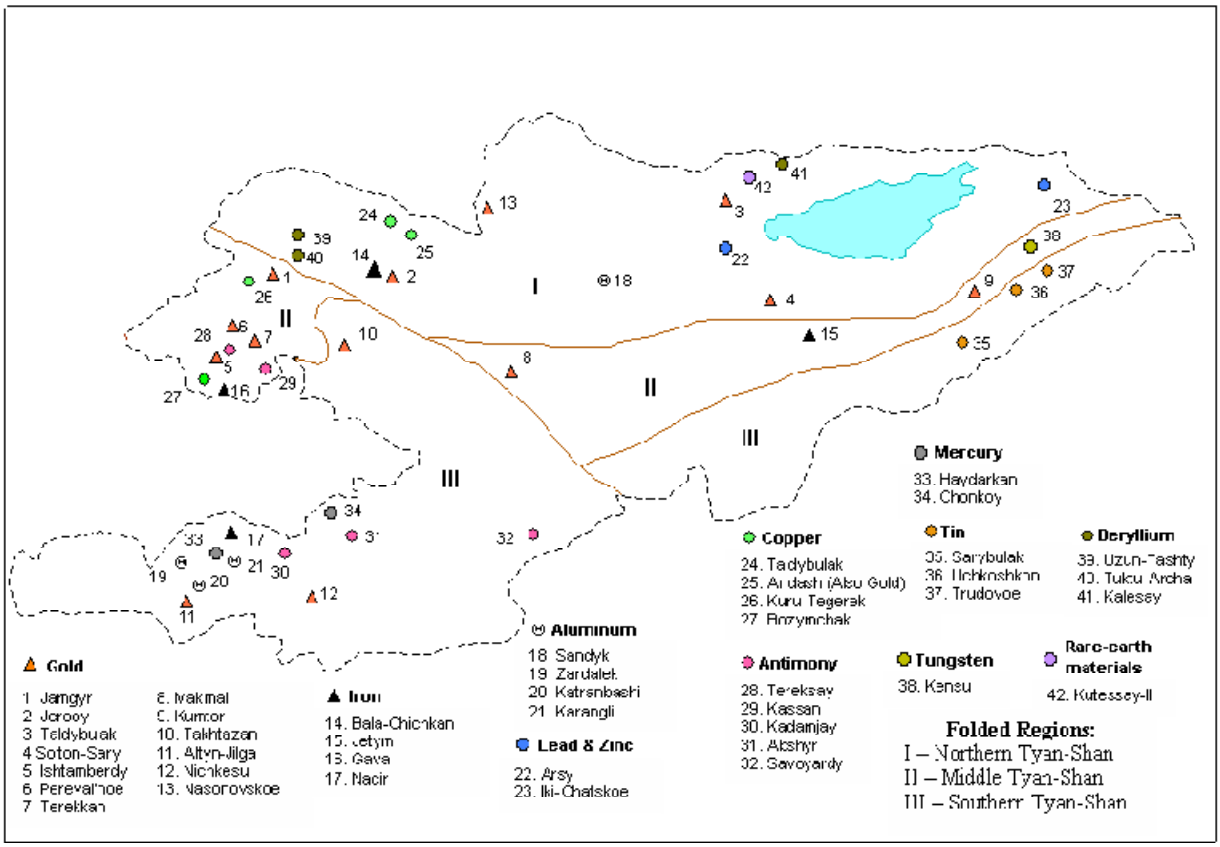
High Taxes and Fees

Kyrgyzstan imposes high initial licensing fees in the form of a "bonus" of 0.05% of the value of estimated reserves payable for an exploration license. The new draft Law on Subsoil proposes a new land use fee, with different rates for exploration and production, to be imposed in addition to the "bonus." These two licensing fees in combination make Kyrgyzstan one of the costliest countries in the world in which to conduct mining exploration and production.

Mining in the Kyrgyz Economy

Mining is an important part of the Kyrgyzstan economy, accounting for about 48 per cent of total industrial production, 41 per cent of total exports, 10 per cent of GDP, and 11 per cent of tax revenues, most of it accounted for by a single gold mining company, Kumtor, which has been operating in Kyrgyzstan since the 1990s. The mining sector employs an estimated 15,000 workers, who earn an average monthly wage of more than KGS 10,000 – about $280, or about four times the average monthly wage nationwide[32], while another 5,000 to 10,000 people engage in artisanal and small-scale mining. Small scale and artisanal mining are significant sources of income for rural populations. About five or six small-scale mining companies operate, while over 5,000 individuals are engaged in seasonal placer mining.

Figure 1
Mineral Deposits in Kyrgyzstan



Source: State Geological Agency

During Soviet times Kyrgyzstan was one of the world's largest producers of antimony and mercury, and supplied 20% of the uranium consumption of the USSR. The country also produced small quantities of gold, silver, tungsten, molybdenum, lead, and rare earth elements. Kyrgyzstan also produces substantial amounts of stone and sand, and cement. Historically, Kyrgyzstan has

exported up to one million tonnes of cement, mainly to Kazakhstan, which represents about a third of total production capacity[33], and two major cement projects in planning or development stages – a €400 million Iranian-built plant with a capacity of four million tonnes and a Chinese-financed plant in southern Kyrgyzstan – will more than double annual production capacity. Kyrgyzstan also has estimated coal reserves of 27 billion tonnes, of which three million are high quality, iron reserves of five billion tonnes, and substantial copper reserves, although exploitation of these minerals may be difficult because of their location in high and remote mountain areas.

Following a precipitous collapse in the immediate post-Soviet period, the mining industry has rebounded. Some of the Soviet-era mining complexes have been privatized and rehabilitated, while gold production has grown to become the largest mining sub-sector. Kyrgyzstan is now the third-largest gold producer in the former Soviet Union, with estimated reserves of more than 650 tonnes, among the largest in the world[34]. According to estimates by the Kyrgyz Mining Association, if the government implements some key reforms in taxation, licensing, and regulation of mining, the sector could attract well over $1 billion in new investment over the next 10 to 12 years, and could more than double sector revenues and tax contributions. If, however, these reforms are not enacted, the Association warns that the mining sector could collapse.

Policy Environment

Overall Investment Climate

Kyrgyzstan has a relatively open and liberal policy towards foreign investment, which includes non-discrimination between foreign and domestic investors, and guaranteed protection from expropriation and nationalization. Many investors, however, have become involved in disputes over licensing, registration, and enforcement of contracts. Corruption is also a serious problem, although the Government of Kyrgyzstan has publicly denounced corruption and implemented some steps to counter this problem. In June 2002, Parliament passed the Law on Commercial Arbitration, creating a mechanism for efficient resolution of commercial disputes. This mechanism, the Commercial Arbitration Court of Kyrgyzstan, began considering cases in April 2004.

Though officially there is no discrimination against foreign investors, overall licensing and registration procedures for all industries are non-transparent, so discrimination frequently occurs in practice. Despite the prohibition against expropriation, there has been at least one case, in 2006, in which local authorities seized equipment belonging to a foreign investor. Though the law guarantees compensation for assets seized by government, officials have little understanding of the distinctions between book value, replacement value, and actual market value.

Foreigners may not own land in Kyrgyzstan, though there are no restrictions on rental of land for residences or factories. The government has established a central land registry, which makes identification of land owners and the transfer of land easier and more secure.

Mining Sector Policy

Much of Kyrgyzstan's minerals policy is informed by the mining disaster of 1998, in which a truck belonging to the Canadian-operated Kumtor gold mine overturned, spilling 1.7 tons of sodium cyanide into the Barskaun River, which feeds into Lake Issyk-kul, the country's largest body of water and most important tourist destination. Four people died and more than 800 were hospitalized, and the estimated cost – comprising direct cleanup costs plus lost tourism revenues – was as much as $40 million. In the event, the mining company agreed to pay the government $4.5 million in compensation. The spill intensified mistrust of foreign mining companies, which persists to this day and is reflected in many of the subsequent amendments to mining legislation.

There exists no overarching statement of policy such as those found in Canada and other jurisdictions, which seek to set forth fundamental principles and objectives to guide legislation and regulation of the mining sector.

The President of the Kyrgyz Republic has executive authority over the mining sector and has, in a few instances, issued regulations (e.g., the act requiring all gold to be sold through the joint-stock company KyrgyzAltyn). The President also has the power to nominate senior executives and Board members of mining companies partly or wholly owned by the state.

Mining sector policy is set, to a large degree, by the President based on analysis and recommendations presented by the Department of Economic Policy of the President's Administration.

The State Geological Agency is the government body responsible for licensing and regulation of the mining industry, as well as carrying out geological surveys, mapping mineral deposits, setting minerals development policies and strategies, monitoring the development and use of mineral deposits, setting industry standards, resolving disputes over use of mineral deposits. The SGA also has important policy responsibilities. The State Committee on Mineral Reserves (SCMR), which is part of the State Geological Agency, is responsible for setting policy governing the calculation of explored mineral reserves and the terms for exploration and development of mineral deposits.

Other government bodies with important responsibilities for mining regulation include:

- The Ministry of Environment and Emergency, which must approve licenses and can cancel them in the event of improper storage, treatment, or transport of toxic materials; and,

- The State Inspection on Mining and Technical Control (SIMTC), under the authority of the Ministry of Environment, which issues and enforces regulations on safety in mining, grants licenses with respect to design, construction, installation, and repair of mines and processing facilities. SIMTC has the power to:

- Conduct examinations and inspections on rules, norms and technological regulations

- Impose economic sanctions on companies which do not implement safety measures, or impose fines for violation of rules and norms;

- Withdraw licenses, if rules and norms of safety operation are not observed[35].

The main legal basis for governance of the mining sector is the 1997 Law on Subsoil, which states, "The subsoil of the Kyrgyz Republic is owned exclusively by the government." The law was subsequently amended in 1999 and again in 2002, and several key provisions changed, including the article on ownership of mineral rights. The amended text states:

> *"The subsoil of the Kyrgyz Republic may be in the state, communal, private and other ownership. Minor deposits of generally found minerals appearing on the original ground of the land owners may be only in the communal, private and other ownership."*

The State exercises principal authority over the mining sector, as illustrated in Box 5.

The law appears to grant some rights to local administrations with respect to licensing, but these rights are not clear. In practice it appears that the national government has sole jurisdiction over all but the smallest mining projects.

The 1998 Law on Previous Minerals and Precious Stones affirms State control over sale and purchase of precious metals and stones, which includes priority rights to any such minerals offered for sale, according to auction procedures established by the government. This law does not pertain to licensing, but does have important implications for investments and operations of mining companies in Kyrgyzstan.

A new Law on Subsoil was passed by Parliament in June 2008, but has not yet been signed into law by the President. This law would substantially change many aspects of the current licensing, regulatory, and fiscal regime, and is the object of considerable controversy. This case study will examine both the existing law and the anticipated effects of the proposed new law.

Box 5

Kyrgyzstan - National Government's and Local Administration Authority over Use of the Subsoil

National	Local
• Development and implementation of state policy in research of subsoil; • Development of mining business and implementation of anti-monopoly policy; • Fostering the functioning of state system of licensing, control over compliance with the conditions of licensing and requirements of the subsoil legislation; • Development and improvement of system of for-fee subsoil use, studying market trends for mineral resources and production of goods; • Development and implementation of investment policy in subsoil use, solicitation of investments for geological subsoil study, and mineral recovery; • Monitoring the status of subsoil study, movement and depletion of explored reserves of mineral resources; • Formation, development and management of the government subsoil fund; • Conduct geological subsoil studies funded from the national budget • Development of normative and methodological provisions, rules, regulations, technological standards of subsoil use; • Control over subsoil use and protection during geological study and industrial development • Ensure ecological and technical safety by involving experts of specialized institutions of the republic and, if necessary, independent experts from international organizations; • Oversight of technical safety while conducting geological exploration and mining activities • Introduction of restrictions to ensure national security and environment protection; • Resolution of disputes arising in subsoil use	• Allotment of lands for subsoil use after receiving the subsoil use rights (license) valid for two years with their subsequent extension for a term of technical project operation and within the borders defined by such project. • Development and implementation of territorial programs of reproduction, development and use of raw minerals base, in cooperation with local councils; • Organization of the public environmental expertise of subsoil use projects; • Control of subsoil use and protection while geological study and industrial development of subsoil; • Introduction of restrictions to use subsoil sectors in instances where this use creates a threat to lives and health of people, or which may cause damage to economic objects and the environment.

The Licensing Framework

The legal basis for mining sector licensing is embodied in three main laws, which are not entirely consistent with one another or even internally. These three laws are: the Law on Concessions (most recently amended in March, 2006), the Law on Subsoil, as amended in 2002, and the Law on Licensing of 1997, amended in 2001. In addition, the Tax Code (a draft amendment to the Tax Code is close to being ratified) and the Law on Precious Metals and Stones also have implications for the mining sector.

The 1997 Law on Licensing, as amended in 2001, lists mining as one of about 30 business activities that require a license, typically granted by the State Commission under the Government of the Kyrgyz Republic on Development of Entrepreneurship. The licenses granted under this law constitute general permission to carry out a given business activity, but do not confer any specific rights to land or other resources. Article 7 states that if other permits for undertaking a business activity are required (e.g. a mineral exploration or production license), then these permits can be granted only on receipt of the general license. But under Article 13 of the law, issuance of a license is contingent on compliance with relevant requirements set forth set out in normative acts regulating a given type of business activity (e.g., the Law on Subsoil). This could potentially create a sort of Catch-22, in which a specific mining license cannot be obtained until a business license for mining has been granted, but a business license cannot be granted until all conditions in the Law on Subsoil have been met.

In practice, dual licensing seems not to be an important issue. In any event, a July 2007 Presidential Decree "On Certain Measures to Streamline the Permits and Regulatory System in the Kyrgyz Republic," acknowledged the need to reform the current system of licensing and regulation and to eliminate conflict among the various laws regulating private sector business activity. The decree called for a regulatory impact analysis leading to a draft law on regulatory reform, and mandated creation of an Intradepartmental Commission for Regulatory Reforms to oversee and coordinate the process.

Obtaining a business license from the State Commission on Entrepreneurship requires submission of:

1. Application for issuing a license;
2. Document confirming payment for application consideration and issuance of a license;
3. Copy of the Certificate of State Registration:
    a. by the bodies of the Ministry of Justice of the Kyrgyz Republic – for legal entities;
    b. by the bodies of State Statistics – for physical persons;
    c. in the corresponding state – for foreign individuals and foreign legal entities, that are not registered as legal entities or individual entrepreneurs in Kyrgyz Republic;
4. Copy of the document, confirming that the applicant has been given an identification code number of a taxpayer and payer of insurance fees;

Licenses are issued no later than one month after the application, providing the requisite fee has been paid. The law limits the licensing fee to three times the monthly minimum wage, currently KGS340 ($8.70), so the current license fee is less than $30.

The Law on Subsoil recognizes two categories of mining license:

- License to Conduct Geological Subsoil Study;
- License to Develop Mineral Deposits;

The license to conduct geological subsoil study covers all phases of exploration and is valid for two years, with renewal allowed up to a total of 10 years. The law allows licenses to be granted to other companies to prospect in the same area for other minerals.

The license to develop mineral deposits "grants the licensee the exclusive right, within the boundaries of the mining allotment, to conduct geological study, stripping, deposit preparation, raw minerals recovery and processing, use of mining and processing waste, refining (affinage), to sell and export all recovered minerals and raw minerals processing for a period established by a technical project but no longer than 20 years with the subsequent extension pending the depletion of mineral stocks[36]."

License rights can be pledged or transferred to third parties without prior approval, though notification must be given within 30 days of the pledge or transfer.

The license contains basic information on:

- type of subsoil use;
- particulars of the license holder;
- name of licensing object;
- issuance date and effective period of the license.
- specified program of activities coordinated with the licensee and indication of force-majeure circumstances beyond control;
- the kind and purpose of works related to subsoil use;
- all payments and license fees charged for subsoil use;
- precise coordinates of the land, mining, and/or geological allotment for subsoil use;
- conditions for applying technologies of recovery and processing of mineral products and rehabilitation of the environment disturbed by subsoil use.

According to Article 15, mining concessions are awarded through competitive tender in accordance with the Law on Concessions. Payment for a concession is based on the natural value of the deposit, and "*may not be lower than the annuity profit from the development thereof at the moment of signing of the concession agreement*."

Article 15, however, states that "subsoil use rights shall be granted by tender and direct negotiations...Tenders shall be announced and held with regard to gold mining, oil, gas and other objects of state importance upon the decision of the Government of the Kyrgyz Republic. The tender commission under the Government of the Kyrgyz Republic shall be specially formed for each concrete object to determine the tender terms and winners…

"The state subsoil agency, appointed by the Government of the Kyrgyz Republic shall grant subsoil use rights on applications of individuals and legal persons by direct negotiations."

These two articles appear to give the national government complete discretion over the mechanism of awarding mining rights, whether by tender or direct negotiations. According to the SGA the granting of an exploration or mining license is "general," while the right to prospect or develop a given area or deposit is granted through the mechanisms set forth in Article 15.

Rights to subsoil use on communally- or privately-owned land can be granted by the owner, subject to approval by the SGA of provisions for subsoil protection, environmental protection, work safety and works. The same article also states that "the definition of minor deposits of generally found minerals, their usage procedure and terms shall be set forth by the Government of the Kyrgyz Republic." This clause seems to indicate that only minor deposits are likely to be developed on private or communal land and that all major deposits will be developed on public land.

The law allows for non-industrial placer deposits to be prospected and developed by individuals without a license.

Subsoil use rights and land use rights are separate. Section IV of the Law on Subsoil covers relations between holders of subsoil rights and holders of land use rights. Owners of subsoil rights must negotiate agreements with holders of land-use rights to use portions of the land surface. A holder of land use rights must inform and receive permission from the SGA for any changes in irrigation or other agricultural systems that may affect prospecting or mining operations.

Disputes between land use and subsoil use rights holders are referred to the courts, though the new Commercial Arbitration Court should provide a speedier and more effective mechanism to resolve such disputes. The existing Law on Subsoil grants the national government the authority for resolution of disputes in subsoil use, though it does not specify which branch of government has this power.

No implementing regulations accompany the Law on Subsoil, so definitions of terms and the establishment and implementation of procedures are left to the discretion of the government – principally the SGA, but also other government bodies including the Presidency and the Ministry of Environment.

Fees and Taxes

Mining companies are subject to the normal range of corporate income taxes, sales tax, withholding taxes, and VAT. Effective January 1, 2006, the corporate income tax rate was reduced from 20% to 10%.

The current Law on Subsoil provides for two forms of mining tax: 1) a royalty on mineral production and, 2) a payment for the right to explore and develop the subsoil (referred to in law as a "bonus").

Other mining taxes include a "road tax" of 0.8% of gross revenues and an emergency fund payment of 1.5% of gross revenues. Road tax and emergency tax paid are deductible from the income basis for corporate income tax.

According to Resolution No. 198 of the Government of the Kyrgyz Republic of 11 May 1993 (amended 24 February 2006), mining companies are also required to pay allocations for "replenishment of mineral and raw material resources," which is said to be the same as mine reclamation. The rates vary from 2% to 12%, depending on the product. This payment remains under legal dispute, because it was introduced by a Resolution, while under the Constitution the Jogorku Kenesh (National Parliament) is the only authority that may impose taxes.

On the incentives side, mining projects qualify for 50% accelerated depreciation allowances on plant and equipment as compared to 20% for other industries, though loss carry-forwards are limited to five years..

Bonus

The bonus payment derives from Article 15 of the Law on Subsoil, which states "Payment for concession shall be established in accordance with the natural value of the deposit, and may not be lower than the annuity profit from the development thereof at the moment of signing of the concession agreement."

As currently applied, the bonus is applicable to exploration licenses and amounts to 0.05% of estimated reserves at current market prices. Few other countries apply this sort of tax. Although license fees are not uncommon for both exploration and production, the basis is usually the land area rather than the value of estimated reserves.

A company seeking a license to explore a deposit in Kyrgyzstan containing an estimated one million ounces of gold would be required to pay a bonus of $440,000, based on current prices of $880 per ounce.

Royalties

Kyrgyzstan currently imposes some of the highest mineral royalties in the world: 12% of gross sales revenue on antimony, mercury and rare earths, 5% on gold, and up to 15% on certain other minerals..

Under the proposed new Tax Code, royalties on solid minerals, excluding gold and other precious metals, will be 3% of the value of the primary commercial product. Gold and other precious metal royalties will be 5% for deposits containing commercial reserves in excess of 50 tonnes, and 3% for deposits containing less than 50 tonnes of commercial reserves.

The New Law on Subsoil

The new draft Law on Subsoil appears to authorize a hybrid form of ownership of mineral resources, though this is not entirely clear. The draft law states:

> *"The subsoil is a sovereign property of Kyrgyz Republic used as the fundamentals of life and activities of the people of Kyrgyzstan and is under the special protection of the Government.*
>
> *All the subsoil within the boundaries of Kyrgyz Republic makes the National Subsoil Foundation including used and unused parts of subsoil.*
>
> *"The subsoil of Kyrgyz Republic may be of public, private, municipal and other forms of ownership set forth by the Constitution of Kyrgyz Republic. The conversion of forms of ownership is set forth by the legislation of Kyrgyz Republic and this law.*
>
> *"The right of subsoil use is created in granting the right to a part of subsoil (license) according to the procedure envisaged by this law.*
>
> *"The subsequent private ownership of subsoil may be created as a result of civil deals and considered by this law and the legislation of Kyrgyz Republic."*

Section II, Article 4 of the law, shown in the first paragraph above states that the subsoil is sovereign property of the Kyrgyz Republic as represented by its Government, but the second paragraph then seems to allow private ownership of mineral deposits. Language used elsewhere in the law, including the third paragraph of the article quoted above, refers to private usage rights without ownership. This may not make a huge practical difference, since the Law on Concessions, which applies to mining, sets out the terms and conditions under which mining rights are granted.

This view is substantiated in Section I, Article 3 of The Law on Concessions, which states,

"The basic principles of concessionary activities are:

- contractual long-term business;
- competition-based approach to a selection of concessioners;
- observance of standards and regulations on labor protection;
- use of natural resources and environment protection in force within the KR;
- comprehensive use of a concession agreement object."

Concessions thus apply to usage and not ownership rights.

The Law on Concessions seems to say that concessions may be granted only through competitive tenders, but the Law on Subsoil allows for direct negotiations and special authorizations:

"The subsoil is allotted for use through auctions, tenders and on the basis of direct negotiations with a special authorization issued in the form of license on regular taxation regime conditions, on concession and the terms of Production Sharing Agreement."

The Draft Law, as approved by Parliament, changes mining taxes. On the positive side it reduces mineral royalties from as high as 15% to a maximum of 5% of gross revenue for large gold deposits and 3% on all other minerals. The new law, however, would introduce a third tax to the existing royalty and bonus. This would consist of an annual payment for license rights, and would vary according to stage of development, as illustrated in Figure 2.

Figure 2
Proposed Land Use Fees in Draft New Law on Subsoil (per hectare)

Year	1	2	3	4	5
Geological survey	10som	20som	25som	30som	35som
Exploration	1000som	2000som	3000som	4000 som	5000som
Production	10000som	20000som	30000som	40000som	50000som

After the first five years, the amount increases by 20% per annum. For a company exploring a 500-hectare area, the cumulative license fee over five years could amount to 7.5 million som, or about $208,000. For the same company obtaining a production license, the cost would amount to $2.08 million over five years. These would almost certainly be the highest license fees in the world. When combined with the subsoil use bonus, the fiscal barrier to entry by mining companies in Kyrgyzstan is exceptionally high. This could be at least a partial explanation of the relatively limited development to date of Kyrgyzstan's mineral wealth and the relative absence of major mining companies from Kyrgyzstan.

Renegotiating Licenses

In many countries, mining licenses are accompanied by provisions for Government to obtain a share or increase its existing share in the equity of a mining company. This is, in effect, a form of taxation, which can create considerable disparities in the tax treatment of different mining companies, since each one may be subject to different equity participation or profit sharing arrangements. This sort of practice also heightens uncertainty on the part of investors, who never know when the government might seek to increase its shareholding, typically after the mining company itself has incurred the risk of exploration and development. Similarly, to the extent that social fund contributions are not specified in the tax code – possibly as a percentage of mining revenue - uncertainty and discretionary taxation can abound, the more so since these contributions may be set in negotiations between a miner and a local or regional government rather than with the central authorities.

Kyrgyzstan, like several other countries previously mentioned, has forced mining companies to renegotiate their license agreements. The Kumtor gold mine, the country's largest, is operated by Cameco, a Canadian company. The Kumtor mine contributes 10% of Kyrgystan's GDP, and pays $30 million in annual taxes[37]. The Kyrgyz government initially owned two-thirds of the mine, but in 2004 a restructuring took place, which created a new company, Centerra, which was listed on the Toronto Stock Exchange. The Kyrgyz government liquidated 7.5 million shares shortly after the IPO, reducing its stake to 16%[38].

Starting in 2006, the Kyrgyz government initiated efforts to increase its stake in the mine. It forced Centerra to increase its "high altitude" wage bonus, and also tried to push Centerra to merge with another Canadian gold company, El Dorado, which it saw as an opportunity to increase its shareholding.

According to Kyrgyzstan's Deputy Prime Minister, who leads negotiations with Cameco, these moves were motivated by the sharp rise in the gold price from $350 to $650 an ounce during the course of 2006. The previous Prime Minister and Deputy Prime Minister were criticized for having negotiated an unfair agreement, which led to the country receiving too low a price for its shares.

The basis for assessing royalties and corporate income taxes did not change with the gold price, but the high altitude tax and a new land tax increased the effective tax rate substantially At the same time, the government sought to capture a greater share of the profits by increasing its shareholding. Centerra sought international arbitration to resolve these issues, at which point the government responded with an offer to increase its stake in Kumtor to 31% and to introduce a simplified tax structure.

A revised agreement provisionally agreed in August 2007 following government and parliamentary discussions on nationalizing Centerra, would have increased government's share to 29.4%. Pending ratification by the Parliament, the Kyrgyz Supreme Court ruled that Kumtor could continue operating, but that exploration and development must be halted until all disputes were resolved. One of the main points of contention was government's insistence that Kumtor pay property tax on the land used for its mining operations and its assessment of a KGS45 million tax liability on the company. Kumtor maintains that it rents the surface area and that property taxes are payable by the owner, not the lessee. In a scheduled vote on May 29, 2008 Parliament failed to ratify the new ownership agreement, and Centerra once again sought resolution through international arbitration, but in August 2008 suspended arbitration and returned to the negotiating table. Full nationalization, though unlikely, continues to be mentioned by government as an option.

In October 2008, the head of the State Geological Agency announced that Kumtor's share of gold mining in Kyrgyzstan would fall from its current 70% to 18.5% by 2014[39]. It is not clear what this means, but it comes in the wake of bitter disputes and lawsuits between Centerra and the government.

Government's stance towards other mining companies has also hardened. The Jerui mine in the northeastern Talas region was scheduled to begin production in 2008, but local residents blocked the mine access road for 10 days in early 2007, calling for the mine's closure for environmental reasons and concerns that local communities would derive few benefits from the mine. The real reason for the protest may have been different. The British firm Oxus originally held the rights until mid-2008 to develop Jerui, but the government revoked its license and awarded it to Global

Gold, an Austrian company, for what Oxus terms political influence and cronyism. Many of the protesters against the mine were reported to be former Oxus employees who had lost their jobs. The protest was ended and the project allowed to proceed when the government negotiated an agreement for Global Gold to contribute annual payments of $3 million to a local social fund and a 40% profit-sharing agreement for government. The dispute between the government and Oxus, however, was not resolved until mid-2008.

Discussion

Discretionary Powers

The current legal framework for mining contains substantial scope for discretionary behavior by government officials in the award of mineral rights. There are few statutory limits on Presidential power in respect of mineral licensing, and although there are no indications that this power has been abused, the potential exists for people close to the President to award licenses in a non-transparent fashion.

Legal Ambiguities and Uncertainty

There are conflicts between the Law on Concessions and the Law on Subsoil, and even within the Law on Subsoil. The laws state on the one hand that mining concessions are to be awarded by tender, and on the other hand says they will be awarded by direct negotiations.

Renegotiating Agreements

Government efforts to take or increase an equity share in mining companies or to strike a new profit-sharing agreement or to impose new, company-specific taxes on them may discourage future investment by both new and existing license holders. These agreements are negotiated on a case-by-case basis, which reduces transparency and encourages corrupt behavior. Also, these negotiations are often conducted under implicit or explicit threats that government might nationalize the entire company or impose other drastic sanctions if the foreign shareholders are not willing to meet its demands.

Full or partial government ownership of mining companies can be consistent with best practice and may have some advantages, though a properly designed tax system can give government a share of revenues that balances legitimate revenue needs with continued competitiveness for the country's mining sector and can do so as effectively as direct ownership. If, however, a government determines that owning a share of mining projects is in the national interest, the terms and conditions of that participation should be fixed in law as well as in the initial concession agreement. When governments negotiate each mining project separately, with different levels of state ownership, it can lead to discrimination in favor of companies in which the state owns a higher share. When governments force private sector partners to reopen contract negotiations under duress, it can create an environment of uncertainty that affects all mining projects in the country.

Kyrgyzstan's recent record of withdrawing licenses from one company to award them to another creates tremendous uncertainty on the part of investors. This is not to say that there are no circumstances under which a license can be withdrawn, but best practices in mining and other

sectors typically allow a wide range of other remedies, including fines and penalties, which stop well short of revoking an operating license. In the rare event that a license is withdrawn – normally for flagrant and continued violations of laws and regulations – the procedures for doing so should be entirely transparent and should give the license-holder adequate opportunity to defend his case and to appeal decisions.

Taxes and Fees

The reduced royalty rates in the new draft Law on Subsoil are a welcome development. Current royalty rates of up to 15% of gross sales revenue are among the highest in the world.

The bonus of 0.05% of estimated reserves, payable on obtaining an exploration license, is a fairly steep price for a reserve for which the feasibility and cost of commercial production have not yet been established. It could deter investment, while also increasing miners' exposure to commodity price volatility.

The State Geological Agency has proposed an alternative bonus schedule that would apply different rates based on the stage of development: geological surveys, exploration, and production. These rates would be a flat rate per unit (kg., MT, etc.) applied to estimated reserves, rather than being based on the value of those reserves, and would vary according to the mineral resource being taxed. If this proposal were incorporated into the new law, in the example cited above the exploration bonus would amount to US$ 275 per MT, which would translate to about $8,550. The SGA proposal would require payment of another bonus when a mine enters production, this time at a cost of $750 per MT. This would entail a further payment, assuming the reserve estimate has not changed, of about $22,330, for a total land use bonus of about $30,800. This proposal would therefore be far better for miners and more of an incentive to investment than the formula in the current law, and it would be much closer to standard practices in most other countries.

The proposed introduction of a new land use fee in addition to the royalty and bonus already applied will negate the benefit of lower royalties and will maintain Kyrgyzstan's mining tax regime as one of the most onerous in the world. It is common practice for countries to impose both royalties and land use fees or surface rents, and as long as the rates are reasonable they can remain competitive in attracting mining investment. In Kyrgyzstan, however, the existing bonus serves an effective land use fee, though the basis is high by world standards. It would be inadvisable for the government to introduce a third tax, which itself is also very burdensome. A recent study of tax administration in Kyrgyzstan calculated the marginal effective tax rate on the mining sector at 49%, and estimated that the new Law on Subsoil would increase this to 51%[40]. The new law would increase a tax burden that is already one of the heaviest in the world. By comparison, the effective tax rate in Quebec (see case study below) is 35.5% and the highest of any province is Manitoba, with 46.8%. Kyrgyzstan's effective tax rate on mining, especially under the new Law on Subsoil, would place it in the bottom (most highly taxed) quartile of mining jurisdictions.

Case Study 2: Canada (Quebec) – Stability and Transparency

The Canadian Province of Quebec is listed in the 2007-2008 Fraser Institute Mining as having the best investment climate for mining of 68 jurisdictions reviewed, and has ranked in the top five for the past five years. Canada is a federation, so provinces have substantial latitude to set their own licensing policies, and substantial variation can be observed from one province to the next. Canada in general has an investment climate conducive to mining, and most of its provinces and territories rank in the top 20 in the Fraser Institute survey, but Northwest Territories (37) ranks in the bottom third and Nunavut (54) in the bottom quartile. This is not due solely to a more direct Federal role in mining regulation in territories as opposed to provinces; Yukon, a territory, ranks 16th in the Fraser survey, ahead of the provinces of Nova Scotia, Ontario, and British Columbia.

Main Issues in Mining Licensing in Quebec

As a best-practice licensing environment, Quebec presents few, if any, concerns. The main features of mining regulation on Quebec include both Canadian Federal regulation and provincial policy and regulation; however, Federal mining law is fairly general and it leaves most authority to provincial governments.

Policy Environment

Quebec's mining policy is fair, transparent, and stable. This creates an environment of certainty that encourages investment.

Secure Mining Rights

Quebec's licensing regime grants a secure property right that can be freely transferred subject to entry in the mining register and payment of nominal fee. Security is backed by a well-developed GIS-based cadastre that prevents most disputes over claim location or area. Subject to certain conditions, exploration rights can be converted to production rights.

Transparency and Ease of Procedures

All licensing procedures are publicly available online, and claim registration and payment can be done online. A strict first-come first-served mechanism is observed, and there can be no dispute over who was first, since the registry is updated electronically in real time.

Rule of Law and Access to Courts

Canada has a well-entrenched rule of law and fair access to the court system, as well as enforceable private alternative dispute resolution, which create stability and increase investor certainty.

Moderate Taxes and Fees

Miners in Canada are subject to both Federal and provincial taxes. Quebec has the lowest provincial corporate income tax in Canada. Licensing and land-use fees are nominal. In lieu of a royalty scheme Quebec imposes a 12% "duty" on net profits, but profits are defined differently from profits for income tax purposes. This equates roughly to an average 3.6% royalty, which is in line with best practice.

Federal Mining Policy

Mining is a big industry in Canada. Its 2007 non-fuel minerals production of about US$ 38 billion accounts for more than 4% of GDP. The sector employs 340,000 people and is the economic foundation for more than 150 communities in northern and rural areas. Fifty-seven per cent of the world's public mining companies are listed on the Toronto Stock Exchange, the country's largest bourse.

The Federal Government's minerals and mining policy is set forth in a 1996 document entitled "The Minerals and Metals Policy of the Government of Canada: Partnerships for Sustainable Development," published by Natural Resources Canada, the federal ministry responsible for the mining sector. As the title suggests, the new policy is motivated by a concern for sustainable minerals development, which is to be achieved by:

- "affirming provincial jurisdiction over mining;
- delineating a new role for the Federal Government in minerals and metals that is tied to core federal responsibilities;
- and committing the Government to pursue partnerships with industry, the provinces and territories, and others in addressing issues within its jurisdiction[41]."

According to Natural Resources Canada, the policy:

- "sets parameters for federal decisions on minerals and metals, including a recognition of the need for sound science, the importance of global markets, and the benefits of both regulatory and non-regulatory approaches in pursuing environmental protection;
- commits the Government to continued efforts to secure international mineral investment for Canada and notes the importance of a fiscal and tax environment that recognizes the special challenges of the industry and its global context;
- and enunciates the Government's support of the principle of safe use of minerals and metals and engages the Government to advance this principle both domestically and internationally[42]."

The main objectives of the policy are to:

- ensure a sustainable development approach;
- maintain the international competitiveness of Canada's mining sector through a favorable business climate;
- ensure proper stewardship of resources and the environment through the application of risk assessment and management strategies;
- promote recycling of metals through regulation and international cooperation;
- set standards and fiscal and regulatory conditions for mine reclamation;

- ensure land access for minerals development and provide assurance to industry that when it finds a mineral deposit it can develop that deposit;
- protect wildlife habitat while recognizing the economic and social importance of mining;
- protect aboriginal interests by promoting involvement of aboriginal communities in decision making and development;
- support science and technology development in minerals extraction and processing;
- play a leading role in international forums to ensure that environmental protection concerns do not adversely affect the competitiveness of Canada's mining industry;
- commit to a liberalized, predictable, rules-based international trading and investment regime and promote the sound management of minerals and metals through legally binding agreements, government-sponsored non-regulatory approaches, and voluntary industry initiatives.

Canada's mining policy and law devolves most mining responsibility to provincial governments. The role of the Federal Government is limited to:

- uranium throughout the nuclear fuel cycle, from exploration to disposal of waste;
- minerals exploration and mining on federal lands and offshore areas;
- mineral development in the Yukon, Northwest Territories, and Nunavut (though the Federal Government has committed to devolving most responsibilities to territorial governments);

The Federal Government has eliminated direct financial support to the industry, while federal fiscal policy does not distinguish between mining and other industries for tax purposes. Since 1985 the Federal Government has levied no royalty or similar tax on minerals production.

Quebec Mining Policy

Quebec's mining policy is rooted in what the provincial government calls the principle of "free mining," which itself is based on:

- a right to explore open to all, regardless of an applicant's means;
- a right to access a vast area of the territory;
- the assurance of obtaining the right to mine a discovery , subject to certain conditions;
- "first-come, first-served," allocation of mining rights.

Oversight and regulation of the mining sector are the responsibility of the Provincial Ministry of Natural Resources and Wildlife (MRNF).

Exploration

The claim is the only valid exploration right in Quebec. The provincial government, though it still allows staking of claims, has moved to a system of "map designation," using GPS coordinates to define claim areas. In order to phase out physical claim staking, the provincial government has made the procedure for map designation far simpler.

To acquire a claim by map designation, the applicant must:

1. complete the form "Notice of map designation" and

2. send it to the Office of the Registrar or by Internet via GESTIM Plus (the provincial government's online system for management of mining titles) and pay the required fees.

GESTIM has an interactive map feature that allows the user to view and select available parcels that have already been defined by the Ministry.

The procedures for obtaining an exploration license on State reserved lands (mainly wilderness or wildlife reserves or parks) are more involved and subject to various conditions and restrictions, which may include prohibitions against building roads or erecting structures, limits on areas where drilling may take place, restrictions on cutting of trees, and many others.

The fees to register and renew a claim vary by size and location, with claims north of the 52nd latitude slightly more expensive than those below it. The claim registration fee ranges from C$25 to C$575. The claim is valid for two years, and can be renewed indefinitely for a fee ranging from C$25 to C$230, provided certain conditions are met. These conditions pertain mainly to the value of work required to maintain rights to the claim. These amounts are on a sliding scale, with more work required the longer a claim has been held, and can range from C$48 in the first year for a claim of 25 ha. or less to as much as C$3,600 in the seventh year for a claim of more than 100 ha. The claim holder must file a report of work verifying work and expenditures as a condition for renewal.

GESTIM accepts online payments by credit card or bank transfer.

The procedure for staking a claim is somewhat lengthier and more involved, though the cost is no greater. Staking a claim may require prior authorization as well as review and verification by the Ministry.

Quebec issues two kinds of mining rights: 1) a mining lease; and, 2) a lease to mine surface mineral substances (SMS).

The Mining Lease

The mining lease applies to all mining except for surface mineral substances and uranium, which is governed by the Federal mining ministry (Natural Resources Canada).

Any legal or natural person who holds a mineral exploration license can obtain a mining lease, on condition that the deposit is mineable.

To obtain a mining lease the applicant must submit a written application that includes the following information:

- his identity and that of the person to whom correspondence must be addressed;
- the identification number of the applicant according to the Act Respecting the Legal Publicity of Sole Proprietorships, Partnerships and Legal Persons;
- a description of the land in question, including its location, its surface area and a list of the claim numbers to be covered by the mining lease;
- the identification of the owner of the land covered by the mining lease application or the lessee of the mining rights or, if the land is subject to an exclusive mining lease for surface mineral substances, a description of these rights and the agreement reached between the lessees and the applicant;
- a surveyed plan of the land as prepared by a land surveyor according to the instructions laid out by the Minister of Natural Resources and Wildlife and the Regulation Respecting Mineral Substances other than Petroleum, Natural Gas and Brine;
- a report certified by a geologist or an engineer describing the nature and extent of the deposit and its likely value;
- payment of the annual rent for the first year of the lease.

Applications should be submitted at the Office of the Registrar or at one of the regional offices. Documents are considered submitted the day they are received. Payment can be made in cash, by check, by money order, by credit card, or by debit card.

The Minister may ask the applicant for additional information to demonstrate that the deposit is mineable. He may also postpone the conclusion of a lease if:

- a portion of the land referred to in the mining lease application is already subject to an exclusive lease to mine surface mineral substances. The postponement would continue until the applicant obtains the consent of the holder to access the land or to carry out mining work; or

- there is no agreement concerning the amount of compensation to be paid. In this case, the conclusion of the lease may be postponed until the application to determine the compensation is filed before a court with the appropriate jurisdiction.

Finally, the Minister can refuse to conclude the mining lease if, six months after the postponement, the applicant has failed to obtain the consent of the holder of the exclusive lease or has not filed an application to determine compensation through a court process.

The surface area of a mining lease cannot exceed 100 ha. unless the applicant can justify why special circumstances warrant an exception. The mining lease is granted for 20 years and is renewable indefinitely for 10 year periods.

As conditions for obtaining and keeping the lease, the lease holder must:

1. **Pay applicable fees** (see Box 7 for complete schedule);

2. Submit a mine site rehabilitation plan to the MRNF, along with a financial guarantee for the rehabilitation of mine tailings, accompanied by an outline of the financial guarantee for rehabilitating any such areas. The plan must include a description of all mining activities planned for the site and any rehabilitation measures that will be required to restore the site to a satisfactory state, as well as an estimate of the costs for carrying out this work. Once the plan has been approved, the operator must present a financial guarantee representing 70% of the cost for rehabilitating the tailings. The Minister may demand full payment of the estimated rehabilitation cost if the financial position of the mine has deteriorated;

3. Commence mining within four years of issuance of the license;

4. Carry out exploration or mining work worth at least C$35 per ha. per year;

5. **Provide information on the economic, geological or technical nature of mining activities**. Some information must be provided at the commencement of mining operations, on the resumption of mining if mining was interrupted for a period of more than six months, or when mining ceases. Other information must be submitted annually (See Box 6 for further detail).

6. Take appropriate safeguards to protect against damage potentially resulting from a temporary or permanent cessation of mining activity.

Box 6

Documentary Requirements for Holders of Mining Leases (Quebec)

Documents to be remitted at the commencement or resumption of mining

The operator must give the Minister of Natural Resources and Wildlife a notice informing him of the date of commencement or resumption of work and specifying, where applicable, any change pertaining to the name of the mine, its operator or its manager, or any change concerning the nature of the operations.

Documents to be remitted when mining is suspended or ceases

In the case where mining operations are suspended for more than six months, the operator must send a written notice informing the Minister of Natural Resources and Wildlife at least ten days before work is suspended. Moreover, in the four months following the stoppage of operations, he must remit a copy of the following items, certified by a geologist or an engineer:

- the plans of any underground workings or open pits;
- the plans of surface installations including, where applicable, mine sites;
- the location plans for any mine tailings;
- geological plans;
- a record of all drill holes;
- a report on ore reserves.

Note: All plans and records must be kept up to date when the mine is in operation.

Documents to be remitted annually

The operator must remit certain documents requested by the Institut de la statistique du Quebec within the specified time frame:

- Before **October 31st:** the form concerning preliminary data for the current year and forecasts for the following year, data on research expenses, sums devoted to capital assets and repairs, the quantity and value of production, as well as the nature and cost of rehabilitation work;
- Before **March 31st:** a report on the activities of the previous year detailing the nature of the work (exploration and mining), research expenses, capital assets and repairs, current ore reserves, the quantity and value of the production, the number of employees as well as any other information that the Minister may require;

In **January:** surface plans, underground workings and open pits as of December 31st of the previous year. The plans must be signed by an engineer.

The SMS Mining Lease

The SMS mining lease applies to sand, gravel, inert mine tailings, and other unconsolidated deposits, as well as dimension stone. The lease can be granted on a non-exclusive basis or, when the minerals are used for industrial activity, on an exclusive basis. The maximum term for surface mining leases is 10 years, except for peat extraction, for which the maximum term is 15 years, but leases can be renewed.

Several conditions apply to surface lease applications, including:

- application for a forestry work permit if the site needs to be cleared;
- payment of fees based on quantity and nature of substances extracted;
- submission of quarterly reports showing daily extraction.

Mining Taxes, Fees, and Duties

Quebec assesses no royalties on sub-surface mineral extraction. Extraction of surface mineral substances is subject to unit-based royalties as shown in Box 5, but hard rock mining is not. Quebec instead imposes a 12% "duty" on the net profits of mining companies, and these profits are defined in ways that make the duty resemble a royalty rather than an income tax.

By many measures, Quebec has the most favorable tax environment for mining companies. The basic corporate tax of 9.9% is lower than in any other province, while a wide range of generous exemptions and incentives – including a 100% deduction of development expenses as opposed to only 30% in the Federal tax code - applicable to both corporate tax and mining duties reduces the effective tax rate substantially.

A 2007 review of mining taxation in Canada conducted by PricewaterhouseCoopers estimated that the 12% mining duty equates to a royalty on gross revenues of about 3.6%, which is roughly the same as the royalty assessed in Saskatchewan, and lower than in any other province or territory save Ontario. The same review calculated Quebec's average effective tax rate on mining of 35.5%, the lowest of all of Canada's provinces and territories, which otherwise range from a low of 40.1% in Ontario to a high of 46.8% in Manitoba.43 Mining investors in Quebec can therefore expect higher rates of return than in other provinces.

Box 7

Quebec Fees for Mining Licenses

Section[1]	Subject	
39	Annual rent for mining lease per hectare[3]:	
	on granted or alienated lands	$20/ha
	on lands in the public domain	$41/ha
41	Additional amount for a mining lease renewal form submitted in the 60 days preceding the lease expiry date	$110
42	Minimum cost of work that must be carried out each year by grantee on	

Section[1]	Subject	
	a mining concession, in accordance with section 119 of the *Mining Act*	$35/ha
49	Non-exclusive lease to mine surface mineral substances (SMS)	$229
50	Renewal of a non-exclusive lease to mine SMS	$229
53	Exclusive lease to mine SMS other than peat-moss	
	Term of Lease	Amount of the rental
	5 years or less	$2,518
	from 5 to 6 years	$3,021
	from 6 to 7 years	$3,524
	from 7 to 8 years	$4,029
	from 8 to 9 years	$4,531
	from 9 to 10 years	$5,034
	Exclusive lease to produce peat-moss (15 years)	$7,553
54	Exclusive lease to mine SMS, fee to increase surface area	$115
56	Exclusive lease to mine SMS, additional amount for renewal within 60 days preceding the expiry date	$110
57	Fee to extract a fixed quantity of SMS	$503
61 [2]	Surface Mineral Substances	Amount of royalty

Section[1]	Subject	
	Peat-moss	$0.05 per standard bale of extracted peat-moss
	Sand, gravel, clay and other unconsolidated deposits	$0.68/m³ of extracted substances ($0.36/m.t.)
	Building stone	$4.40/m³ of alienated substances
	Crushed stone and any stone used for construction purposes	$0.26/m.t. of extracted substances
	Stone and sand used as silica ore and any stone used for the preparation of cement, such as limestone, calcite and dolomite	$0.40/m.t. of extracted substances
	Inert mine tailings from the ore treatment or from pyrometallurgy operations and surface mineral substances other than those described in this table	$0.21/m.t. of extracted substances
62	Additional amount:	
	Report of extraction or alienation of SMS submitted past the prescribed date Report of extraction or alienation of SMS submitted more than 15 days past prescribed date	$50 $100
	Paragraph 2, subparagraph 1	Interests accrued on the amount of royalties payable, capitalized monthly, calculated from the date on which the report should have been sent to the Minister, at the rate fixed under section 28 of the *Act respecting the Ministère du Revenu* (R.S.Q., c. M-31).

[1] Section numbers refer to the Regulation respecting mineral substances other than petroleum, natural gas and brine (M-13.1, r.2).
[2] m³ = cubic metre; m.t. = metric tone
[3] Annual rent per hectare on the mine tailings sites on lands in the public domain: $89/ha (in effect from April 1, 2008 to March 31, 2009).
[4] Source: Quebec MRNF, http://www.mrnf.gouv.qc.ca/english/mines/rights/rights-extraction-exploitation-2007-2009.jsp

Discussion

What makes Quebec's licensing regime an example of good practice? In elaborating on the findings of the 2007/2008 Fraser Institute survey, Fred McMahon, who coordinated the survey, explained,

> *"Quebec's government… provides a favorable policy environment to go along with strong mineral potential. Mining companies feel Quebec's stable policies provide them with the certainty that reduces risk for long-term projects. Year after year, the survey bears out that above all, mineral exploration companies value stability and certainty when it comes to government policy… the results of the mining survey reinforce the importance of having a stable, predictable, transparent policy environment in order to attract investment, as well as ensuring good social, environmental and economic outcomes. If the policy structure is opaque, unstable, and unpredictable – the things that most vex the mining industry – then the process can be easily politicized and good projects opposed by special interests may be rejected while bad projects with powerful supporters may be approved[43]."*

The transparency of Quebec's licensing regime is beyond question. All documentary requirements, procedures, fees, and forms are available on the website of the MRNF. Most procedures, from staking a claim to reporting daily extraction volumes and paying fees can be done online. The principle of "open mining," in which exploration permits are granted on a first-come first-served basis and extraction licenses are granted to the holder of an exploration license subject to a few transparent conditions virtually eliminates the potential for corruption or political influence-peddling to affect the allocation of mining rights.

Quebec provides more favorable tax treatment to mining companies than most other Canadian provinces and territories. The province does rely significantly on special allowances and incentives, but few of these are specific to the mining sector and thus do not discriminate against other industries. Even more important, they are applied uniformly and transparently, without specially negotiated deals. Some economists might recommend that Quebec remove some allowances and incentives in favor of lowering overall tax rates, but as long as the incentives and allowances are applied transparently and without favor this is purely a fiscal and not a regulatory question.

Quebec's mining licensing system works well in large part because it operates in the context of Canada's overall mining legislation, which is flexible and which devolves most authority to the provinces. The importance of Canada's tradition of rule of law and access to the courts also cannot be overstated.

Case Study 3: Chile – Good Practice in an Emerging Economy

Issues in Mining Licensing in Chile:

Chile was chosen for a case study because it is an emerging upper-middle income economy – its per capita income level is comparable to that of South Africa, Russia, Mexico, and Botswana – whose system of mining licensing is one of the best in the world. The 2007-2008 Fraser Institute survey ranked it the 6th most favorable policy and regulatory environment in the world. Main best practice features include:

Security of Tenure: Granting of exploration and mining licenses confers a secure property right that can be pledged as collateral and freely transferred. Together with a first-come first-served licensing system, it allows smaller firms to obtain mining rights and to raise sufficient capital to carry out exploration and to partner with larger companies for development and production. Holders of exploration licenses have a preferential right to mining licenses for the same deposits.

Clear Legal and Administrative Framework: The Organic Law on Mining Concessions is the dominant law, and there are no apparent conflicts with other legislation such as the Investment Law and Environment Law. The law is clear on procedures and requirements for mine closure and environmental impact assessment.

Rule of Law and ADR: Chile has an independent judiciary and alternative dispute resolution mechanisms. Concession rights are formally granted and can be terminated only by a judicial act. This protects investors from arbitrary administrative decisions and ensures due process.

"Rational Mine Operation": Instead of strict "use it or lose it" conditions, mining companies are allowed to carry out exploration, development, and production according to their own plans and market conditions.

Indefinite License Term: Instead of granting a fixed-term license for mining (as opposed to exploration), Chile grants a license that can continue indefinitely as long as the annual fee is paid. This eliminates uncertainty and the potential for political interference in the renewal of a mining license.

Time-bound Decision-making: The Environment Law requires issuance of a ruling within 120 days of submission of a conforming environmental impact assessment. A mining company can commence work beforehand on payment of a bond for any damage caused during the evaluation period. If a ruling is not issued within 120 days, approval is deemed to be granted. Applications for exploration permits must be ruled on within 60 days of submission of the full dossier to the court.

Moderate Taxes, Royalties, and Fees: Fees are based on a "Unit of Taxation," which can change from year to year according to a specified formula. At the current exchange rate 1 UT = $57. Chile imposes a maximum annual exploration fee of less than $250 at the current rate and an annual mining concession fee of less than $600. A 3% royalty was introduced in 1985, but applies only to companies earning an operating margin of more than 5%. The corporate tax rate is 17% and the average effective tax rate on mining is 25.9%.

Non-discrimination: Chilean law grants the same rights to foreign investors as to domestic ones and guarantees free conversion and repatriation, and protects against expropriation. Though the state-owned CODELCO is the largest mining company, it receives equal treatment to private companies, and pays higher taxes than most private companies.

Small-scale Mining Regime: The Mining Law includes special dispensations for small-scale miners, including easier licensing procedures, lower license fees, training, technical assistance, and help in forging links with larger firms.

Mining in the Chilean Economy

Chile is the world's largest copper producer, accounting for 37.5% of world supply in 2007. It is also the world's number-one supplier of molybdenum (28.2%), natural nitrates (close to 100%, though production of synthetic nitrates has reduced Chile's overall market share), lithium (42%), and iodine (55%). The country also produces significant amounts of manganese, gold, silver, and iron. Mining accounted for 7.8% of Chile's GDP in 2007 and 66% of its export earnings[44].

In November 2008 the Central Bank lowered its estimate for 2008 GDP growth by half a percentage point, from 4.5% - 5.0% to 4.0% - 4.5% Though Chile has not escaped the global financial crisis and recession - and as a major commodities producer remains vulnerable to lower demand in major markets – GDP is still forecast to rise by about 2.5% in 2009.

The Policy Environment

Overview

Chile has perennially scored near the top of the Fraser Institute annual survey of mining companies, and was ranked sixth on the policy dimension in the 2007/2008 study after suffering a precipitous fall to 27th in the previous year's ranking from third the year before that.

The one-year drop in Chile's rank was attributable mainly to worries about political stability and security during the first year of Michelle Bachelet's tenure as President, when a mortgage crisis threatened to throw thousands of owners of "social housing" out of their homes and more than 600,000 high school students took to the streets to protest the poor quality of education. The government underwent three cabinet reshuffles in less than a year and mining companies, in a country with vivid memories of the chaos of the Allende years and the subsequent Pinochet dictatorship, feared the worst. Though many of the social problems that sparked the unrest persist – most notably growing income inequality, increasing corruption, and weakening of the centrist, pro-market coalition – persist, calm, stability, and confidence in the Bachelet government, have been restored.

The Investment Climate

Chile has been characterized for over three decades as a welcoming environment for foreign direct investment. A 2006 U.S. State Department review of Chile's investment climate remarked that:

> *"Chile's sound, market-oriented policies have created significant opportunities for foreign capital to participate in the country's impressive economic growth. Chile's business climate is generally straightforward and transparent; corruption is rare. Foreign investors receive national treatment in nearly all sectors. A broad political consensus on the advantages of foreign investment means that Chile's policies towards FDI are unlikely to change, despite the end of the Lagos Administration in March 2006[45]."*

Chile's Foreign Investment Statute (Decree-Law 600) of 1974 guarantees, by means of a contract between the foreign investor and the Chilean State, the free repatriation of profits and capital, tax stability and the principle of non discrimination between domestic and foreign investors. The 1974 Decree was subsequently established as Law N° 523 of the Ministry of Economy, Development and Reconstruction effective September 3, 1993.

The positive elements of the investment climate include:

- Transparency of the regulatory system;
- Protection of property rights and just compensation for seizure of property;
- An independent judiciary and access to the courts;
- Alternative dispute resolution;
- Low to moderate corruption;
- Prohibition against unilateral modification of contracts by the government;
- Reasonable performance requirements;
- Rapid approval of investment applications;
- Non-discrimination between domestic and foreign-owned entities.

Mining Policy

Mining policy is governed principally by the Organic Constitutional Law on Mining Concessions of 1982, and the Mining Code of 1983 and its accompanying regulations. Other important legislation, in addition to the Foreign Investment Statute, includes the Environment Law of 1994 and its regulations, and the 1986 Regulation on Mining Safety.

Chile's Marxist Allende Government, which came to power in 1971, passed a constitutional reform that gave the state "absolute, exclusive, inalienable, and imprescriptible" ownership of all mines, with the declared aim of nationalizing four large copper mines belonging to U.S. companies. This reform was followed by expropriation of the four mines without compensation, justified by the claim that the mining companies had earned unfair and exorbitant profits from the mines and so had already been adequately compensated.

Jose Pinera, who served as Chile's Secretary of Mining in the early 1980s and who drafted most of the mining legislation still in effect, was charged with creating a new mining regime based on free market principles, following the overthrow of the Allende Government in 1973 and subsequent reforms that included drafting a new Constitution, passed in 1980, which although it enshrined certain free market principles did not restore private mining rights that had prevailed until the advent of the Allende regime.

This was a complicated task. According to Pinera, he had to "draft a constitutional law that would establish secure property rights in mining, obtain presidential and legislative approval for it, win

the assent of the Constitutional Tribunal, and convince local and international entrepreneurs of its rationality, as well as to persuade the public that the national interest had been safeguarded. All of those goals had to be achieved without weakening the legitimacy of the Constitution[46]."

One immediate challenge was what to do with Codelco, the state enterprise that operated the mines previously expropriated from the U.S. companies. At the time, Codelco produced about 85% of Chile's copper and generated a similar percentage of national export receipts. Though free market principles would dictate its privatization, Codelco's importance to the economy was such that privatization would become a very contentious issue, especially if undertaken by a non-elected government. Though he envisaged eventual privatization of Codelco, Pinera's immediate solution was to create a legal framework to encourage private investment in and ownership of the mining sector, and development of new deposits and expansion of existing ones, which over time would erode Codelco's near-monopoly.

The new Organic Constitutional Law on Mining Concessions embodied the following principles:

- "**Protection of the concession as a property right**. The registered owner can freely exploit, enjoy, and dispose of the concession as he thinks fit; he can sell or mortgage it, pledge it as collateral, or leave it to his heirs. Moreover, the concession right cannot be taken from him except by means of an expropriation.

- "**Fair compensation for any act of expropriation**. The owner of the concession has to be fairly indemnified. Compensation must be paid in cash and must reflect the entire reduction in the owner's net worth, equivalent to the present value of the concession's future net cash flows.

- "**Rational operation of a mine**. The concession-holder is not subject to an arbitrary "use it or lose it" clause, but may carry out the working of the mine in accordance with his own methods, processes, work tempo, and production plans, which will evolve in response to the demands of a complex and ever-changing international market. The management of the mine will not be subjected to controls and obligations imposed by the government of the day.

- "**A concession right with an indefinite life**. There is no surrender date: retention of the concession is subject solely to the payment of an annual fee per hectare ("la patente minera"). The indefinite life was important in order to avoid the possible politicization of the process of renewing the concession term for a deposit under operation, and in order to eliminate incentives to "perverse" exploitation of a deposit in the years leading up to expiry of the original concession term.

- "**Insulation from politics**. The full concession right is not a political creation. Its existence and termination are in the hands of the Judicial Branch, not the Legislative Branch or the Executive. The concession originates in a legal procedure whereby the judge recognizes the existence of the right conferred by the act of discovery[47]."

Licensing Procedures

The principles and framework for private property rights having been established in the Organic Constitutional Law on Mining Concessions, the Mining Code established the institutional and regulatory framework for governance of the mining sector, including the award of licenses.

In view of the free market orientation of Chile's government and the Constitutional mining law, the Mining Code of 1983 begins inauspiciously with Article 1, which begins with the statement that:

> *"The State has absolute, exclusive, inalienable and imprescriptible ownership of all mines, including natural guano deposits, metal bearing sands, salt deposits, coal and hydrocarbon deposits and fields and other fossil substances except surface clays, regardless of property rights of natural or legal individuals over lands wherein they may be found."*

The law goes on to state that:

> *"Any person is, however, entitled to dig test pits and to remove samples in the search for mineral substances, as well as to establish a concession for the search or mining of substances over which, under organic constitutional laws, concessions may be granted, with the sole exception of individuals mentioned in article 22 [officials of courts with jurisdiction over mining concessions and officials of state agencies or companies involved in the granting of mineral concessions]…*
>
> *"A mining concession is a real and immovable right, distinctive and independent from property rights over the surface tenements, although owned by the same individual. Said rights may be claimed against the State and any other person and may be mortgaged or subject to other real rights and, in general, all acts and contracts. Said concession is subject to the same civil laws as all other immovable's or properties, except insofar as contrary to the provisions of the organic constitutional law on mining concessions of this Code. A mining concession may be granted for exploring or exploiting, the latter is also known as a mining claim."*

An exploration or mining concession is granted by a judicial decree by the civil court with jurisdiction over the proposed concession area. A person may apply for and be granted such a decree on behalf of a third party, though the third party must ratify all actions taken by the agent within 30 days of submission of the application. A concession to explore may not exceed five thousand hectares, while the area of a mining concession may not cover more than ten hectares.

The first applicant for an exploration or mining concession has a preferential right to the concession. Action on granting of concessions must be taken within three months of submission of the application.

Exploration

The Mining Code allows test holes to be dug and samples extracted freely on any open and untilled land. In other cases (such as tilled or planted land) written permission of the owner or its current holder is required. The relevant governor or mayor must grant permission for test drilling on public lands. If permission is refused, the applicant may file an appeal in court. An application for a permit must specify the number of persons involved in the exploration and is subject to conditions that 1) work cannot be performed where there are unharvested fruits; 2) the duration of work cannot exceed six months from issuance of the permit; and, 3) the permit holder must compensate for all damages resulting from his activities (the land owner or holder may request a court-approved guarantee prior to granting permission).

The right to dig and sample includes the right to create temporary easements on surface tracts as needed, such easements not to exceed six months from start of activity.

An application for an exploration concession must include:

1. The name, nationality and address of the petitioner and, when pertinent, the name of the person acting as agent and, if the petitioners are individuals the application shall state their profession or trade and marital status;

2. The geographical coordinates or the M.U.T. of the central point of the surface of the concession requested, with a precision of a second or ten meters, respectively;

3. The designation or name of the concession to explore requested; and,

4. The area, expressed in hectares, of the surface of the concession.

Each concession requires a separate application. An exploration concession is valid for two years, renewable once for two years.

Within 90 days of submission of a petition to explore, the petitioner must submit a request, including proof of payment of the filing fee, for review by the Court. The Court must render a decision within 60 days of receipt of the request and accompanying documentation. The maximum period from initial petition to final ruling is capped at 150 days, though it can be less.

Mining Production

Mining claims or concessions cannot be granted for any substance in tracts already covered by existing concessions.

Mining activities require written approval or approvals from the relevant authorities as follows:

1. The corresponding Governor, to mine in cities or villages, in graveyards, on beaches of enabled ports and of water catchments for cities; or settlements less than fifty meters, horizontally measured, from buildings, public roads, railroads, high tension power lines, cableways, conduits, river bank protection, water courses and public lakes and less than two hundred meters, horizontally measured, from dams, radio communication stations, antennas and telecommunication facilities. This permission is not required when the buildings, railroads, high tension lines, cableways, conduits, radio communication stations,

antennas and telecommunication facilities are the property of the party interested in such mining activities or when the owner thereof authorizes the interested party to undertake said mining activities.

2. Before granting such permission to execute mining activities within a city or settlement borders, the Governor must consult with the Regional Ministerial Secretary of Urban Development and Housing.

3. The corresponding authority, to mine in areas classified as national parks, national reservations or natural monuments.

4. The Office of Frontiers and Borders to mine in areas declared to be border areas for mining activities purposes.

5. The Ministry of Defense, to mine less than five hundred meters from areas designated for storage explosive or inflammable materials and for mining activities in military areas and enclosures under the jurisdiction of the Ministry, such as harbors and airports, or in areas within 3,000 meters of such facilities

6. The President of the Republic to engage in mining of guano deposits or sites declared to be of historical or scientific interest.

Special requirements to protect the national interest, national defense, public safety, or preservation of natural or historic sites may be set forth when in the permits or licenses when granted. A mining concession is a perpetual right with no specified expiration.

An application for a concession to mine must include:

1. The name, nationality and address of the petitioner and, when pertinent, the name of the person acting as agent and, if the petitioners are individuals the application shall state their profession or trade and marital status;

2. The location of the point of interest to the applicant, defined as the geographical coordinates or the M.U.T. of the central point of the surface of the concession requested, with a precision of a second or ten meters, respectively

3. The number of mining claims requested and the name given to each of them;

4. The area, expressed in hectares, of the surface of the concession The total area of the group of concessions claimed in an application for a concession to mine cannot exceed one thousand hectares,

5. When pertinent, the fact that the right granted under a concession to explore is being exercised.

A petition or a claim must be registered by the Court Secretary and published in the Official Bulletin of Mines of the Servicio Nacional de Geología y Minería, referred to in the Mining Code as “el Servicio,” and in English as “the Bureau,” under the Ministry of Mines. The Bureau is responsible for maintaining the official national record of mining claims, registered according to MUT coordinates.

Environmental Protection

Environmental protection in the mining industry has lagged behind the establishment of a good investment climate and licensing regime for the mining industry. Cochilco, the Chilean Copper Commission, estimates that more than 300 mine tailings dams have been abandoned with little or no environmental remediation[48]. Chile has, nevertheless, made considerable strides to improve environmental protection since the mid-1990s.

The 1994 Law on Environmental Protection established a National Commission for the Environment (CONAMA), and empowered it to establish, review, and revise norms on environmental protection. Primary norms themselves are enacted by decree signed by the Ministry of the Presidency and the Ministry of Health, while secondary norms are issued by decree carrying the signature of the Ministry of the Presidency and the competent ministry (in this case the Ministry of Mining). .

The law also established the basis and requirements for environment impact assessments and empowered Regional Commissions on the Environment as well as the Executive Committee of CONAMA, depending on the region or regions affected, to review and issue decisions pertaining to the environmental concerns raised by EIAs. The law mentioned ”Mining development plans, including coal, oil and gas projects, including exploration, prospecting, exploitation, processing plants and debris and waste disposal, as well as industrial extraction of aggregate, peat or clay,” as activities requiring an EIA. An EIA must contain:

- A description of the project;
- A baseline environmental assessment;
- A detailed description and forecast of the environmental effects and risks of the project or activity;
- Description of measures to minimize or eliminate adverse environmental effects and of repair measures to be undertaken as required;
- A plan for evaluation and monitoring of the variables enumerated in the assessment;
- A plan for compliance with pertinent environmental legislation.

The Regional or National Commission on the Environment has 120 days to review and issue a judgment on the EIA. The Commission may grant provisional permission to proceed with the project if the promoter presents an insurance policy or bond to cover any environmental damage that may arise within the 120-day evaluation period. The Commission may request clarifications, amendments, or additions to the EIA, in which case an extension of the 120 days is granted. If the Commission fails to pronounce on the EIA within the time frame established in law, approval is deemed to be granted.

In the case of a favorable ruling the Commission issues a certificate that establishes the environmental conditions or requirements that must be fulfilled in order for the Bureau to issue

a license. In the case of an unfavorable ruling on a mining project, the Bureau would have to deny the relevant exploration or mining license.

The Law provides for public gazetting of EIAs and ensures the rights of citizen groups to make observations and representations during the evaluation period.

In one indication that the process works effectively, in March 1997 Chile's Supreme Court overturned the government's approval of the $350 million Rio Condor logging project in Tierra del Fuego proposed by Trillium, a U.S. company. The ruling stated that neither the National nor the Regional Environment Committee had sufficient evidence to declare the project environmentally sustainable, and had not adequately studied the adverse effects of the project[49]. One likely reason for the contretemps was the absence of regulations for the 1994 environment law until April 1997, a month after the Supreme Court decision.

Though the government and industry argued at the time that the Supreme Court decision would adversely affect Chile's investment climate and reduce inward FDI flows, this did not happen. The new regulations issued much clearer guidance on the procedures for submitting and evaluating environmental impact assessments and statements, and the required content of such submissions, and also strengthened the inspection and enforcement rights of the national and regional commissions.

Fees and Taxes

One-time fees payable within 30 days of submitting a petition or claim for exploration and mining concessions, respectively, are shown in Box 8, below. They are based on the Monthly Tax Unit (UTM), which is a number, adjusted monthly, said to represent some percentage of average monthly taxes paid by companies. The UTM for January 2009 is CLP 37,614, equivalent to $57.25 at the January 6, 2009 exchange rate of $1 = CLP 657.

The highest annual rate payable by a mining concession holder working the maximum allowable 10 claims of 100 hectares each is only $5,725 at current exchange rates.

Concession holders that have not paid their annual fees may ultimately have their claims rescinded and auctioned. Non-payment is the only recognized cause for withdrawal of a concession.

Box 1

Chile - Exploration and Mining Concession Fees (UTM per hectare)

Fees Due on Application for Concession		
Concession Area (hectares)	**Exploration**	**Mining**
<=100		1.0%
<=300	0.5%	

101-300		2.0%
301-600		4.0%
Over 600		5.0%
301-1,500	2.0%	
1,501-3,000	3.0%	
Over 5,000	4.0%	
Annual Fees to Maintain Concession Rights		
	2.0%	10.0% (3.3% for placer or non-metallic mines; 0.01% for artisanal miners)

Source: Mining Code, 1983

Chile formerly ranked in the lowest quartile of countries for the tax burden on mining, with an average effective tax rate of 36.6%[50]. One reason is that Chile until 2006 was one of very few mining jurisdictions that impose no royalty on mining. On January1, 2006, however, a new 3% royalty on revenues of privately-owned mines, passed by Parliament and signed into law by President Ricardo Lagos in 2005, came into effect. This had been vigorously opposed, naturally, by the mining companies except for Codelco, which is exempt from the royalty.

The mining companies maintained that they were exempt from the royalty because Decree 600 (the original Foreign Investment Statute of 1974) exempted all investment projects worth more than $5 million from any changes in tax laws and regulations for their first 20 years in the country.

This argument ignores, however, that the mining companies benefited from substantial improvements in tax regulation since 1974, when the corporate income tax rate was 50%[51]. With a current statutory corporate income tax rate of just 17% and an average effective tax rate (including unemployment contribution, accident insurance, property tax, and municipal taxes) of 25.9% Chile retains a highly competitive tax regime for mining investors, even with a 3% royalty. Because of accelerated depreciation allowances, many large private sector mining companies have paid at effective tax rates of less than 10%. The mining royalty law additionally applies only to companies earning an operating margin of 5% or more, and provides for a two-year transitional arrangement under which companies can offset half their royalty payments against their total tax bill[52,53].

Discussion

The three great advantages of Chile's system for awarding mining licenses are: 1) elimination of most opportunities for arbitrary decisions and corrupt practices; 2) creation of a property right attached to a mining production license, which as a result becomes a real asset; and, 3) a firm Constitutional basis for mining laws and regulations. Property rights in mining are important for many reasons, which include security of tenure and the ability to pledge the asset as collateral for financing, thus increasing the availability and lowering the cost of capital. The connection to the Constitution is crucial, because it limits the government's ability to change mining policy by simple decree, administrative decision, or a simple majority vote in the Parliament.

Like Quebec and many other developed-country jurisdictions, Chile does not require applicants for exploration or production licenses to show proof of technical and financial capabilities. This is consistent with best practices as defined by many analysts of mining regulation, and is so identified because it removes a potential obstacle to the award of licenses and with it an opportunity for discretion and corruption. It can be the best approach for countries with an independent and efficient judiciary and well-defined property rights, which allows licenses to be withdrawn and reallocated in the event that a right-holder fails to develop the claim according to requirements established in law or contract. Chile possesses all these attributes.

Good practice though it may be, Chile's approach to mining licensing may not be appropriate for all countries. Uniquely, exploration and production licenses, though they are reviewed by a branch of the Ministry of Mines - the "Bureau" – are awarded by means of judicial proceedings through the ordinary civil court system. This can reduce arbitrary decision-making. Such a system can work only in a country that has an independent judiciary and provides efficient and speedy access to the court system.

Relatively few developing countries have these attributes. If the judiciary is not independent or can be easily corrupted the Chilean licensing mechanism would simply add another layer of approval that could add to uncertainty and increase the cost of getting a license.

Without an effective and impartial justice system, if a mining ministry or agency determines that a right-holder has failed to develop its concession area according to requirements it can be a laborious process, with no guarantee of the correct outcome, to dislodge that rights-holder from its concession area.

Many developing countries also fear that speculators will lock up valuable mineral resources without developing them, and that the nation will thus be deprived of the employment, income, government revenues, and other benefits derived from mining. These fears may be misplaced or exaggerated, but they may also have some basis in fact. These countries consequently tend to scrutinize the financial and technical capabilities of applicants in order to screen out "unserious" investors.

As rational as this policy may appear, it can limit mining exploration and development to major mining companies, which are likely to be interested only in very large deposits. It can, therefore, impede a substantial amount of exploration and initial development by junior mining companies, which typically need to secure outside financing once a mine's potential has been proven, and which may also need to bring in an outside technical partner – possibly a major mining company – to develop and operate the mine. It is also likely to prevent the emergence of domestic mining companies apart from very small and artisanal miners, since few such companies will have the

financial resources or track record of successful performance to survive the screening process. Finally, mining ministries or agencies in many countries may lack the technical and financial expertise to evaluate investors properly

Though provisions for environmental protection were introduced more than a decade after the Mining Code came into effect, they appear to have been fairly well integrated with the process for issuing mining licenses, and although the law may not be perfect it has resulted in greater accountability of mining companies for any environmental damage they create. The judicial system, moreover, as the Trillium case illustrates, allows citizens to bring complaints against companies or against the government agencies that granted environmental approval and to obtain fair and impartial judgments.

Without necessarily adopting Chile's mechanisms for allocation of mining rights, other countries could do well to follow the principles of open access, secure and transferable property rights (without a requirement for government approval of transfers), first-come first-served allocation of rights, priority mining rights for the prospector/discoverer of a deposit, and the exclusivity of claims embodied in Chile's laws.

Notes

1. U.S. Geological Survey, Mineral Commodity Summaries 2008
2. Natural Resources Canada, "Minerals and Mining Statistics On-line" http://mmsd1.mms.nrcan.gc.ca/mmsd/production/production_e.asp
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