

How to Improve Mining Tax Administration and Collection Frameworks

A Sourcebook

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Foreword

By Boubacar Bocoum

The surge in private investment in mining after the collapse of the Soviet Union has now lasted, more or less uninterrupted, for over two decades and still remains a prominent feature of the mining industry. The nineties and early 2000s were marked by a strong drive by countries to attract mineral exploration and mining development investment. Tailored competitive strategies were put in place by many countries to address the complex international financing, long investment periods, and specific operating contexts of the mining sector. Parts of these strategies included fiscal incentives that, while not unique to the extractive industry, are nevertheless an important feature of its fiscal framework.

Countries often formulated mining fiscal policies with clear investment attraction and revenue collection objectives in mind, but rarely with adequate consideration of the administrative skills, systems, and processes necessary for governments to effectively and efficiently administer mining revenues collection. The collective focus was more on attracting investment than on strengthening the administrative capacity of the country and designing and implementing policies to leverage minerals for sustainable development.

These competitive investment-attraction strategies were largely effective, and over the past two and a half decades, mining sector revenues increased several-fold in many African countries: for example, Burkina Faso, Ghana, Mali, Tanzania, and Zambia. The remarkable growth in mineral wealth, however, also created social, economic, and environmental impacts and, in many countries, the demands of the industry have outpaced the capacity of government to adequately control and monitor mining sector activities during the lives of their projects.

Higher mineral commodities prices have, for most of the last decade, resulted in increased revenues and benefits for governments, citizens, and mining companies. However, higher prices have also heightened the expectations of governments and citizens and created a widespread perception that the recent mining boom may have benefited extractive industries more than host nations. While this perception was initially more prominent in developing countries, it eventually spread to a number of developed countries. This has led to some governments implementing a range of fiscal measures, with varying success, to address the real or perceived inequities in the sharing of mining benefits.

These fiscal measures were largely policy-related and, in many cases, did not adequately assess how effectively and efficiently the current policies, compliance processes, and mechanisms were capable of being implemented by existing administrative institutions. This was particularly the case with the administration of mining-tax collection. In this area, the governments of most developing countries have particularly insufficient skills and inadequate frameworks in place to drive the compliance of payments with legal requirements and contractual obligations. A mining fiscal regime, however, is only as effective as the combined administrative capacity of the government institutions

charged with enforcing it. However, this premise was not generally accepted, and the potential revenue consequences of the incentives given were not always fully measured and so were not anticipated. Thus, the magnitude of the increase in corporate profits that accrued from recent higher commodity prices relative to government revenues was somewhat unexpected. This outcome acquired significant prominence and fuelled public discontent.

The primary focus of government corrective measures on policy may also be due to the poor appreciation and relative scarcity of information on how to drive mining payments compliance.

In an attempt to address this challenge and bridge this gap, the World Bank's Oil, Gas and Mining unit engaged the Centre for Exploration Targeting of the University of Western Australia to assess mining revenues collection administration settings and practices in selected African countries (Burkina Faso, Ghana, and Mali). This review included the physical and financial control points; the adequacy of information collection and sharing; and the skills, processes, cooperation, and coordination mechanisms between various government administrations that affect the efficiencies of mining revenues collection. Data collected from the visited countries were analysed and supplemented with key elements from best practices in mineral tax collection administration procedures and processes found in developed countries, in particular Australia. *How to Improve Mining Tax Administration and Collection Frameworks: A Sourcebook* presents an overview of the compiled data and analysis. Two consultants hired by the IMF also contributed to the effort.

This sourcebook is designed to provide a structured approach to help ministries in charge of finance and mines to analyze and identify ways to address challenges linked with mining tax administration. It suggests ways to approach some forward-looking policies and practices to drive compliance of mineral payments and equity while maintaining investment attractiveness. While the sourcebook does not address oil and gas specifically, its content is to a large extent also applicable to these industries.

Acknowledgments

This report, *How to Improve Mining Tax Administration and Collection Frameworks: A Sourcebook*, has been commissioned by the World Bank Sustainable Energy–Oil, Gas, and Mining Unit (SEGOM) from the Centre for Exploration Targeting (CET), an unincorporated joint venture between the University of Western Australia, Curtin University, and the mining industry.

The World Bank and the authors gratefully acknowledge the support and contributions of the Governments of Burkina Faso, Ghana, and Mali, which facilitated field visits and provided access to key officers and valuable information.

Our sincere thanks also go to Jack Calder and Michael Smithson (IMF consultants) and Abou Bakar Traore, Kwaku Boa-Amponsem, and Kwasi Owusu-Boakye (World Bank consultants) for their invaluable contributions and support in conducting the study. The technical contribution made by David Norris and Vincenzo D’Angelo, based on their in-depth practical experience in administering mineral and petroleum royalties in Western Australia, is also acknowledged with gratitude.

The World Bank task team also thanks Paulo de Sa and Christopher Sheldon (both Sector Managers from SEGOM), Felix Raul Junquera-Valera (Senior Public finance Specialist), Gary McMahon (Senior Mining Specialist), Bryan Land (Lead Mining specialist), and many other colleagues from SEGOM and the World Bank Group for their support and contributions. The World Bank is also grateful to the South African Fund for African Energy, Transport, and Extractive Industries (SAFETE), which financed this work, and to AusAID, which financed its publication.

Disclaimer

The advice offered in this sourcebook is general in nature and is not specifically directed to the particular situation of any individual country. Governments or other entities or persons seeking to improve the effectiveness and efficiency of their mineral revenue systems should consider their particular needs and circumstances and seek further specific advice beyond that offered in the sourcebook. The authors cannot accept responsibility for any loss occasioned by any person acting or refraining from action on the basis of material contained in this sourcebook.

Précis

Mining fiscal policy is often formulated with the objective of attracting exploration and development investment to a country. In some instances, inadequate consideration is initially given to the possible consequences for the government instrumentalities charged with effectively and efficiently enforcing the fiscal regime. Administrative procedures and systems, and a competent professional skills inventory are required for the collection of the appropriate level of revenue. Balancing investment attraction with an adequate share of the economic profits and rents generated by mining in an administratively efficient manner can become a true challenge for governments in developing countries, particularly as they need to compete with other mining jurisdictions globally for scarce and mobile investment capital.

While there is plenty of literature about the objectives and principles of fiscal policy, information is relatively scarce about the issues and best practices associated with the administration of mining taxation. *How to Improve Mining Tax Administration and Collection Frameworks: A Sourcebook* is an effort to bridge this gap. It was compiled on the basis of significant firsthand experience in the administration of royalties in a major mineral economy in Western Australia, and through reviews of the mining revenue collecting practices in three selected West African countries. The initial draft of this sourcebook was used to provide structure and a basis of discussion for a tax administration workshop conducted by the World Bank in Ghana in September 2012, which was attended by representatives of twelve mineral-rich African countries. The current edition has been enriched by the outcomes of this workshop.

The fiscal regime applicable to mining companies in most developing countries includes primarily traditional (unit or value-based) mineral royalties in combination with the mining-specific provisions of corporate income tax (CIT) legislation. In addition, a limited number of countries are currently introducing or considering resource rent (super-profit) taxes specific to mining. This sourcebook highlights and explicates the administrative implications of each of these main types of revenue-raising measures.

Fiscal regimes commonly include a range of mining-specific provisions within their tax policies that act as investment incentives. These may take the form of various forms of tax holidays,¹ immediate write-off or accelerated depreciation of mining assets, and relief from custom and excise fees and valued-added tax for specified import items and services used by the industry. Some of these incentives, if not properly formulated, may create distortions, inequities, and, at times, intractable administrative issues. This sourcebook discusses them.

Mining tax packages may also include other revenue-raising measures (such as dividends on government free-carried equity participation in projects and withholding taxes on remittance of dividends and interest payments abroad). While these are relatively simple to administer, the sourcebook identifies and discusses a number of practical matters that need to be taken into consideration when adopting such measures.

Naturally, the more sophisticated the system, the more complex it is to administer. Opinions are divided as to whether developing countries should strive for administrative simplicity (e.g., traditional value-based mineral royalties and CIT) at the cost of

economic efficiency and equity, or enforce more efficient and equitable profit or rent-based royalty systems that may stretch their often limited administrative capacity.

This sourcebook discusses a range of common administrative challenges and ways to overcome them. It focuses in particular on the issue of determining the royalty valuation base and taxable income, to which royalty and CIT rates should apply respectively. This can become very complex when a project disposes of its mineral products by means other than at-arm's-length sales (that is, by transferring them to a related entity). Administrative complexity also arises in establishing the legitimacy of a range of cost deductions applied in determining taxable income, where the costs related to the provision of technical and corporate services and funding in the form of debt are provided by a related entity. Similar complexities arise in attributing costs when a project shares the use of common assets with other projects. The politically delicate area of administering penalties for non-compliance with royalty payments is also discussed at length.

Major mining projects, in particular those in developing countries, invariably proceed under the umbrella of project-specific "stability agreements" that create precedents and a multiplicity of project-specific fiscal arrangements to administer. By their very nature, such agreements severely limit the capacity of government to introduce future changes by any means other than negotiation. The fact that stability agreements guarantee the fiscal regime under which a mining project operates (often for the life of the mine) can lead to a perception that the country is not sharing fairly in the benefits of mining, particularly at times of high commodity prices and profits. The result is public and political dissatisfaction, and pressure to increase the nation's share of mining sector revenue—an imperative that is generally frustrated by the difficulty of getting industry to agree to a higher taxing arrangement. This sourcebook offers advice on how governments can retain some fiscal flexibility within these agreements, while still offering adequate certainty to investors.

Institutional and structural arrangements within government can also lead to both ineffective and inefficient mining revenue collection. This is because different government ministries and departments (e.g., finance and mines) are charged with administering different but sometimes overlapping elements of the tax regime, more often than not with an inadequate level of interdepartmental communication and sharing of specialized skills and information. Supporting IT systems generally lack integration, as well. This sourcebook addresses some of these issues and offers ideas for better utilization, motivation, development, and retention of scarce skilled personnel.

This sourcebook provides a structured approach to help the ministries of finance and mines analyze and improve their effectiveness and efficiency in handling common issues and challenges; avoid duplication of effort; and overcome the organizational, structural, and resourcing difficulties generally encountered in the administration of various elements of mining regimes.

¹The authors do not recommend the use of tax holidays.

Introduction

1.1 Objective and Scope of *How to Improve Mining Tax Administration and Collection Frameworks: A Sourcebook*

Governments of mineral-rich countries formulate and use a variety of financial imposts to collect a share of the revenue generated by mining companies. Instruments include the full range of taxes, fees, and charges that generally apply to all normal commercial operations. In addition to these measures, most governments use mineral royalties along with variations to the corporate taxation measures, customs duties, and value-added taxes that apply just to mining. The fact that these taxes single out mining is generally justified on the basis that mining extracts and depletes state-owned non-renewable resources and, in so doing, may generate above-normal profit or economic rent.

This sourcebook focuses on mineral royalties and on other taxation measures that are specific to mining activities, with particular emphasis on imposts of common application in most developing countries, which may create challenges in their administration. The legislative framework establishing these taxes in developing countries that are experiencing an accelerated pace of resource development is in most cases relatively modern and largely adequate, but the supporting administrative capability, procedures, and systems have tended to lag behind.

This sourcebook presents a practical overview of how to analyze and improve the administrative frameworks and systems for mineral royalties and other taxes specific to mining. It has been compiled on the basis of the authors' extensive experience in formulating and managing mineral policy and administrative procedures in resource-rich Australia, combined with the results of in-country, fact-finding reviews of the mineral revenue collection practices conducted on behalf of the World Bank in three case-study countries in West Africa (i.e., Burkina Faso, Ghana, and Mali).

The fact-finding reviews were later supplemented by a tax administration workshop run by the World Bank in Ghana on September 13–14, 2012. Attendees from 12 West African countries shared their experiences in royalty and tax administration. Key insights derived from this workshop have been incorporated in the present version of this sourcebook.

The country reviews used a questionnaire to collect information about their tax regime and administration, including legislation, ministerial and departmental responsibilities, organizational structure and capacity, interdepartmental communication, processes, procedures, and systems.

This sourcebook, together with the appended questionnaire, is intended to provide a structured and systematic first step to assist the ministries of finance and mines of developing countries in assessing and improving the effectiveness and efficiency of their mining revenue collection regimes and related administrative systems.

The authors, contributors, and sponsors hope that other developing countries may find this sourcebook not only a source of useful information but also a helpful resource for formal training and strengthening of their mining revenue collection capability.

1.2 Conduct of the Study

How to Improve Mining Tax Administration and Collection Frameworks: A Sourcebook has been commissioned by the World Bank's Sustainable Energy, Oil, Gas, and Mining Unit (SEGOM) from the Centre for Exploration Targeting (CET)¹ based at the University of Western Australia (UWA) in Perth, Australia.

The World Bank task team that led the work was composed of:

Mr. Boubacar Bocoum	Lead Mining Specialist and Task Team Leader. Scoped the study and provided guidance and supervision during its conduct, as well as organizing and coordinating the consultants' country visits and related workshop
Mr. Peter van der Veen	Consultant. Assisted in guiding the study and visited the CET in Western Australia at a near-final stage to provide quality control and technical editing of this sourcebook and of specific country reports
Ms. Kristina Svensson	Operations Officer
Ms. Victoria Bruce Goga	Program Assistant

The CET study team included the following specialists, who have extensive experience in regulating and administering the mining industry in Western Australia (WA):

Dr. Pietro Guj	Research Professor at the CET and former Deputy Director General of the WA Department of Minerals and Energy. Responsible for the technical and general direction of the study
Dr. Jim Limerick	Former Director General of the WA Department of Industry and Resources. Leader of the team conducting the country reviews
Mr. Murray Meaton	Economics Consultant and former Director of Royalties in WA
Dr. Bryan Maybee	Associate Professor in Mineral Economics at Curtin University's Graduate School of Business

The CET team also had access to the specialized expertise of **Mr. David Norris** and **Mr. Vincenzo D'Angelo**, who currently manage the mineral and petroleum royalties function at the WA Department of Mines and Petroleum.

Note

¹ The Centre for Exploration Targeting (CET) is an unincorporated joint venture between the University of Western Australia, Curtin University and the mining industry, established with seed funding provided by the State of Western Australia under their Centre of Excellence Program.

Background

2.1 Mining Industry Characteristics and Economic Rent

Mining has specific characteristics that differentiate it from many other economic activities:

- Mineral resources are finite, non-renewable, and generally owned by the state for the benefit of civil society.
- Mining is capital-intensive, with significant initial capital investment in exploration and development mostly sourced from the private sector.
- Mining has long periods of pre-production during which no revenue is earned.
- Mining is a high-risk business because it depends on finding an economic ore body as a result of innumerable exploration projects (most of which are unsuccessful), and its profit is sensitive to highly volatile commodity prices and exchange rates.

In summary, mining is a long-lived, high-risk venture with large investments and long lead times before any return on investment is achieved. Exploration and mining companies are therefore very sensitive to changes in government regulations and financial imposts.

Mining operations must generate adequate profits for the companies involved if they are to continue to invest in the industry. The large capital investments, the length of project life, and the risks involved mean that most companies will seek a higher level of profit than is normally the case for most other industry sectors. However, when “super profits” or economic rents¹ (Harman and Guj, 2006) well above the normally accepted commercial rates of return are generated, they create a societal expectation that they should be shared with the owner of the resources in the ground: generally the state. Conversely, companies maintain that their retention of occasional super-profits is not only the driving force for investing in this high-risk sector but in some way compensates them for the sunk cost of the many unsuccessful exploration projects they had to undertake to discover a commercially exploitable mineral deposit.

In theory, in a truly efficient market, government could appropriate a large proportion (even all) of the economic rent of a project without distorting the relevant investment decision because the company would still be receiving a normal commercial profit margin. In practice, this is not the case because exploration and development capital is scarce and globally mobile—and capital will shift, everything else being equal, to countries with more attractive fiscal regimes where investors may expect to gain the highest return. In this competitive environment, governments’ decisions as to

what level of economic rent to extract must take into account the relative investment attractiveness of their countries as compared with their competitors. The demands of their mining fiscal regime must be balanced with investors' perception of the country's prospectivity.

A proposal to unify the royalty regimes of the various West African countries to reduce competition among them and the current incentive for mining companies to chase the most attractive fiscal investment climate in the region attracted substantial interest at the World Bank tax administration workshop conducted in Ghana in September 2012. This, of course, is easier proposed than done, given the legal difficulties inherent in the process of introducing legislative amendments, let alone the challenge of getting some 13 countries to agree on what would constitute an ideal fiscal regime for their region.

Frequently, in an endeavor to attract investment, countries provide significant fiscal incentives that may jeopardize future opportunities to increase the government's share of revenue or profit. Many countries participating in the Ghana World Bank tax administration workshop expressed frustration at the low level of revenue collection from mining companies during the prior years of high commodity prices and profits. The rapid rise in the gold price had been a particular problem for mining departments, subject to strong political pressure reflecting the public view, expressed through active non-government organizations, that companies had not paid a reasonable share of their increased profits.

Reviews of the revenue collection practice in some of the countries attending the workshop indicated that all elements of the fiscal frameworks were being paid. The time available for the review, however, did not allow the consultants to ascertain the degree to which the amounts paid complied with the existing agreements. Consequently, the consultants could not reach a definitive conclusion on the equity of the share of benefits between stakeholders. In most cases, increasing future revenue collections were being pursued by means of fiscal policy changes that were strongly resisted by industry. It may well be that additional revenues could also accrue through improved administration of existing fiscal frameworks. Most countries at the workshop recognized the difficulty of achieving a balance between retaining investment and increasing local and national economic benefits without impinging on the industry's need for long-term stability.

2.2 Government Objectives

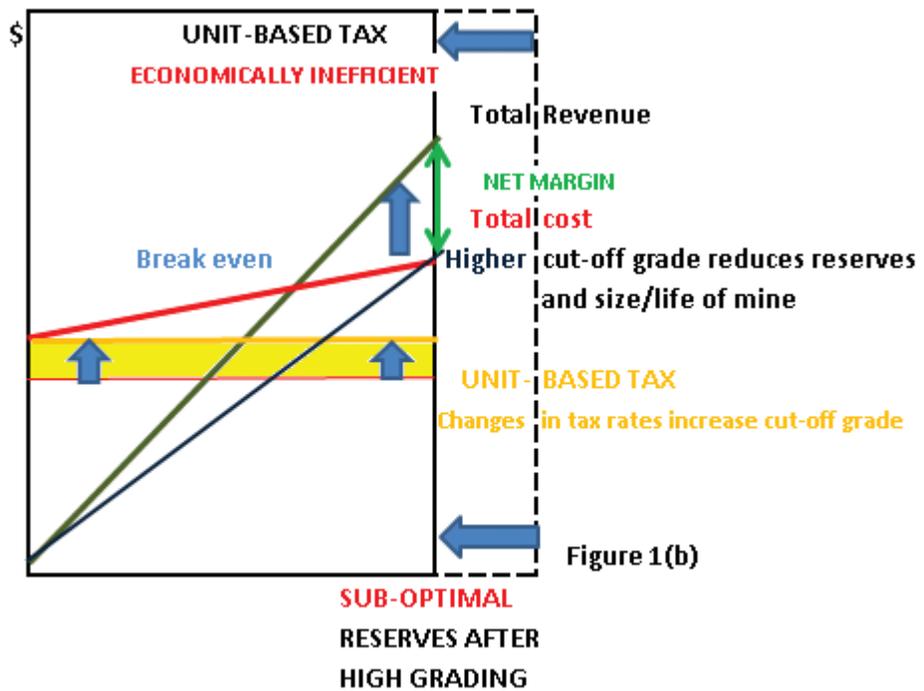
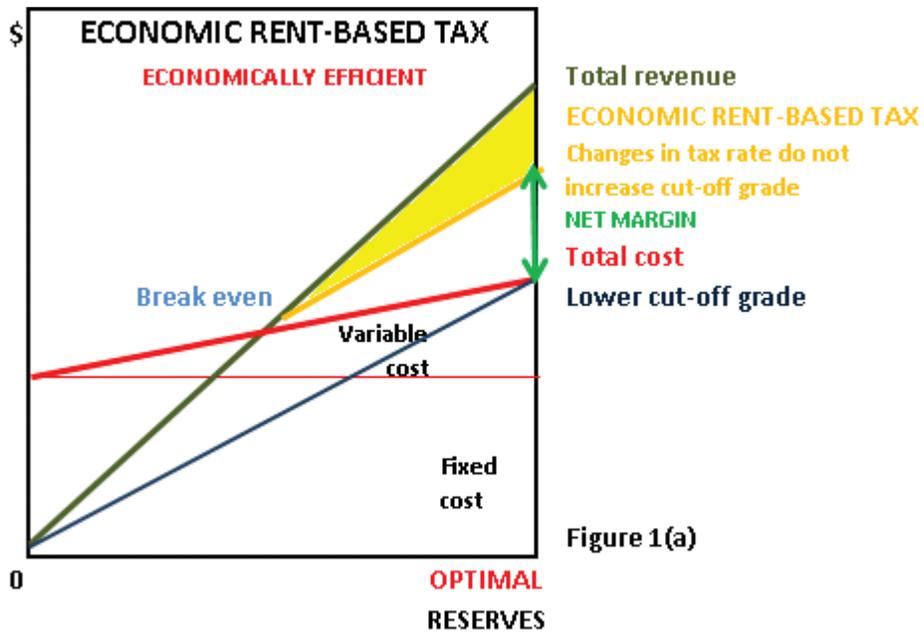
Arrangements for raising revenue from the mining industry can be effective only if they operate within sound policy and legislative frameworks. It is vital that governments be clear and realistic about their mining revenue objective, and strategies be consistent with that objective. For example, governments often seek to attract new mining investment using favorable fiscal regimes. However, in doing so, they need to appreciate that such incentives may constrain future revenue raising and can be a cause of public concern long after the reasons for conceding the incentives in the first instance have been taken for granted or even forgotten.

Precept 3 of the *Natural Resource Charter*² (2012) states: Fiscal policies and contractual terms should ensure that the country gets *full benefit* from the resource, subject to attracting the investment necessary to realize that benefit. The long-term nature of resource extraction requires policies and contracts that are *robust to changing and uncertain circumstances*."

In formulating an appropriate mining taxation regime, governments need to consider and balance the following objectives, some of which are mutually incompatible:

- **Revenue adequacy/maximization.** Determine the optimal sharing between government and industry of economic rents from exploitation of mineral resources. In other words, how high can the total fiscal take be before it becomes a serious disincentive for industry to invest in the country?
- **Optimal tax base.** Decide whether to rely on fewer “captive” mines that are more heavily taxed or on more mines that are more lightly taxed? This objective should also take into account the desirability of diversifying the range of mineral commodities to be mined within the country.
- **Economic efficiency.** Formulate fiscal policy in a manner that ensures, as far as possible, that the same level of exploration and production activities would occur whether or not the rent-collecting taxes were in place. A tax that achieves this, for instance one based on economic rent as shown in Figure 1(a), is referred to as “economically neutral.” Failure to achieve a reasonable level of economic efficiency will result in distortion of investment decisions and sub-optimal exploitation of the resources. An example of this is the effect of a unit-based royalty or fixed tax, as illustrated in Figure 1(b), where to maintain his margin the mine operator is forced to mine higher-grade (and hence more valuable) ore by applying a higher cut-off grade than would have been the case under the economically efficient tax of Figure 1(a). As a result of mining less ore at a higher grade, lower-grade mineralization that could have been gainfully extracted under an efficient taxation regime becomes sub-economic and is left behind, to be wasted or mined at a much higher unit cost in the future.
- **Revenue predictability.** Facilitate a predictable revenue stream from mining that enables governments to budget with greater certainty, especially when commodity prices are highly volatile.
- **Equity.** Ensure that taxpayers in the same industry pay the same proportion of economic rent to government. This ideal situation is extremely difficult to achieve in practice, as it would require the capacity of the system to differentiate projects in terms of mineral commodities, profitability, location, and so on.
- **Transparency and stability.** Transparency requires fully informing taxpayers and other stakeholder groups about the tax liabilities that may arise from any proposed activity, and opening taxation arrangements and related collections to examination. The stability case argues that, on account of the significant up-front capital investments, tax liabilities should be predictable and, ideally, stable over the life of the mine before any proposed mining investment takes place. Unanticipated fiscal changes may give rise to potentially very damaging perceptions of “sovereign risk.” Fiscal stability is highly prized by industry; hence many governments offer stability agreements to investors, particularly in major mining projects. The two most common formulations of these stability clauses are the frozen law formulation, where contract conditions are locked in for long or indefinite periods of time, and the economic equilibrium formulation (GOXI, 2010). In the latter approach, the parties agree to negotiate in good faith to maintain the original economic equilibrium of the contract through the

Figure 1: Break-even diagrams of (a) an efficient tax based on economic rent and (b) an inefficient tax (fixed or unit-based) that results in sub-optimal exploitation of a mineral resource (Source: Guj, 2012a)



introduction of changes that compensate for any adverse revisions to either the applicable laws or to the contract itself.

- **Administrative efficiency.** Minimize administrative complexity and compliance cost for both government and companies. Compliance cost increases with the sophistication and complexity of the tax system.

Some of these objectives are incompatible and a balance must be struck, particularly among economic efficiency, revenue predictability, and administrative efficiency (Guj, 2012a). For example, a mineral resource rent tax (which taxes the super-profits generated by a project) is widely recognized as the most economically efficient form of mining tax. However, it makes the government revenue stream highly susceptible to changes in project profitability. Accordingly, government revenue has a low level of predictability and occasionally no tax is actually payable. This form of tax also has relatively high compliance costs for both companies and government, and requires relatively sophisticated administrative capacity.

In developing a compromise between administrative and economic efficiency, policy makers must take into account the potential revenue, the costs of collection and compliance, and the skills available to manage and audit the taxation methods.

Opinions are divided as to the most appropriate fiscal regime for developing countries, which are generally short in their inventory of mining tax administration skills. Some authors (Daniel, 2012) consider that the economic efficiency benefits to be derived from adding a mineral rent-based tax to the standard mineral-royalty-plus-CIT system grossly outweigh the administrative complexity. These authors argue that the complexity created by introducing a rent-based system can be overcome by investing in institutional strengthening of the tax-collecting instrumentality to procure the relevant administrative skills and systems.

Other authors (Mineral Resources Charter, 2012) are less persuaded that the considerable effort required to uplift the administrative capacity of some developing countries to enable them to effectively and efficiently administer a complex rent-based fiscal system is justifiable. These authors suggest that a fiscal system based on traditional ad valorem mineral royalties, in combination with corporate income tax, would on balance continue to be a more feasible way of appropriating rents. They, however, suggest that, if government wishes to levy a higher proportion of the rents generated by mining, it can easily do so by introducing a higher corporate income tax rate specifically for mining leaving other taxpayers unchanged. This will not increase the complexity of current administrative processes, thus ensuring more effective collection. This approach has been contemplated and recently adopted by some developing countries.

2.3 Policy and Legislative Framework

A government's ability to effectively administer a mining tax regime depends to a very large degree on the policy and legislative frameworks within which it works. An effective framework will have the following features:

- **Legislation that reflects government policy.** The legislation should be up to date and consistent with current government policies, and reflect government objectives.

- **Legislation that has unambiguous taxing powers.** Legislation that is clear and beyond legal dispute must set out the ability of the central level or various decentralized levels of government to levy taxes.
- **Unambiguous supporting regulations.** This subsidiary legislation establishes the rules and procedures for administration of the tax regime. The head legislation must provide the power to establish this subsidiary legislation and set boundaries as to what types of procedural amendments can be made without reverting to the head legislature.
- **Minimal need for ministerial or agency discretion.** Legislation (including regulations) must establish procedures for assessment and payment of taxes that are sufficiently well-defined so that situations requiring the use of discretion are minimal or, where unavoidable, the limits within which such discretion can be exercised are clearly defined.
- **Equitable dispute resolution.** Legislation must establish processes that are fair and equitable to both parties, including mediation and arbitration.
- **Policy changes that are foreseeable.** Flag changes to government policy in advance and only after consultation with industry and stakeholder groups so there are no surprises and there is no perception of “sovereign risk.” The process should also allow time for administrative systems to be changed in companies and agencies and time for training, if necessary.

2.4 Mineral Royalties and Other Elements of a Mining-taxation Regime

There are several possible components to a typical mining tax regime, including:

- **Mineral royalties.** Generally volume/weight- or value-based, more rarely profit-based, seen by many as compensation to the state for the loss of its non-renewable resource (discussed in Chapter 3).
- **Corporate income tax (CIT).** Often with provisions that are specific to mining (discussed in Chapter 4).
- **Capital gain tax (CGT).** Levied on gains realized on the sale of assets. This tax is currently levied according to different provisions in different countries and does not apply in many jurisdictions. Its application to gain realized on the disposal of exploration/mining rights can raise significant complexity (discussed in Chapter 4).
- **Economic rent based royalty/tax.** Sometimes referred to as super-profit or windfall profit taxes (discussed in Chapter 3).
- **Dividends government equity.** Mining regimes may sometimes require that the state should receive a level of equity in projects (commonly free-carried), entitling government to receive dividend payments (discussed in Chapter 5).
- **Production-sharing contracts.** Contrary to the name, this type of arrangement, uncommon in mining, is generally based on sharing some form of net income rather than produce and bears some similarity to profit-based royalties (discussed in Chapter 3).
- **Rentals and fees.** Charges that are generally justified as a way to recoup the cost of administering the mining tenement system, not commonly regarded as a tax or a share of economic rent (discussed in Chapter 5).

Most mining regimes throughout the world are based on a simple combination of traditional mineral royalties and CIT plus normal rentals and fees. The other tax instruments are less common, although government equity is commonly found in Africa and rent-based taxes are gaining greater acceptance.

Value-added taxes (VAT) and customs duties may or may not apply to mining operations to the same degree they do to other industry sectors. This is because some jurisdictions exempt mining from these imposts as a form of investment incentive. Because of their across-the-board nature, and in spite of their variable application, value-added tax and custom duties are touched on in Chapter 5 but otherwise will not be treated as mining revenues for the purposes of this sourcebook.

2.5 Institutional and Administrative Structures

Institutional and administrative structures must be set up to facilitate the effective and efficient collection of mining taxes. The unique aspects of the mining industry compared with other industry sectors means that efficient revenue collection requires a combination of skills rarely found in one government agency alone. While collection is most commonly undertaken by agencies within the finance ministry, close collaboration with agencies regulating other aspects of the mining industry, and that have specialized knowledge of it, is essential. Close liaison and effective communication between agencies is essential in all cases, particularly in regard to information and data sharing.

It must be clear which government agency is accountable for which elements in the administrative revenue collecting process, and a clear understanding and acceptance of these accountabilities across agencies is necessary. These matters are discussed in detail in Chapter 6.

This sourcebook does not address the roles and responsibilities of state-owned mining companies (where the state holds total or majority ownership), which generally are outside the scope of the civil service structure.

Notes

¹ Economic rent is the surplus derived after deducting from revenue all recurrent and capital costs of production, including a “normal” rate of return that is sufficient to attract and retain capital in a project. Economic rent is generally computed on a cash basis and relates to individual projects, although some tax systems allow recovery of exploration costs incurred beyond the project boundary.

² The Natural Resource Charter is a set of economic principles, formulated by a panel of economists at Oxford University, for governments and societies seeking how to best manage the opportunities created by natural resources for development.

Mineral Royalties

Mineral royalties are one of a range of financial instruments that a country can use to obtain a share of the economic rent generated by mining. There are two broad conceptual approaches to the philosophy of royalties (Guj, 2012a):

- They may represent the payment by the company for depleting state-owned non-renewable mineral resources, i.e., compensation for the progressive transfer of ownership to the company of a capital asset of the state as the resource is mined.
- They may be considered a tax on mining (a royal tax), i.e., a government revenue instrument designed to appropriate a share of the rent generated by mining.

While these philosophies are not necessarily contradictory, they can lead to different emphases in terms of mineral valuation and administration issues. The first approach will emphasize mineral valuation, while the second approach will place greater emphasis on relative taxation measures and the capacity of the project to pay. This report will examine issues that arise from these two conceptual approaches.

The most common royalty systems are those based on payments proportional to either the volume or weight or the value of the mineral sold. Value-based royalties are the most frequently used and are accepted by both the mining industry and most communities in the world as a legitimate impost to compensate for the extraction of their non-renewable resources.

When a system based on the value of the resource is used, economic theory indicates that the valuation point should be as close as possible to the point at which the mineral is extracted prior to any processing. However, minerals are generally not sold at such a point; the first sale often occurs after some value has been added by downstream processing, packaging, and transporting. Hence, for ease of administration, royalty is often levied at the sale point rather than attempting to estimate an ex-mine value at the mine head. Value-based systems also require that the royalty be assessed at a project level and not a company level, as for most other taxation instruments.

The further downstream the first point of sale is, the more complex the process of estimating the ex-mine value of the minerals from the realized sale price. This difficulty can be partly attributed to the fact that individual resource projects (even within the same commodity group) have varying downstream costs because of different metallurgical properties of various ore types, location (e.g., distance from port), processing techniques, economies of scale, and so on.

Mineral royalties in various forms commonly complement other more general forms of taxation such as corporate income tax. Depending on the taxation system, in some countries royalties can also be a basis for compensating regional or territorial

jurisdictions for such costs as regional infrastructure development, as well as a source of localized government revenue flows.

3.1 Royalty Principles

The development of a suitable royalty system should be guided by a number of principles, many of which relate to all forms of taxation but some of which are unique to mining and royalty collection.

The following principles are proposed to guide development of the most appropriate royalty method and the related administration of the system.

3.1.1 Balance economic efficiency, equity, administrative efficiency, and revenue stability

Different types of royalty payments result in different potential financial returns from a resource investment and may affect the decisions made by a company about how to mine and sell the project output. An economically efficient system is one that has minimal impact on either a company's decision whether to invest in a project or its mode of operations. Economic efficiency and equity goals are met when a royalty is based on the economic rent generated by a project, or at least largely achieved if a measure of project profit is used as an alternative royalty base. Comparatively simple systems—such as traditional mineral royalties based on a physical unit measure of output (e.g., volume or weight) or on gross sale value—are less economically efficient and less equitable.

By contrast, administrative efficiency and revenue stability goals are met when a simple system like a traditional mineral royalty is used, and are least satisfied by profit-based systems, which are complex to administer and audit, provide the most volatile payment variations, and, in extreme cases, provide no royalty payments at all.

In the final analysis, a balance needs to be reached between an economically efficient approach, which may involve significant netting back of downstream processing and transportation costs, and an administratively simpler approach involving fewer cost deductions. This balance, while not optimal in regard to any individual criterion, must represent a financially and politically acceptable compromise for all of the criteria.

3.1.2 Balance administration cost against likely revenue

In theory, governments should be prepared to spend on taxation administration until the net marginal return becomes less than the return obtainable from the most attractive alternative use of their financial resources. In practice, such a high level of government investment in revenue collection would be strongly criticized by both citizens and the industry. Benchmarks for OECD countries suggest that, generally, less than 2 percent and frequently less than 1 percent of the collected revenue is being spent on the related government administration.¹ In selected non-OECD countries, the ratio of administration cost to revenue collected is more variable but nearly always less than 2 percent. Realistically, it is suggested that the royalty system be developed on the expectation that less than 5 percent of the collected revenue will be spent on government management. This includes all costs of system development, administration, and audit.

Low-value commodities, such as industrial materials used in construction and road-making, do not justify sophisticated royalty administrative systems and are generally covered by simple, specific, production-based royalties. Conversely, high-value commodities and large or long-life projects may justify more sophisticated royalty methods that better reflect the changing circumstances of the product market, project development, and the expectations of civil society.

3.1.3 Use of market value is best for higher-value commodities

Higher-value commodities will generally attract a higher level of attention from industry and civil society, and justify a higher level of government involvement and administration. A more sophisticated system may be used, including deductions from the first at-arm's-length sale value of the costs related to the downstream processing and transportation components of the value-adding chain. This brings the valuation point closer to the mine site, which is desirable from an economic efficiency perspective. Hence, making use, whenever possible, of the market value displayed in an at-arm's-length invoice for royalty calculation purposes achieves a desirable balance between government revenue and the impact, both positive and negative, of changing commodity markets on the resource industry.

3.1.4 Plan for some payments whenever a mine is in production

Civil society has an expectation that companies will pay royalties whenever commodities are being mined, sold, or used. Royalty holidays or exemptions are not a good way of conveying a subsidy, as they can create ongoing dissension between citizens and the government, may be open to abuse, and can create inequity within the resource industry in question. Any royalty assistance should be carefully formulated, regulated, and applied in accordance with approved guidelines. Care should be taken in cases where resource companies may become insolvent, which would necessitate action by government in safeguarding any royalties outstanding. Paucity or even a potential total lack of royalty payments is also an issue that can arise with profits-based royalties in the early years of a mining operation.

3.1.5 Penalty provisions

Companies must understand that mining rights are a form of contract and that breach of contract conditions is a serious offense. Penalties should apply in case of non-compliance with royalty payment timing or amounts, with mining right forfeiture provisions available as a last resort. These provisions should be applied consistently in a fair and transparent manner to ensure equity among resource producers.

3.1.6 Strategic materials

Some commodities are of special significance, such as a strategic holding of a rare mineral. Such commodities may require royalty arrangements to be negotiated on a case-by-case basis. This approach may also be desirable in the case of commodities that could cause considerable concern for civil society. For example, the mineral being mined might have a potentially negative health impact or strategic military significance (e.g., uranium). Special legislative provisions may be required to ensure safe mining, transport, and storage of these types of minerals, and specific royalty arrangements may be justifiable as a way to recover potential additional costs imposed on society by mining such minerals.

From a procedural point of view, the following approaches are also considered important.

3.1.7 Budget forecasts

It is desirable from a government's perspective to be able to estimate at the mine feasibility study stage the royalty payments likely to be received over the project life, so that revenue can be built into budget forecasts. Companies are often not enthusiastic about sharing financial information with government, but an agreed-on financial projection

of future payments to government provides a sound basis for more harmonious future relationships. A financial projection should be agreed to as a basis for the negotiation of fiscal imposts, including royalties, particularly in any stability agreement between the company and the state.

Whether or not stability agreements are in place, surveys should be conducted at least once a year directly with the individual companies to obtain up-to-date production and commodity price estimates. This will ensure that royalty revenue estimates are updated regularly with current company data.

3.1.8 Provisional royalty payments

Provisional or interim royalty payments are desirable in some circumstances. For example, the value chain for some metals that require smelting and/or refining before the first at-arm's-length sale can involve lengthy delays before final sale proceeds can be demonstrated. A general rule should apply that when an initial invoice payment is made to the mining company for the shipment of its product, government should receive a related royalty payment based on the estimated value of the product. This estimated value is, in most cases, calculated on a conservative basis that will see the company paying the balance at reconciliation, rather than the government having to reimburse the company. Where such overpayment situations arise, it is common for the excess payment to be allowed as a credit against subsequent royalty payments when they fall due.

3.1.9 Clear royalty review mechanisms

Long-life mining projects may have fiscal provisions (including royalty) included in stability agreements for a specified period. However, it is highly desirable that defined review mechanisms be incorporated allowing negotiations of specific terms to be reopened, if circumstances arise that fundamentally change the financial parameters originally envisaged in the project feasibility study used as the basis for the agreement.

Even if mines operate under the laws of the day without a stability agreement, government should make clear what approach it would adopt in any review of royalties that might be undertaken. Ideally, any changes to legal provisions should follow meaningful consultation with industry and any other affected party prior to the enactment of relevant legislative changes. This will ensure that any impacts on industry are assessed and evaluated first, and that a perception of sovereign risk is not created. The matter of industry liaison is discussed further in Chapter 6.

The administrative processes and procedures that flow from these principles, and the consequential issues for government, are set out in the following sections.

3.2 Types of Royalties

Traditional mineral royalties and other special taxes for the mining sector generally take one of the following forms:

- **Unit-based (specific) royalties.** When a fixed monetary amount is applied to a physical measure of the volume or weight of the mineral produced and sold—for example, dollars per tonne or dollars per cubic meter. This type of royalty generates stable revenue and is administratively efficient and easy to audit. However, it can also be economically inefficient. For these reasons, specific rate royalties generally are applied only to bulk, low-value commodities, e.g., construction materials.

- **Ad valorem royalties.** Apply a percentage rate to the value of the product sold. The key policy and administrative issues in determining the amount of royalty to be levied are:
 - Determining the valuation or taxing point (ideally as close as possible to the point of extraction) and the method to be used to estimate the value of minerals at this point.
 - Determining the percentage rate to be applied.

Given the diversity of mine products and the varying extent to which they are processed or transformed prior to sale, it is challenging to develop a uniform policy on the valuation approach that should be used, to provide equity among various mineral producers. Normally, ad valorem royalty systems make use of a generic valuation basis on which a single royalty rate is applied across the industry as a whole. As a consequence, the royalty paid by high-grade mines of valuable minerals close to market represents a lower proportion of the profit than that of lower-grade remote mines extracting less valuable minerals.

Less frequently, different royalty rates may apply to different minerals or a group of minerals to recognize their different potential profitability and ability to pay. Generally, to compensate for the distortions introduced by the ad valorem royalty system, most countries apply relatively low royalty rates and thus fail to achieve an adequate revenue level when prices and project profitability are high. Rates are typically limited to between 2 percent and 10 percent, with most rates in developing countries ranging between 2.5 percent and 5 percent. Issues may arise at the industry interface if an ad valorem royalty rate becomes grossly out of line with the profitability of a project. Under these circumstances, companies may seek a reduced payment or deferral of payments when prices fall, or near the end of the mine life.

In some jurisdictions, decreasing royalty rates are applied to progressively more refined mineral products such as ore, concentrates, and metal to provide an incentive for investment in domestic downstream processing capacity (Guj, 2012b).

Specific arrangements for royalty rates and valuation points may also be negotiated in special (stability) agreements to promote and assist development of resource projects of particular economic importance. Projects that are large, long-lived, or both may justify tailor-made royalty valuation methods and administration arrangements that best fit the project circumstances.

The least risky approach from an administrative perspective is to base royalties on a published price (such as the daily gold quotation or London Metal Exchange price) or on the actual proceeds at the point of sale, where the value can be obtained from the sale documentation. The value of the mineral product to be used as the base in the royalty calculation can then range from the gross sale proceeds without any cost deductions to a value obtained by netting back all processing and transport costs incurred downstream of the mine site before the first mineral product is sold. The closer the valuation point is to the mine site, the more the royalty resembles the net value of the recovered mineral. Hence, the more economically efficient it is, but the more administratively complex it becomes.

Mining companies object to royalties based on the gross value of sales that do not allow the deduction of costs incurred beyond the mine gate, as the royalty then applies to costs incurred by the company that are not part of the mineral value. Most countries recognize the validity of this argument and allow some deductions from gross sale proceeds to arrive at the royalty valuation base to which an appropriate royalty rate is applied.

Ad valorem royalties are received as long as a mine is producing, irrespective of its profitability, which ensures a degree of revenue stability even though revenue will vary with commodity prices. Variation with prices means that ad valorem royalties are more efficient than specific rate royalties levied on production volume or weight. Because of these characteristics, ad valorem royalties are the most common form of royalty around the world, although there is wide disparity in the method of determining the value on which royalty is based. Resource companies also tend to prefer the predictability of ad valorem royalty calculations.

- **Production sharing contracts (PSC).** Effectively a contract between a state and the resource extraction company defining how much of the resource extracted from the country each of them will receive. The company bears the technical and financial risk of exploration and develops any discoveries. If actual mineral production is shared, a PSC has all the characteristics of an ad valorem royalty. However, most PSCs in the petroleum industry allow the company first to recover from the initial sale revenue the costs of exploration and development. After the initial capital is recovered, revenue is split between the state and the company according to agreed proportions. Under these circumstances the PSC more nearly resembles a profit-based royalty (see below) or even an income tax. PSCs, however, are not as simple to administer as may appear to be true at first glance. Consequently, their use is largely restricted to some oil and gas producing countries and only rarely to minerals.
- **Profit-based royalty.** Applies a percentage rate to an accounting concept of net income or profit. Profit is computed at project level and may be different from the profit on which corporate income tax will be levied, although similar accounting practices are generally applied. The royalty rate may be of general application or negotiated between government and industry. This type of royalty is more economically efficient than both a specific and an ad valorem royalty, but is more complex for both companies and government to administer. In addition, revenue is variable and royalty may not be paid for some years after the mine start-up while significant capital costs are recovered. Lower than expected royalty payments may also be the outcome of arbitration or legal disputes. Differences in interpretation between the mining company and government frequently arise regarding the original intention of the profit-based royalty legislation. Hence, a profit-based royalty system requires clear and transparent legislative provisions so that both industry and government understand how and when the system is to apply.
- **Economic rent-based tax.** Applies a percentage rate to a measure of economic rent and is, depending on the way it is formulated, the most economically efficient type of tax. Although the concept is relatively simple, this type of tax is often misunderstood and resisted by industry. To minimize administrative

difficulties, it is critical that industry, as well as officers of the agency that will have to administer this tax, should be adequately consulted prior to drafting of the relevant legislation and related regulations. In spite of comprehensive and detailed documentation of policies and administrative procedures, the enforcement, administration, and audit of economic rent-based taxes (also known as resource-rent taxes) is likely to be more complex than that of other forms of taxation, and may lead to higher compliance costs for both government and industry. This is largely the reason why the application of resource-rent taxes has been limited primarily to large petroleum projects.

Recently, this type of tax has been applied in Australia to large iron ore and coal projects, but the legislation and administration guidelines have raised a number of issues, particularly in the valuation of the starting capital base for existing operations. Successful administration of a resource rent-based tax requires skills that are similar to those needed in administering corporate income tax; as a consequence, synergies may be derived if these two taxes are administered by the same agency. It would be simplistic, however, to assume that successful administration could be achieved by the taxing agency without acquiring a higher level of technical and financial knowledge of the mining industry. As with profit-based royalties, revenue from a resource-rent tax will be volatile, with the likelihood of no revenue in the early years after mining operations commence or in years when significant capital investments take place. Revenue volatility also largely depends on fluctuation in commodity prices and exchange rates, and on the specific allowances for revenue recognition and approved provisions for allowable deductions for capital and operational expenditure by the resource project.

- **Hybrid systems.** Combine a profit- or rent-based system with an ad valorem system to increase economic efficiency, equity, and revenue stability. Depending on the formulation, hybrids can offer the best of both systems, but they also introduce some of the less satisfactory elements of both. They can be difficult to formulate as a general approach for all minerals and may require project-specific negotiations. Generally, industry is wary of any hybrid royalty system, as it can be seen as an additional royalty impost above the normally accepted ad valorem royalty system. This is seen as benefiting government with additional revenues and defying the advantages of applying the more economically efficient profit-based system in isolation, which would provide some royalty relief in times of lower company profitability. This is probably the reason why hybrid systems do not appear to be in common use.

3.3 Royalty Administration Processes and Issues

It is of critical importance that the right to levy royalties should be set out unambiguously in senior legislation (a Mining Act, in many countries). In the majority of jurisdictions, royalties and, generally, the corporate income tax are self-assessed nowadays. As a consequence, the administrative processes that relate to royalty collection are essentially the same irrespective of the type of royalty used. However, the data and documentation needed for verification and audit of different royalty types may bring in significantly different levels of administrative complexity.

Box 3.1: Lodgment of royalty returns in Australia

Electronic lodgment of royalty returns is one way of reducing transcription errors in information provided by companies and of generally speeding up the process of royalty administration. Many states in Australia have successfully introduced on-line lodgment of royalty returns, which includes standardized quarterly mine production reports with basic information on quantities and sales. Payments can be made at the time of completion of the return or within a prescribed period by an approved payment method. Subsequent audits are based on the electronic returns.

Whether introduction of an on-line lodgment system is justifiable depends largely on the number of mining operations hosted by a country and the complexity of its royalty system.

Mineral royalty administration includes essentially three distinct processes, which are schematized in Figures 2, 3, and 4:

- Royalty return lodgment
- Processing of royalty payments
- Auditing

Details about the types and rates of royalty for specific minerals and the royalty valuation bases on which to apply them will normally be set out in subsidiary legislation, generally referred to as regulations. Regulations should also provide adequate guidance about methods for determining royalties, requirements for royalty returns, and the timing of returns and payments, including any provisional payments. Lack of clarity in a system relying on self-assessment is often the main cause of administrative disputes.

As already alluded to, verification and audit of different royalty types generate different levels of administrative complexity and varying workloads, issues and disputes. Some of the administrative issues that can be expected to arise with each main royalty type, and ways to address them, are discussed below.

Unit-based (specific) royalties. Unit-based royalties, where a specified amount is levied on the basis of volume or weight, are generally easy to administer and impose the lowest administrative compliance cost for industry and government alike. As already mentioned, specific royalties generally apply to bulk and low-value minerals. Two situations may arise where the minerals are:

- Sold in an at-arm's-length transaction to a third party. In this case, the volume or weight to which the unit royalty is applied is contained in the sale invoices for the period covered by the return.
- Not sold at-arm's-length, but used by the miner or a related company. This is often the case with sand and gravel in buildings, aggregate for road construction, limestone used as flux, and the like. In this situation, a need arises for verification of the volume or weight of minerals transferred to the associated company.

Although specific royalties could be applied to any mineral, application to high-value minerals would be highly economically inefficient.

Figure 2: Lodgment of royalty returns

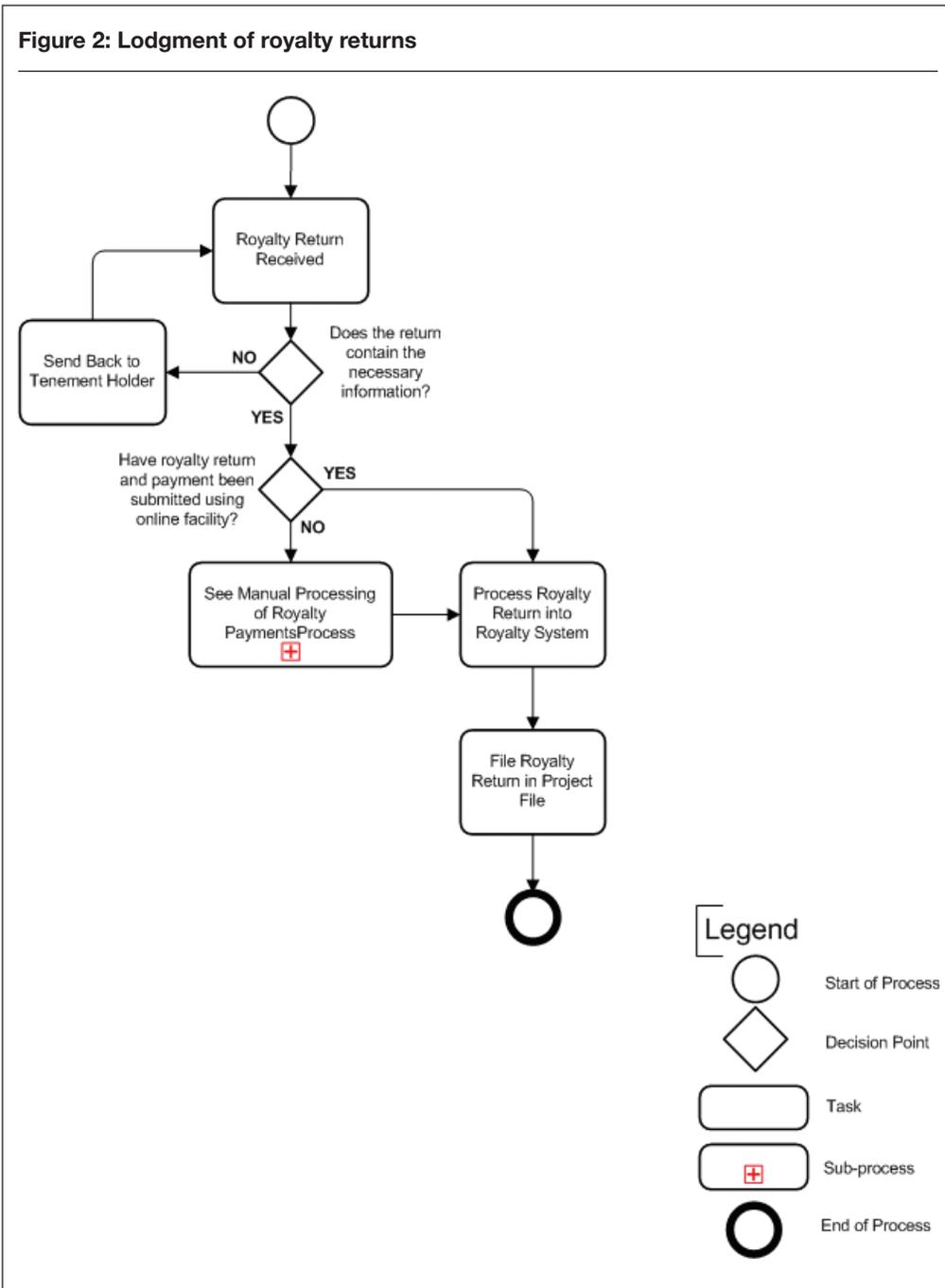
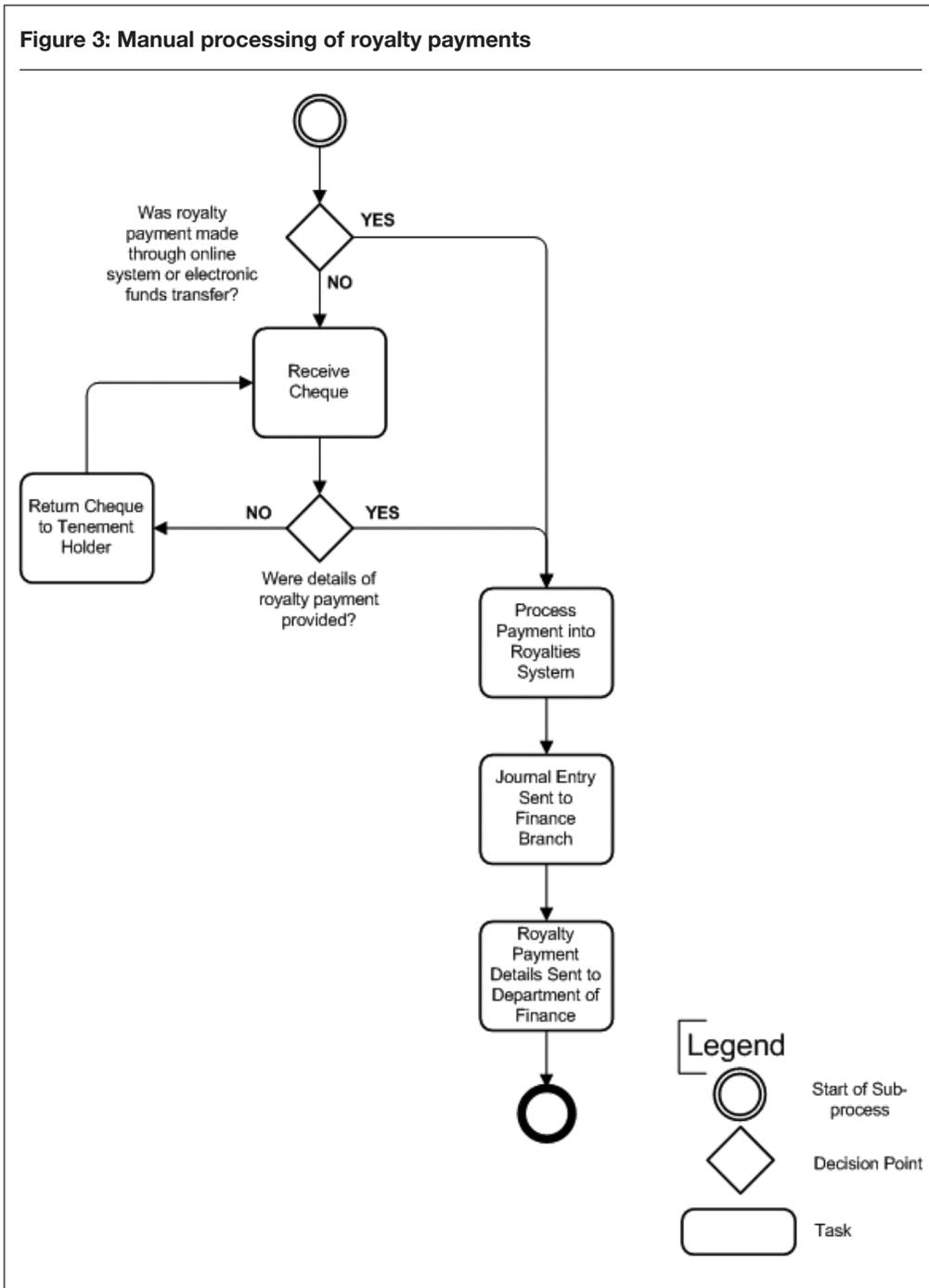
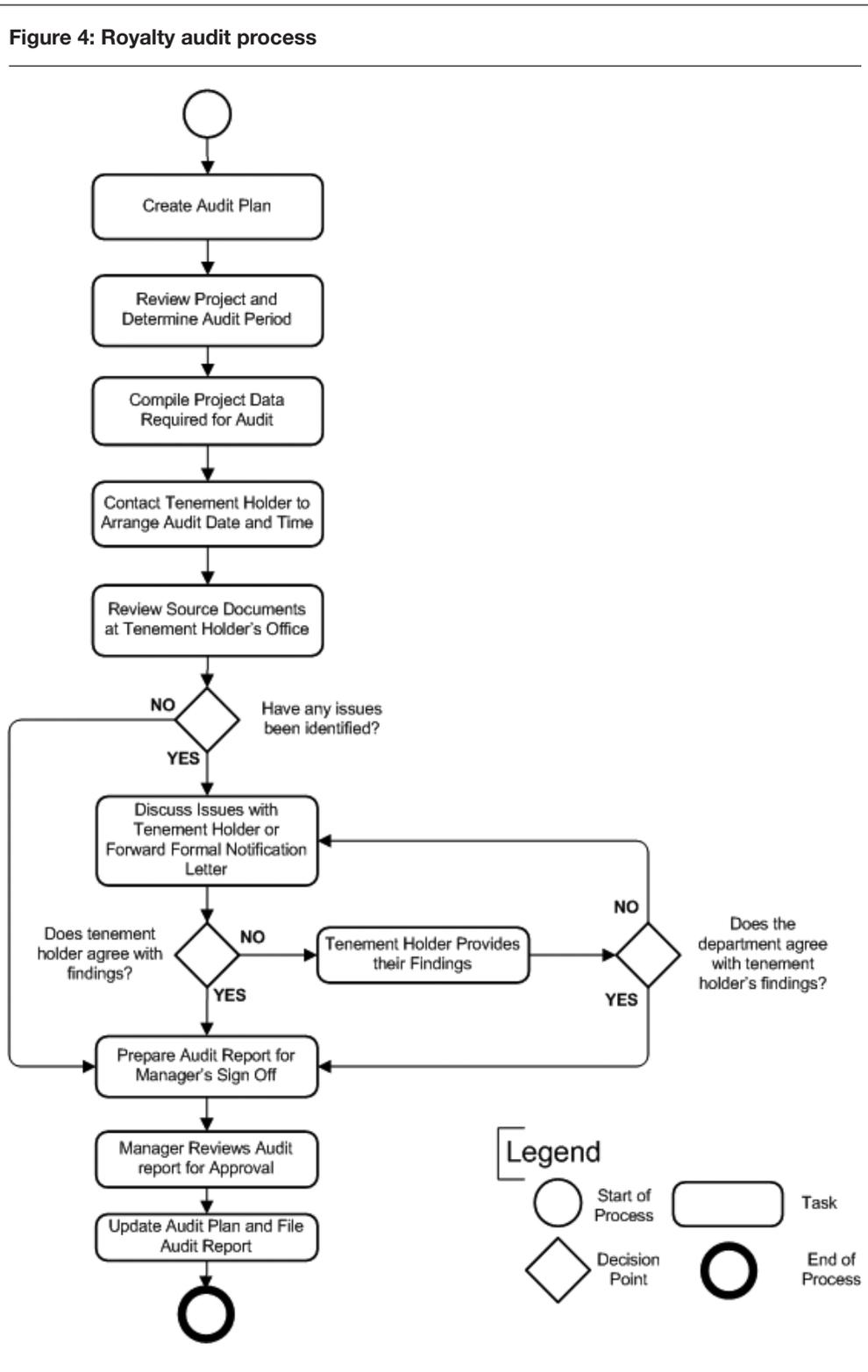


Figure 3: Manual processing of royalty payments

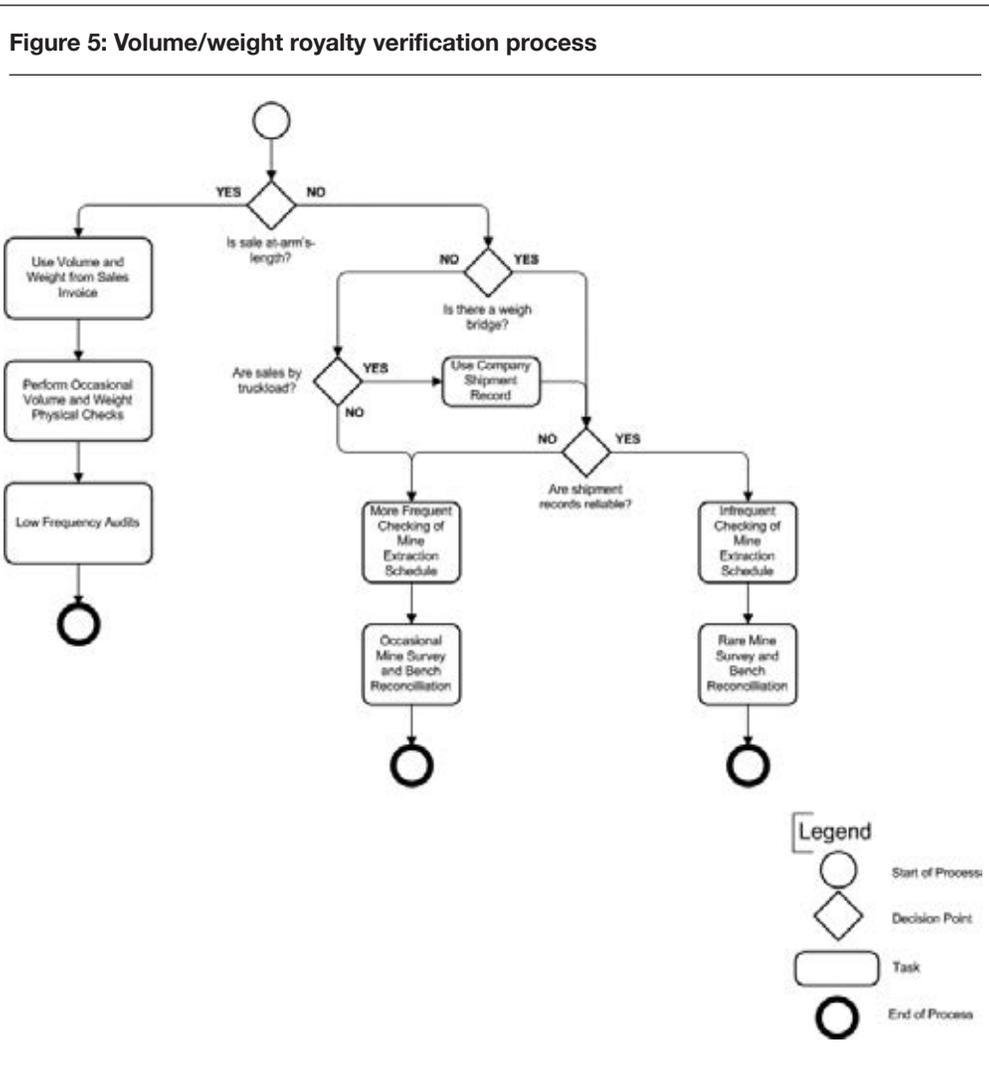




Administrative considerations. To the extent that specific royalties are applied to low-value minerals, the level of risk to revenue is generally low and there is no strong justification for devoting scarce government resources to frequent or detailed inspections, verifications, and audits.

The administrative process for verifying volume/weight royalty returns is schematized in the flow chart of Figure 5.

If minerals are sold in an at-arm’s-length transaction to a third party, the volume or weight to which the unit royalty is applied is contained in the sale invoices for the period covered by the return. Copies of these may either be submitted by the company with their royalty return or be held as supporting documentation, available for inspection when required. Checks will still need to be made to ensure that all sales are being recorded and reported. There is a tendency with low-value materials toward under-reporting and entering into barter or swap arrangements that underestimate production.



If the minerals are not sold at-arm's-length, but instead are used by the miner or a related company, the miner must still be required to keep comprehensive and accurate records of the volumes or weights of material transferred. In this situation, the veracity of the volumes or weights declared by the company in their royalty returns will need occasional verification. If the mine has a weighbridge, then the administrative authority needs to satisfy itself that the weighbridge calibration is certified, that stringent processes are in place to weigh all loads leaving the mine site and identify their destination, and that related documentation is rigorously kept. In many cases, the mine has no weighbridge and minerals are sold by volume in terms of truckloads. In these cases, aside from requiring the keeping of an accurate count of the number of trucks leaving the mine site and their destination, verification may include broad reconciliations between the quantities of mineral sold or transferred appearing in the royalty returns and the actual volumes mined, with reference to the mine plan. Ascertaining the accuracy and veracity of the returns may involve mine site visits by the royalty collecting authority and, if necessary, surveys of the mine benches.

Royalty regulations also must clarify the obligation to pay royalty where bulk construction materials are used in government projects such as road building.

As specific royalty rates are not linked to the value of the minerals, the real value of the rates of payment may be eroded by inflation and may need to be indexed in a way that reflects any change in values. A simple indexation to the inflation rate is common, but this index may not fairly reflect any change in value of the material involved. The royalty regulations should set the rules for revisions in rates so that investors can anticipate them in their investment decisions by adjusting their required rate of return before embarking on mining. A good approach is for the regulations to indicate the frequency of future reviews and whether they will be linked to a suitable index. At a minimum, the regulations should indicate that future reviews will be conducted at the discretion of the relevant minister. This is not common practice in most jurisdictions, and unexpected changes in royalty rates can generate industry dissatisfaction and unnecessary administrative cost. These difficulties may be alleviated by establishing formal avenues for meaningful consultation with industry in advance of royalty changes.

Ad valorem royalties. Ad valorem royalties can take many forms in terms of royalty rates and bases. Each brings into play different administration issues and procedures. The process for verifying the royalty returns for various types of ad valorem royalties is schematized in the flow charts of Figures 6, 7, and 8.

Valuation point. The majority of administration issues relate to the valuation of the mineral for royalty purposes. A price that fairly reflects the value of the mineral as it leaves the mine is the theoretical goal, but sales seldom take place at this point, so a valuation method needs to be devised that will ideally cover all minerals or, alternatively, specific methods need to be developed on a mineral-by-mineral basis. The method selected will be determined by a trade-off between the ease of administration and the desire to provide an economically efficient and equitable system. The level of complexity in determining the value of the mineral at the mine gate will also depend on the extent of downstream processing and transportation that takes place before the processed mineral is sold for the first time. A trade-off may be necessary between the use of a published

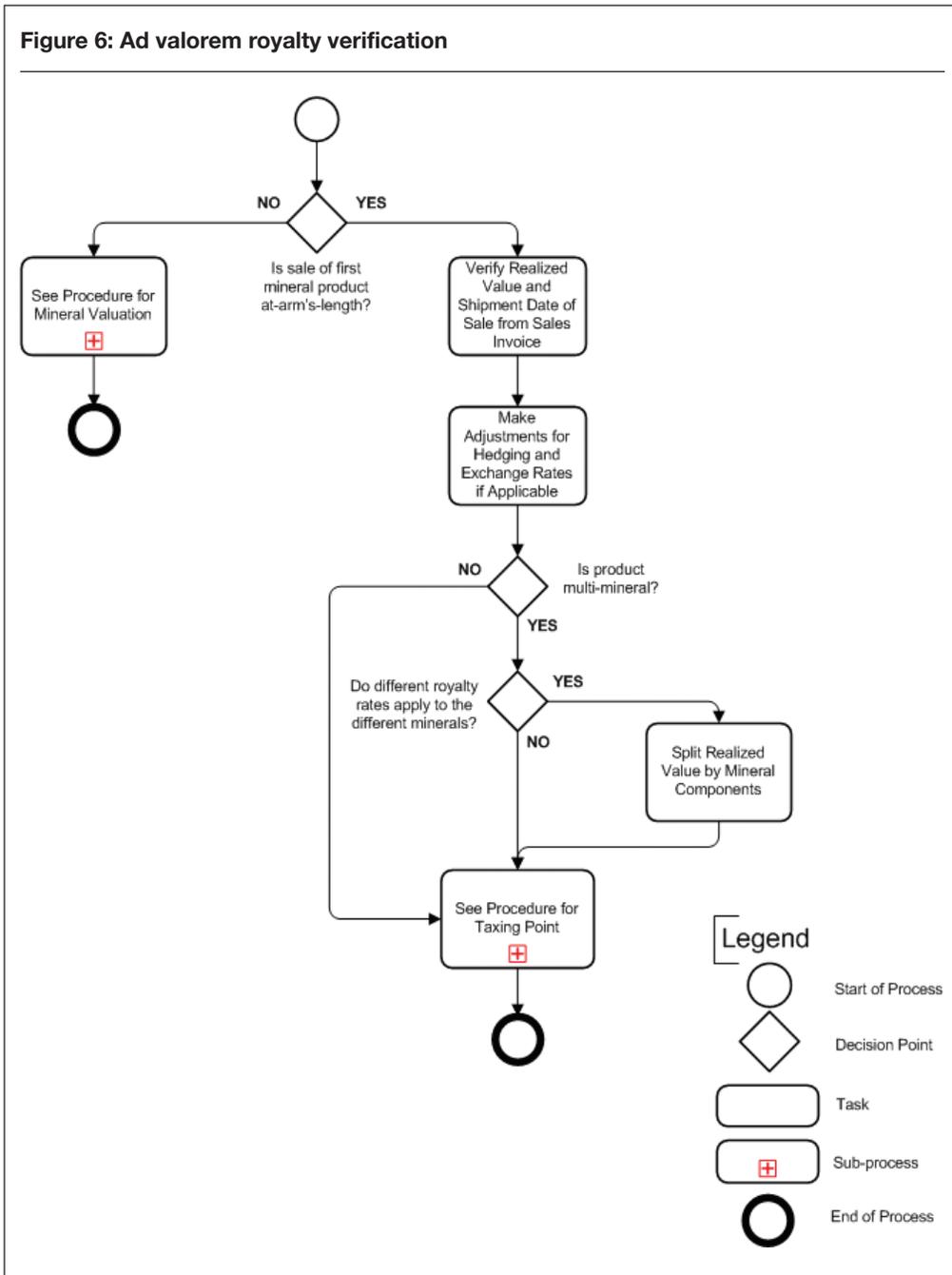
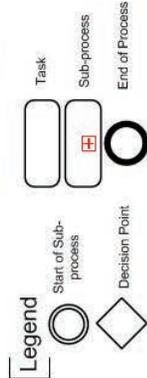
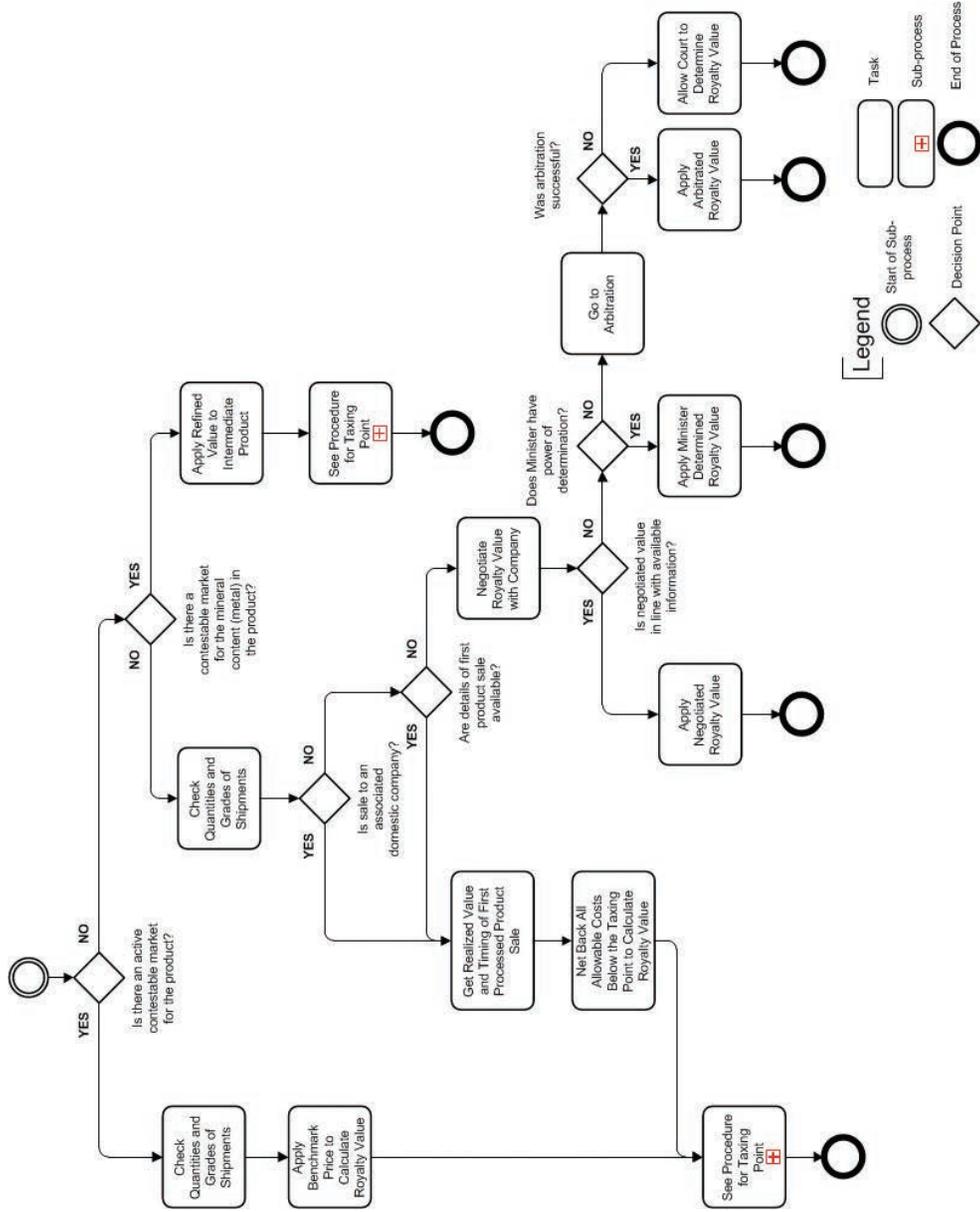
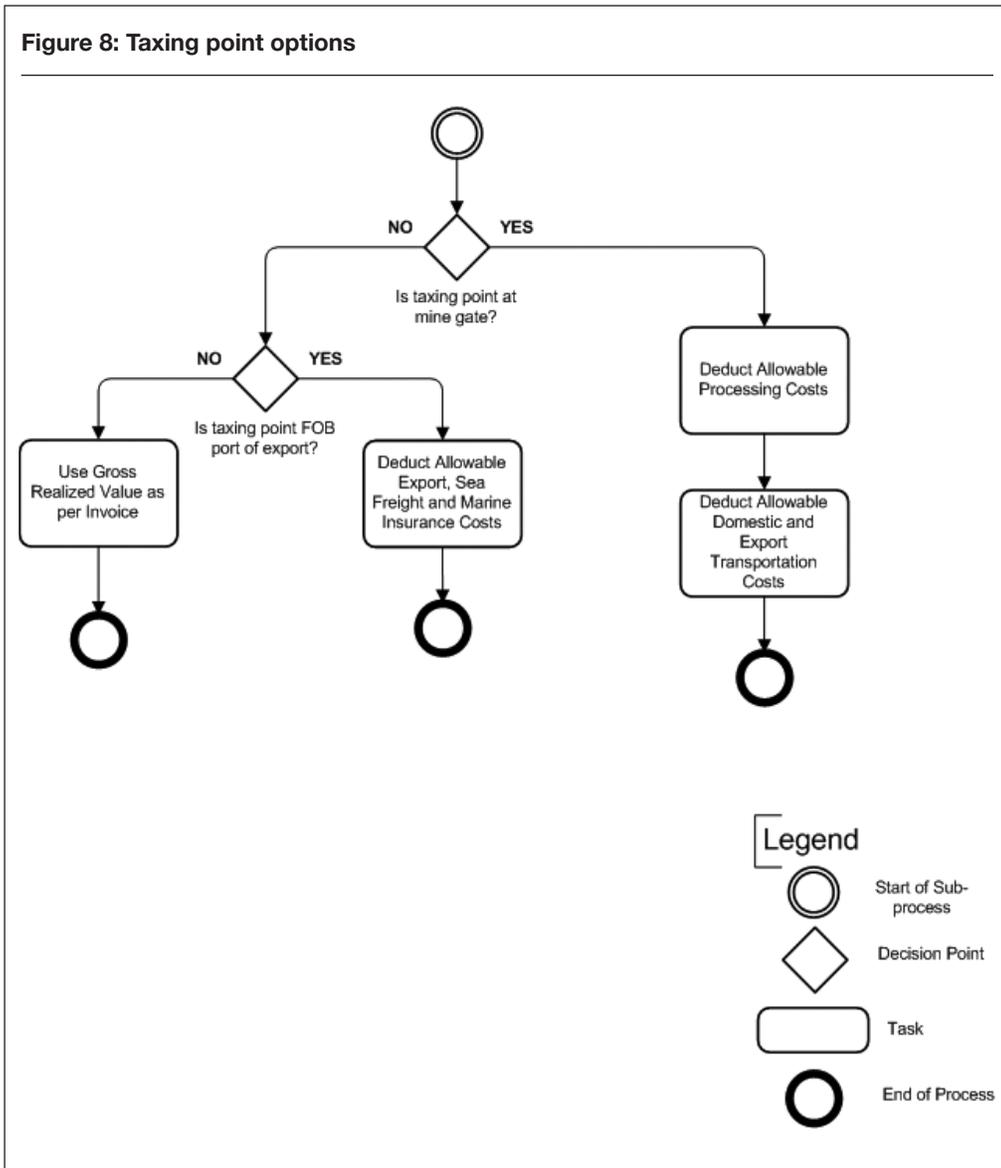


Figure 7: Procedure for mineral valuation





price for the mineral sold—irrespective of the fact that it has undergone some processing with minimal netting back of costs—and a more sophisticated netback system, including deduction of a range of project operating and capital costs.

As already noted in the royalty principles discussion, the royalty calculation or valuation point should ideally result in a value close to the point of extraction, often referred to as the “mine-head” or “ex-mine” value, which better reflects the theoretical basis of royalty as compensation to the state for the exploitation of their non-renewable resources. On the other hand, some degree of simplification and standardization of the valuation point may be desirable from an administrative point of view, with changes to reflect the particular sale arrangements for each mineral type. A balance is needed

between administrative ease and the consistency of treatment across minerals and projects in terms of verification. Valuation points might include:

- First stockpile at mine
- Mine gate
- Export point
- First point of custody transfer or first sale
- Point of consumption
- Published price

Valuation points closer to the mine are more economically efficient and equitable, while those closer to the point of final consumption are more revenue-stable and potentially easier to administer. The choice of valuation point thus involves the same trade-off as the choice of royalty system. The factors that need to be considered include:

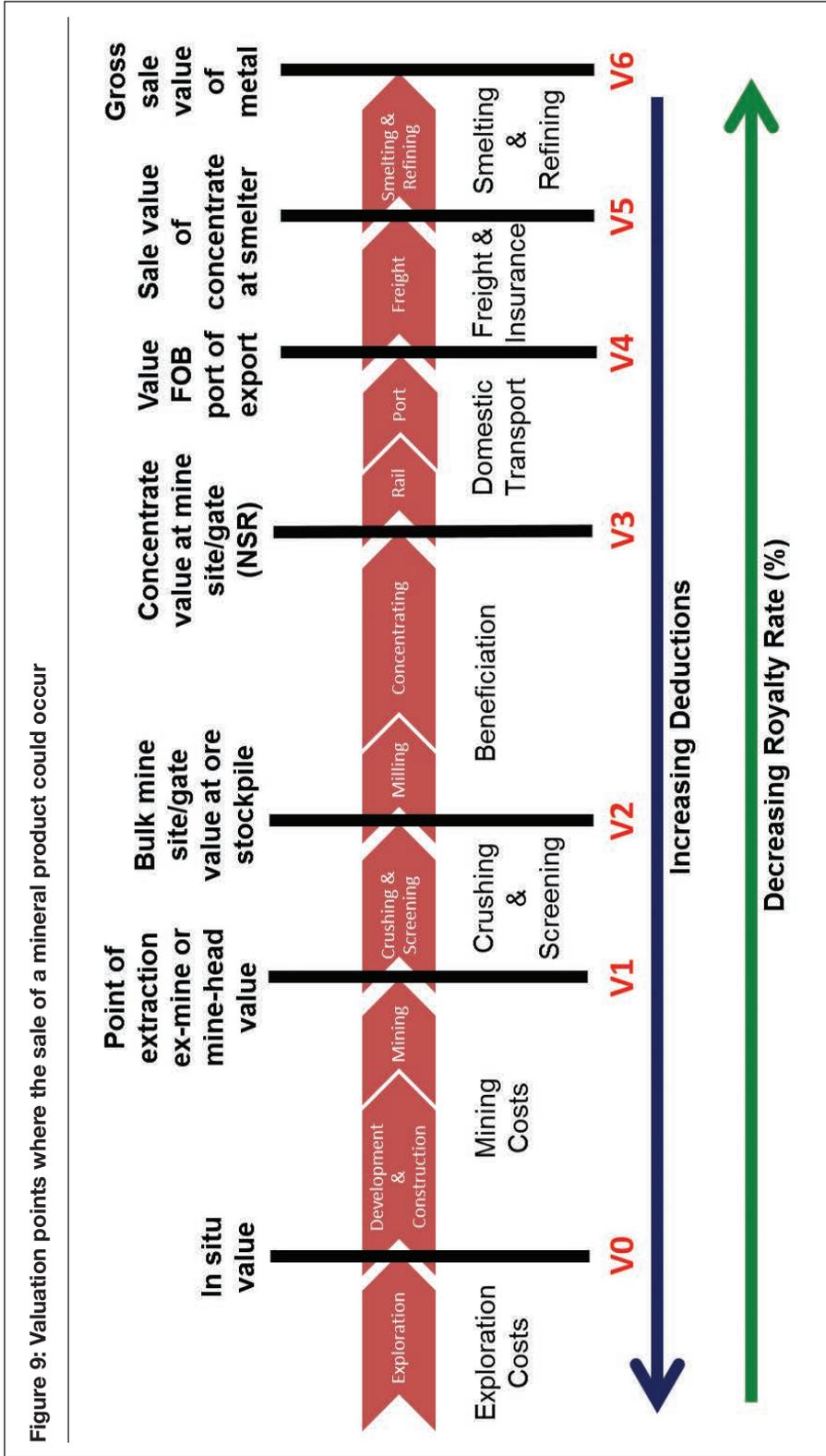
- Human resources and financial skills in government
- Method of mineral sale and usual sale point
- Extent of mineral processing and transportation before sale
- Potential for transfer pricing
- Desire for revenue stability
- Desire for revenue transparency

Figure 9 displays various points in the value-adding chain downstream from the in situ value of the resource (V0), where the sale of a mineral product could occur (i.e., V1 to V6). V1 represents the mine-head value or ex-mine value of the resource at the point of extraction, i.e., the value of broken ore prior to crushing, screening, milling, processing, and so on. The V1 value on which royalties should be based is seldom determined in an at-arm's-length sale, as very few sales of crude ore take place. Consequently, the V1 value can be derived only from the price realized on the sale of a downstream product by netting back the downstream costs incurred to process the crude ore into the first sellable product. Sometimes, however, the term "ex-mine" is used in a broader sense to denote the value of a mineral product leaving a mine site or mine gate, i.e., after the ore may have been crushed and screened (V2), or even milled and concentrated (V3). In these cases, the authors prefer to use the terms "mine-site value" or "mine-gate value."

In practice, the point in the value-adding chain at which the valuation point is placed is most commonly at:

- Valuation Point 1 (V5 or V6)—CIF or CFR price at port of destination.
- Valuation Point 2 (V4)—FOB value at port of export after netting back sea freight and insurance costs.
- Valuation Point 3 (V1)—ex-mine value after further netting back the processing; port stockpiling, blending, and reclaiming; and ship-loading costs.

Details of the various royalty values in the context of bulk and refined mineral commodities are provided in Tables 1, 2, and 3.



The actual amount of royalty levied as a proportion of the value of the mineral at the extraction (ex-mine or mine-head) point is a function of the royalty value multiplied by the applicable royalty rate. Thus, unless the royalty rate is adjusted downwards, the further downstream the valuation point is placed in the value-adding chain, the higher the amount of royalty actually levied as a proportion of the ex-mine value of the mineral, thus becoming increasingly unfavorable to the company and creating a disincentive for companies to invest in downstream processing.

Box 3.2: Standard royalty rates for ore, concentrate, and metal in Western Australia may discourage investment in downstream processing

The Western Australia (WA) royalty regime was set up with the intention to create an incentive for investment in downstream processing by having decreasing but standard ad valorem royalty rates for crushed and screened ore (7.5 percent), concentrate (5 percent) and metal (2.5 percent). Unfortunately, the cost of processing different commodities may be significantly different and many mineral products are intermediate and do not represent either concentrate or metal. Additionally, arbitrarily levying royalty at the concentrate rate may in some cases create a serious disincentive for companies to invest in downstream processing.

A typical example was the case of establishing an appropriate royalty to apply to sales of vanadium pentoxide, produced from large Western Australian deposits of vanadiferous magnetite. While it is true that vanadium pentoxide is not a metal (indeed metallic vanadium is unstable under normal atmospheric conditions), it is processed well beyond the concentration stage and requires rotary-kiln smelting.

The company validly argued that a 5 percent royalty—similar to the royalty that would have applied to the intermediate processing step of simply bringing the ore to a vanadiferous magnetite state—would have been excessive and would negatively influence any decision to invest in further downstream processing. However, the company accepted that vanadium pentoxide, as a potential feed for ferrovanadium, was not the ultimate possible product of downstream processing of vanadiferous magnetite.

The situation justified a compromise. The WA government agreed to set up a unique royalty system for vanadium pentoxide recognizing the company's concerns by determining the royalty value by netting back from the price realized from the sale of vanadium pentoxide all the cost incurred downstream of its predecessor, vanadiferous magnetite concentrate. However, to ensure a degree of revenue stability, the netting back valuation was introduced subject to a minimum ad valorem royalty rate being applied to the gross value of vanadium pentoxide sales.

Introduction of a similar system is also being advocated as an incentive for companies to invest the significant amount of capital necessary to develop the extensive Western Australian resources of primary magnetite ore to produce and export magnetite concentrates.

Obviously, if the same proportion of the ex-mine value is to be levied using the value realized in the sale of various downstream products as a base, then the relevant royalty rate must be progressively decreased to compensate for the downstream costs incurred (Guj, 2012b). As a consequence, governments have a choice about which valuation point to adopt based on administrative criteria, as long as the royalty rate is set accordingly so as to consistently achieve the required amount of payment.

In Australia, for instance, the valuation point is generally set at the point of departure from the country for minerals that are exported, normally referred to as the “free on board” (FOB) value, and at the mine-site or mine-gate value for commodities sold in the country. Thus, the FOB value applies to bulk minerals exported and sold in the form of crushed and screened ore with no significant downstream processing, such as iron ore,

Table 1: Royalty values at various valuation points for crushed and screened bulk ore (e.g., iron ore and manganese) sold to an export market

Valuation Point 1	Sold CIF	The purchaser takes actual delivery of the goods when the goods cross the ship's rail in the port of destination—generally an overseas port. CIF (cost, insurance and freight) is a contract of sale whereby the seller pays the cost of transport of the goods to the destination. The goods are insured and legal delivery occurs.
Valuation Point 2	Deduct ship freight costs, insurance, and any legal costs.	Free on board (FOB) value is the value of the mineral at the ship's rail at the export port.
Valuation Point 3	Deduct ship-loading cost, demurrage and any post-mine legal fees, and insurance and domestic transport costs to port.	Mine site/gate value.

manganese, and bauxite. In this case, the valuation point is represented by Valuation Point 2 in Table 1.

Gold is often treated in a different way from bulk materials and base metals. A number of valuation points are used, with perhaps the most common and advantageous to the company and the government alike being Valuation Point 2 in Table 2. Given the relatively low cost (as a proportion of the sale value) of transporting unrefined gold or doré from the mine to the refinery, the net smelter return (NSR) closely approximates the value at the mine site/gate and is hence close to a Valuation Point 3.

A number of West African countries use the gross value of sales (Valuation Point 1) as a base for gold royalties, although most use the refinery certificates as the sale documentation—in other words, Valuation Point 2—as the method of valuation.

For mineral products that have undergone downstream processing through an intermediate concentrate down to a metallic stage, such as base metals, valuation at the mine site/gate may be based on their net smelter return (NSR). This is obtained after deducting from the gross value realized from the sale of the final refined metal product the smelting and refining costs and the cost of non-domestic transport, insurance, and any legal costs necessary to convey their concentrate to the smelter or refinery. In this

Table 2: Royalty values for gold at various valuation points

Valuation Point 1	Gross sale value of refined metal.	The value of the gold and any other precious group metals sold, based on the assay results and the published market price.
Valuation Point 2	Deduct refining costs, non-domestic transport costs, insurance, and any legal costs.	Market value when unrefined metal leaves the country.
Valuation Point 3	Deduct local transport and security and marketing costs.	Mine-site/gate value.

Table 3: Royalty value for base metals (e.g., zinc, copper, and lead) at various valuation points

Valuation Point 1	Gross sale value of refined metal.	The value of the contained metals based on assay results and published market prices.
Valuation Point 2	Add credits for other metals. Deduct refinery and smelting costs, penalties for impurities, non-domestic transport costs, insurance, and any legal costs.	Generally known in commercial sector as "net smelter value" (NSV) at the smelter.
Valuation Point 3	Deduct local transport and security and market costs.	Net smelter return (NSR) at the mine site/gate.

case, the valuation point is similar to Valuation Point 2 for gold in Table 2, except that smelting costs are also involved and deducted. Naturally Valuation Point 3 would be more advantageous to the company if the royalty rate were to remain unchanged as, contrary to gold, domestic transport costs may be significant.

Thus, calculating the royalty value base may involve a netback of costs from the revenue realized at the point of the first at-arm's-length sale of a mineral product, to which value may have been added by transportation and downstream processing. If the mineral product sold at-arm's-length to a smelter or refinery is an intermediate product (say, doré or concentrates), its value will be displayed in the relevant contracts and sale invoices.

Numerical examples of calculations of various types of royalty values for the sale of a bulk commodity such as iron ore to a steel mill and of copper concentrate to a smelter are provided in Tables 4 and 5, respectively.

An issue that often arises when royalty rules are poorly specified is the treatment of the royalty rate to apply to co-products and by-products in poly-metallic ore bodies, as opposed to smelter credits.

Administrative considerations. Determination of the royalty value base is essentially a matter of ensuring that all the deductions claimed in royalty returns are legitimate and accurate. This process is facilitated if all allowable deductions are clearly listed in regulations and if there is a clear requirement that the company must keep supporting documentation for a future audit. As a general rule, the aim should be to define a value that can be readily verified and benchmarked against third-party market prices. Allowable deductions may include:

- Smelting and refining costs
- Sea freight
- Insurance
- Charter liability insurance
- Umpire assays
- Unloading supervision at port of discharge
- Demurrage/despatch at port of discharge
- Packaging costs
- Other items that may be approved by the collecting authority

Table 4: Example of numerical calculation of royalty values at various points along the value chain for bulk iron ore export sales

EXAMPLE - Calculating the FOB and Ex-mine values from the sale of iron ore fines 62% Fe	
NOTE - For lump sales of similar grade and quality a price premium of 15% to 25% applies.	
ASSUMPTIONS	
M = Grade of iron ore fines (Fe %)	62.0%
CIF (landed Tianjin) Iron ore price US\$/t as for IODEX Index = Royalty value 1	163
NOTE – Contract price for iron fines shipments of different Fe grade are converted from Fe units to value per tonne and adjusted for different levels of impurities (e.g. P, SiO ₂ , Al ₂ O ₃ etc.)	
Less:	
S = Sea freightshipping charges including insurance (US\$/t)	-10 = S
FOB (Port Headland) Iron ore price US\$/t = Royalty value 2	153 = CIF – S
Less:	
K = Distance mine to port (Km)	300 = K
TR = Railing cost (US\$/tKm)	0.04 = TR
TRC = Railing cost US\$/t)	-12 = K * TR
BR = Bleding, reclaiming and ship-loading cost (US\$/t)	-3 = BR
Ex-mine value (US\$/t) at Run of Mine stockpile after crashing and screening = Royalty value 3	138 = FOB – TCR – BR

Box 3.3: Valuation of poly-metallic ore bodies

Many gold deposits contain small proportions of other precious metals, such as silver, platinum, and palladium, along with the gold. These precious metals can add to the value of the mineral mined and sold to gold refineries. The method of valuation used for royalty purposes will determine if the value of these by-product metals is included in the gold royalty collection process.

Valuation based on the weight of gold sold and the gold price on the day of sale may not include the value of by-product metals. On the other hand, use of a net smelter royalty value will include the value of all minerals but will also incorporate a deduction from their gross value for the costs associated with refining and transportation to the refinery. Countries setting up systems to levy royalties on gold mining production need to consider the likely precious metal content in their gold deposits, and decide which of the alternative approaches to valuation best capture the value of any by-product precious metals.

These considerations are also valid for poly-metallic base metal deposits where the value of co-products and by-products is credited in the relevant net smelter returns, as well as deduction for smelting charges and possible penalties for deleterious metals.

Table 5: Example of numerical calculation of royalty values at various points along the value-adding chain for copper concentrates

EXAMPLE - Net Smelter Return (NSR) from the sale of Cu concentrate	
<p>ASSUMPTIONS</p> <p>Net Smelter Value (NSV) = $[(M - D) * (P - R)]/100 - T + C$</p> <p>NSV is per tonne of concentrate at smelter. Where:</p> <p>M = Grade of concentrate (Cu %) 30.0%</p> <p>D = Unit deduction Cu (%) 1.2%</p> <p>P = Metal price (US\$/t Cu) 7000</p> <p>R = Refining charge (US\$/lb of metal) 0.07</p> <p>T = Treatment charge (\$/t of concentrate) 77</p> <p>C = Net credits for precious metals Variable</p> <p>NOTE – Other base metals have more complex conditions</p> <p>CF = Conversion factor lb to Kg 0.4536</p> <p>K = Distance mine to port (Km) 300</p> <p>TR = Railing/trucking cost (US\$/tKm) 0.09</p> <p>S = Sea freight charges including port, loading and insurance (US\$/t) 47</p>	
<p>G = Gross value of Cu in concentrate (US\$) = Royalty value 1</p> <p>Less:</p> <p>Unit deduction charge -84.0 = D * P</p> <p>T = Treatment charge -77.0 = T</p> <p>RC = Refining charge -44.4 = $((M - D) * 1000) / CF) * R$</p>	<p>2100 = M * P</p>
<p>NSV = Net Smelter Value at smelter (US\$) = Royalty value 2</p> <p>Less:</p> <p>TRC = Railing/trucking cost -27 = K * TR</p> <p>S = Sea Freight -47 = S</p>	<p>1894.6 = G - (D*P) - T - RC</p>
<p>NSR = Net Smelter Return at mine (US\$) = Royalty value 3</p>	<p>1820.6 = NSV - TRC - S</p>

For valuation of minerals sold within the country, generally at a lower price and attracting lower royalties, care needs to be taken to ensure that domestic sales are not simply an arrangement for another entity (related or unrelated) to then export the minerals without any further processing at the full FOB market price, and without being subjected to additional royalty payment. The administrative authority must ensure that such domestic sale arrangements are not an intentional

or unintentional royalty avoidance scheme. This is another reason that adequate royalty anti-avoidance legislative provisions are needed to safeguard royalty revenues.

The most frequent concern expressed at the Ghana workshop with regard to mineral valuation for gold was the treatment of gold when it was pre-sold under some form of contract. For smaller producers, some form of advanced sale is often essential to obtain bank finance, and producers argue that the contract price is the realized price and hence should be the basis for royalty.

Gold hedging arrangements also create concern in some countries. A company may choose to de-risk its project by agreeing to a contract price, so as to give greater certainty to its cash flow. Whether a government should accept that agreed price as the appropriate price for royalty purposes is a moot point, with most countries objecting to any hedging considerations in the gold valuation.

Determination of the validity of contract prices and hedging arrangements depends at least in part on the broader government interpretation of royalty policy. As royalty is generally considered to be compensation for the depletion of non-renewable resources, the policy objective is normally for royalty to be levied at a point and time as close as possible to actual extraction of the mineral. However, provided the hedging arrangement relates to the actual gold output of the mine and directly to the sales (i.e., it is not speculative), the hedging contract can be a valid element of the valuation.

Countries frequently object to the use of hedging transactions, given the administrative complexities introduced in the audit and verification process and the lack of a clear relationship between published gold prices, which are well known, and royalty payments. Gold loans are less clear-cut, with some countries accepting them for valuation purposes but most appearing to object to their inclusion.

Where royalties are seen as a taxation mechanism, contracts and hedging arrangements are less subject to any theoretical consistency and can be treated in a similar way under royalty and company income taxation processes.

Valuation in case of transfer of minerals to an associated company and in the absence of an at-arm's-length sale. It is a very different matter if a company transfers its run-of-mine ore or intermediate mineral products to a related company by means of a non at-arm's-length transaction for an agreed transfer price. Determining whether the transfer price at the time of delivery was fair and reasonable can be a complex matter. Two situations may arise:

- A contestable but contract-based market exists for the type of intermediate product transferred.
- No market price for similar products can be obtained.

Either situation creates significant valuation challenges. Clear royalty anti-avoidance provisions, including ministerial deeming powers that allow alternative valuations for royalty purposes based on fair market prices, may be required.

Bauxite valuation can pose problems when it is refined into alumina in the same country with most processing forming part of a vertically integrated enterprise. A number of approaches can be used, including market benchmark prices or a negotiated valuation mechanism related to the sale of alumina.

Box 3.4: Valuation for gold royalty in Mali and Burkina Faso

In theory, royalty is based on the value of the gold recovered and sold. In Mali and Burkina Faso, some smaller companies have contracted to sell future production at a fixed price to reduce the risk of the capital investment and allow them to borrow finance for the mine and processing plant. Such gold loans or hedging contracts are valid commercial approaches to mine financing. However, they create problems for government when the values being declared for royalty purposes are significantly different from published spot market prices at the time of sale, particularly in countries with a history of gold production and a keen community understanding of gold prices.

The approach taken in Mali and Burkina Faso has been to prefer the use of current spot market gold prices rather than the hedged or forward contract price. By agreement with government, one company in Burkina Faso uses contract (hedged) prices to determine the provisional royalty.

Whichever approach is adopted requires a clear explanation of the policy and consistent administration.

Some concern was also expressed at the Ghana workshop on potential transfer pricing issues for gold mining companies that transfer the doré to related companies involved in refining, rather than disposing of it by way of at-arm's-length sales. Although there is clearly some potential for the transfer to take place at a price lower than the market value, other taxation rules may limit the conduct of such practices.

Box 3.5: Bauxite valuation in Jamaica, Guinea, and Western Australia

Bauxite valuation has proved challenging for a number of governments, including Western Australia (WA), where there are no independent sales of crushed and screened bauxite ore on which to determine a value. With bauxite frequently sold to related companies for processing into alumina and then into aluminium metal, placing a market value on the bauxite mined can be difficult. The simplest approach is to levy a specific royalty, as is the case in Jamaica, where a royalty of US\$0.50 per long dry ton (either dried or processed into alumina) is applied. However, it must be remembered that until recently, the Jamaican government levied a 7.5 percent production fee, which had a detrimental effect on the alumina industry.

In Guinea, a more complex progressive system of royalties is levied on bauxite, depending upon the amount of processing that is undertaken. If the bauxite is scheduled for export, a royalty of 10 percent is applied to the FOB value. If the bauxite is processed into alumina, a royalty of 5 percent is applied to the value calculated on the basis of FOBCBF (Compagnie de Bauxite de Guinée). Finally, if the bauxite is processed into aluminium, a 0 percent royalty is levied.

In WA, all bauxite mined is processed into alumina and then exported. The government has chosen to levy royalty on the value of the alumina sold, and applies a lower royalty rate on alumina that reflects the value of the bauxite used to produce that alumina. The relationship between bauxite and alumina takes into account the cost of mining bauxite, the cost of processing, and the relative quantities of the two materials. The value obtained is benchmarked against other Australian bauxite export prices to ensure commercial validity.

This approach was adopted in WA because there were no independent sales of equivalent-grade bauxite on which to determine a value. An alternative approach would have been to agree a bauxite value based on any published bauxite prices, but these varied significantly depending on ore quality.

Administrative considerations. If a contestable market exists for the type of intermediate product transferred, then it may be used as a proxy. From an administrative point of view, this may create some complexity because market prices for some intermediate products sold on contract may be difficult or expensive to obtain, and the value of different intermediate mineral products may vary significantly because of variations in metallurgical specifications. The administrative authority needs to keep abreast of the marketing characteristics and prices of the product in question by subscribing to specialized commercial databases (e.g., KITCO and LME) or make use of third-party valuers specialized in the specific markets. To the extent that the process is likely to lead to protracted company negotiations, it would again be helpful from the government's point of view if the relevant minister had, within clearly specified limits, power of determination. This, however, may not always prevent the dispute from being elevated to a court of law.

If there is no active market information regarding the sale of similar mineral products, but future processing of the intermediate product sold can be traced through the related company's value-adding chain to a first at-arm's-length sale, then the price at the royalty valuation point may be derived from the sale price of the processed product. This process involves the mining company obtaining the realized selling price of the processed product sold by the associated company, and netting back all the expenses incurred to process and market the mineral product downstream of the royalty valuation point. Some of the more common methodologies used to derive this price in the minerals industry are discussed in section 4.2.2.

From an administrative point of view, verifying and auditing a self-assessed royalty return requires the power to gain access to the relevant cost information in a form suitable for the task. When the related company is a domestic one and the royalty administration authority is integrated with the authority charged with assessing and collecting corporate income tax, the task, although complex, is generally manageable. The main difficulty rests with attribution of corporate and indirect costs to the processing activities and with related funding costs. Clear directives should be provided to royalty payers to cover the treatment of such costs, whereas by contrast when the intermediate product has been exported, gaining access to relevant information may not be feasible. In this case, the royalty administration authority should make use of ministerial powers of determination to establish a fair commercial value.

Government power to determine a royalty value is essential where non-arm's-length transactions are involved. Exercise of such a power must abide by commercial principles and must be open to court appeal in order to prevent its misuse. A similar approach will need to be adopted if downstream processing of the intermediate product sold cannot be directly followed down the value-adding chain, e.g., because the product is blended with other intermediate inputs of different provenance.

Government power to determine a royalty value is essential where not-at-arm's-length transactions are involved. Exercise of such a power must abide by commercial principles, and must be open to court appeal to prevent its misuse. A similar approach will need to be adopted if downstream processing of the intermediate product sold cannot be directly followed down the value-adding chain, e.g., because the product is blended with other intermediate inputs of different provenance.

A preferable alternative may be to apply a royalty rate on the value of the metal(s) contained in intermediate products (e.g., concentrates) for which there is a contestable market value. An example of this is the royalty system for nickel and rare earths in

Western Australia's Mining Regulations, whereby a benchmark price is applied to the valuation of minerals within concentrates. This royalty system can alleviate many of the problems otherwise encountered in trying to netback costs from the revenue generated by a highly processed mineral product. However, such a simplification of value will always be contentious, and a lower rate of royalty may be necessary as a trade-off for the royalty being applied to metals where the revenue recouped by the company from the sale of concentrates falls significantly short of the value of the metal contained in them.

The value of the intermediate product sold is a function of the quantity, grade, and value of the metals and/or minerals it contains, which may be significant. In the absence of a market price for the product sold, an accurate grade for the metals contained in each delivery must be recorded and documented by the company. Naturally, the collecting authority needs to be satisfied as to the independence of the laboratory carrying out the necessary assays and the reliability of the sampling and assaying techniques used. In addition, the collecting authority can carry out verification checks only before each batch of mineral product is processed, which creates additional scheduling complexity and cost. In cases where the intermediate product is exported, check assays may also be conducted by customs, and it would be advantageous if the collecting authority's activity were to be closely coordinated with them.

Box 3.6: Transfer pricing for rough pink diamonds

The determination of a royalty value for pink diamonds in Western Australia provides an extreme example of the complexity of determining whether the transfer prices proposed by a royalty-payer are realistic in the absence of an at-arms-length market is provided. The Argyle mine produces major quantities of white, mainly industrial-quality diamonds, but also a commercially significant quantity of very rare, hence very valuable, gem-quality pink diamonds.

Non-pink diamonds are exported and marketed in sorted batches in a contestable market in Antwerp at an at-arm's-length price.

By contrast, the entire production of pink diamonds is transferred to, and processed domestically and overseas by, "cut and polish" divisions of the company, then sold as finished gemstones in a variety of specialized international markets. A viable approach for government to reflect market prices for pink transfers was to appoint a diamond valuer to physically inspect and value the rough pink diamonds produced in each period. With reference to very limited available marketing information, the minister deemed the values so obtained to be the appropriate base on which to levy royalties. This process involved complex judgment of the rough stones in terms of size, depth of color, and crystallographic and other hard-to-assess qualities. The situation has improved significantly since government and the company agreed to construct a reference standard of rough pink diamonds of different quality and relative value to assist sorting of production batches for valuation. The process of cutting and polishing high-quality tender stones now also includes tracing to individual batches of rough pink diamonds.

Prior to the departure of the government diamond valuer, a mutually agreeable valuation matrix was created by the outgoing valuer and the Argyle mine. Pink transfers to Argyle's cutting and polishing facilities have since been valued for royalty purposes using this valuation matrix. The original valuation matrix has subsequently been adjusted as a result of reviews into Argyle's pink business to calculate relationships between pink rough transfer prices and cut and polished sales. Agreements between Argyle and government have also resulted in adjustments to transfer prices within the matrix in accordance to movements in cut and polished sales.

The Canadian Government also makes use of a government diamond valuer, but valuations are performed at Antwerp after rough diamonds are transferred there. Details of the valuation arrangements are unavailable, but it is likely that, as in Western Australia, valuations are performed using an analogous price matrix.

Production sharing contract (PSC)

This form of impost is not common for minerals, and legislation formalizing it exists in only a few jurisdictions where, in many cases, it has not worked well. This is because, even though the name suggests simplicity, the administrative reality is generally rather complex. In the rare and generally small-scale instances where the mineral produced is physically shared and separately marketed, the PSC is similar to an ad valorem royalty and simple to administer. However, PSCs generally involve sharing some form of net operating income (including some capital recovery) or, alternatively, sharing commences after the contractor has recovered exploration and development capital costs. The net operating income to be shared may be computed before any tax is applied or, in some cases, may be net of mineral royalties. Because of these complexities, PSCs involve detailed negotiations and agreement on capital recovery rules and the recurrent expenditures that can be deducted.

Administrative considerations. From an administrative point of view, this includes monitoring of all capital and recurrent costs to be later recovered. All conditions must be captured in comprehensive contract documentation, failing which disputes will inevitably arise during the operating life of a project. Key areas of potential disagreement include capital cost recovery provisions, deductibility of certain recurrent items of expenditures, and marketing issues. Consideration needs to be given as to whether a government agency will be set up to market the government share or the producer will market the product on the government's behalf and remit and report the sales proceeds to the government. Capital cost recovery issues include the extent of recovery (such as exploration and development costs), the carry-forward provisions of undeducted capital costs, and the rates at which capital investment can be recouped.

In addition, PSCs frequently involve a government-owned enterprise with the potential for conflict between the government role of industry regulation and the enterprise's value-maximization objectives.

Profit-based royalty

The profit-based royalty type covers a range of approaches to defining profit and administering the system. From a policy perspective, this royalty formulation would result in the royalty being levied not only on the value of the resource but also on any value added to it by processing it into the form in which it is finally sold. The profit base on which royalty is to be applied is generally different from that used for corporate income tax purposes. The main differences generally have to do with three areas:

- Capital recovery rules
- Bringing the measure of the profit closer to that generated by the value of the resource
- Funding

Capital recovery rules are generally set in a manner that ensures royalties will start to be collected early in the life of a mine and will not go unpaid during a long period on account of the capital write-offs and accelerated depreciation generally allowed under the corporate income tax regime. This means that a company will need to keep three sets of books: one for financial reporting, one for corporate income tax, and one for

royalty purposes. A potential lack of royalty payments in the early years of a mining operation creates political issues within the affected communities, particularly where there is local opposition to mining. Governments, which generally recognize that it is difficult for small mining companies to keep up with such complexity, occasionally exempt low-profit companies from profit-based royalties, or impose them using progressive rates, or substitute them with an ad valorem royalty. The second objective, bringing the measure of the profit closer to that generated by the value of the resource, tends to confuse the issue of deductions for royalty purposes relative to those allowed under the corporate income tax rules.

The third area of difference has to do with funding and the general area of deductibility of interest expenses. This is an area of administrative complexity in common with corporate income tax and will be discussed at some length later in a relevant section of Chapter 4. Suffice it to say here that some jurisdictions found the issue too hard to deal with. As a consequence, they disallow actual interest payments, substituting them with a return on capital as outlined in their legislation—a change that bridges the gap between profit-based and economic rent-based royalties as discussed below.

It is also important that the treatment of mine closure and rehabilitation costs be negotiated and agreed to at the start of a project, with appropriate provisions established at the project level, thus avoiding or reducing acrimonious negotiations near the end of the mine life.

Some other key issues for developing countries using such a royalty system are the treatment of costs associated with corporate and technical services received from overseas related and holding companies, the treatment of financing costs, and the treatment of long-term contract sales or hedging arrangements. These issues are common to the administration of corporate income tax and will be discussed in some detail later in the relevant sections.

Profit-based royalty systems are used successfully under more advanced fiscal regimes supported by competent administrations, such as those in Canada, the United States, and Australia. There, they provide economic-efficiency benefits by facilitating start-up and development of marginal projects that may not have otherwise occurred, while capitalizing on the potential benefits that may flow to government when an improvement in commodity prices may make these projects more profitable.

Administrative considerations. It comes as no surprise that these issues increase and complicate the administrative workload of government and create a need for advanced skill levels, the cost of which must be justified by the efficiency and revenue benefits expected from adopting this type of royalty. As a consequence, a profit-based royalty regime is less likely to be administered by a mines department. It requires financial skills likely to reside in the agency that administers corporate income tax—skills that are broadly transferable and may lead to significant synergy.

A disadvantage under these circumstances, however, is that the royalty may lose features distinguishing it from company taxation and may be interpreted by companies as simply a higher taxation regime. Indeed, one could argue that there would be no need for differentiation and that a higher corporate income tax rate specifically targeted at mining, rather than a combination of a traditional mineral royalty and corporate income tax, would be a simpler and more economically efficient alternative for appropriating the economic rent generated by mining.

From an administrative point of view, in common with other profit-based forms of taxation, the main issue is that royalty returns and payments would have to be based on installments, followed by annual reconciliation and amendments at the end of the year when audited company financial reports and statements become available. This necessitates advanced financial accounting and professional auditing skills and experience.

On a more general note, the more complex the system, the less the related payments will reflect the value of the minerals being produced and the less the public will see a connection between mine activity and returns to the state and its citizens.

Economic rent-based tax

A properly structured economic rent-based tax is without doubt the most economically efficient means of taxation. The concept of economic rent—the surplus derived after deducting from revenue all costs of production, including a “normal” rate of return (sufficient to attract and retain capital in a project)—is clear enough in theory, but its practical implementation relies on extensive guidelines and definitions needed to minimize ambiguity that are difficult to draft and administer.

The connection between payments and the benefits to the government is also not as direct as for other types of royalties, and defending the payment levels to both industry and citizens becomes challenging. All capital and recurrent operating cash expenditures are deducted from revenue when incurred. As a result, a capital-intensive project may make a series of losses in its early years, during which no tax is paid. Losses are carried forward for deduction against future revenues and uplifted annually by the rate of “normal” profit, generally expressed as the long-term bond rate (LTBR) plus a risk premium. There may be different rates of uplift for exploration and mining costs.

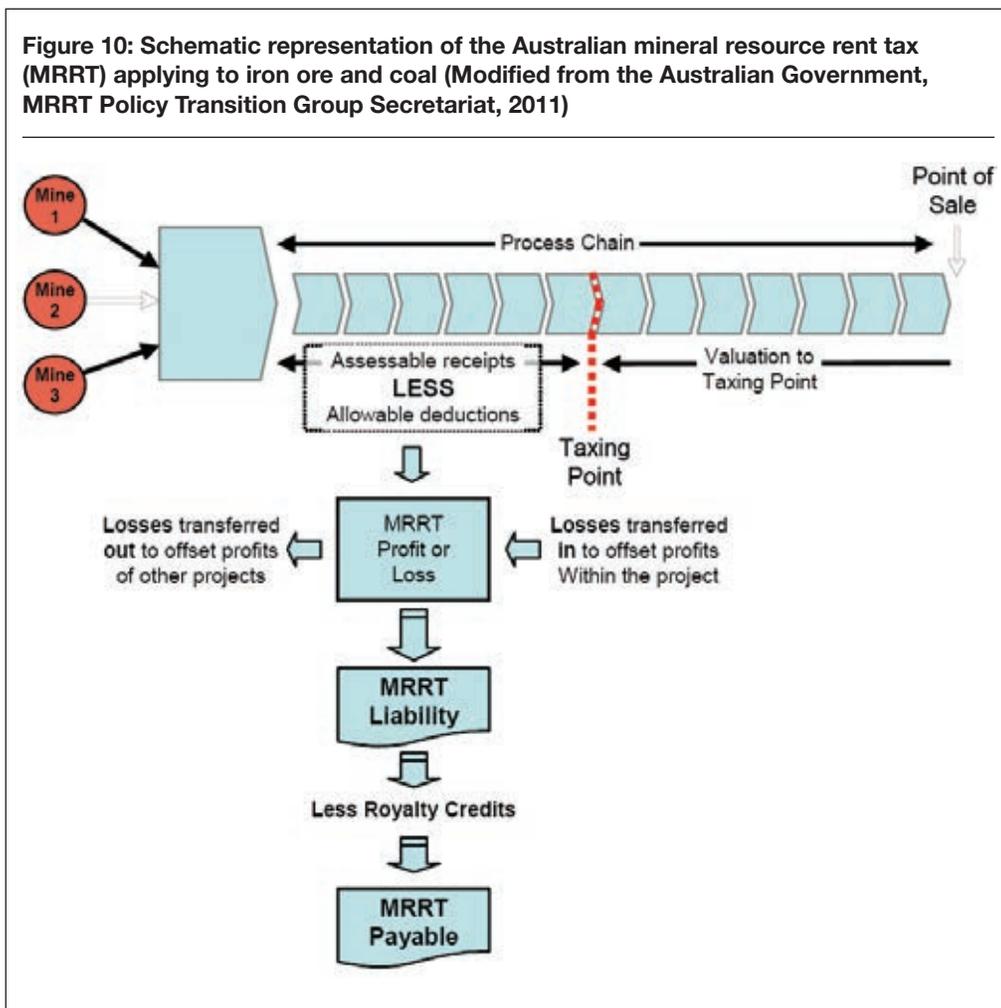
There are few instances of resource rent taxes applying to the mineral sector; a few jurisdictions are in the process of developing or introducing them. The relevant administration issues, however, can be derived from experience gained from their current application to oil and gas, iron ore, and coal projects in Australia (Guj, 2011), as well as previous unsuccessful attempts to introduce them in the context of minerals in countries such as Papua and New Guinea and in one of the Canadian provinces. Calculation of the resource rent at a taxing point close to the point of extraction bears limited resemblance to a financial accounting measure of company profit, and has even less of a relationship to the value of the minerals sold. There are essentially three resource rent tax models:

- **Brownian tax.** This cash-based tax is theoretically the purest form of resource rent tax. Government fully shares risk with the company by levying a tax on positive rents and refunding to the company a proportion of negative rents equal to the tax rate. Given that the government should not be in the business of taking this level of risk, this type of tax has never been adopted in practice.
- **Modified Brownian tax:** Allowance for Corporate Capital (ACC) tax. Instead of the initial capital costs incurred to create the assets being immediately deducted, they are depreciated according to their effective lives. Government, however, commits to refund any undeducted losses in case of mine closure, thus sharing in the ultimate risk of the project. Because of this risk-sharing, the value of possible losses and the value of undepreciated assets carried forward into the next year are uplifted at the risk-free rate of interest, i.e., by the long-term bond

rate (LTBR). In effect, instead of being refunded each year any losses incurred, as under a Brownian tax, the miner lends to the government an amount equivalent to the accumulated losses being carried forward at the prevailing risk-free bond rate of interest.

- Garnaut Clunies-Ross tax.** This cash-based tax is the type most frequently adopted in the petroleum industry and is the basis for the Australian Mineral Resource Rent Tax (MRRT) that applies to iron ore and coal. Contrary to other models of resource rent taxes, government is not committed to refund accumulated losses in case of mine closure and hence does not share in the ultimate risk of the project. Because of this lack of risk-sharing, losses that are carried forward are uplifted at the LTBR plus a risk premium (e.g., in Australia, 7 percent).

Figure 10 schematizes the structure of the Australian MRRT (Australian Government, MRRT Policy Transition Group Secretariat, 2011). A project may be defined as



comprising one or more mine pits, with three shown in Figure 10. The taxing point is placed at the run of mine ore (ROM) pad, i.e., after crushing and screening. The value of the ore at the taxing point is calculated by netting back from the price realized at the point of sale all the cost incurred downstream of the taxing point. The profit (economic rent) to be subject to MRRT is derived by subtracting from the revenue at the taxing point all allowable expenses incurred upstream of it. As the MRRT collected by the Australian federal government has not replaced mineral royalties, which are still paid to the states, the federal government has committed to credit to the companies each year the amount of royalty paid by them to the states. This situation, which arises in Australia because it is a federation where the states have constitutional rights to levy mineral royalties (Guj, 2011), would not arise in any country where all taxing powers are vested in a centralized government.

The key differences between a profit-based royalty, the MRRT, and corporate income tax are summarized in Table 6.

Administrative considerations. The main administrative issues arise in a number of areas and can be traced back to the difficulty in drafting the relevant legislation and accompanying regulations in a manner that is clear and unambiguous to industry and, indeed, to the government officers who need to enforce and administer them. The main areas of ambiguity in estimating the economic rent at the taxing point are:

- The definition of a project, that is to say, the capacity to ring-fence all relevant assets and items of revenue and expenditure over time, particularly if the project is part of an integrated group of companies sharing the use of some of the assets.
- Differentiating assets and items of revenue and expenditure that relate to activities above the taxing point (generally the run of mine ore pad) from those downstream. To the extent that sales of crude ore at the mine gate are rare, this will have to exclude, at a minimum, the value added by possible blending, beneficiation, transportation to a port, stockpiling, and ship-loading, if the mineral is exported in the form of crushed and screened ore; and in addition by concentration, smelting, and refining, if the operation is fully integrated downstream and sells either concentrates or metals. There are a number of methods to assess the taxable rent at the taxing point; the most common among them are the net back and the residual price approach (see OECD Guidelines, 2010). Under a netback approach, all expenditures incurred beyond the taxing point are deducted from the mineral sale revenue, including an allowance for profit on those activities. This approach leaves all the residual economic rent upstream of the taxing point as the basis for resource rent taxation. In the residual price method, the economic rent is the difference between the net back price and the cost plus price (determined by accumulating all costs prior to the taxing point including a level of normal profit appropriate for mining), and this is split between the activities before and after the valuation point, frequently on a 50-50 basis. This reduces the economic rent on which the tax is then based.
- If the resource rent tax is to be imposed on existing projects, then the methodology for valuing and recovering pre-existing assets, including or excluding the cost of regional and unsuccessful but related exploration, and the value

Table 6: Key differences between profit-based royalty, MRRT, and CIT

KEY COMPONENTS OF TAX POLICY	PROFIT-BASED ROYALTY	MINERAL RESOURCE RENT TAX (Garnaut Clunies-Ross model)	CORPORATE INCOME TAX
Accounting convention	Accrual. Project-based.	Cash. Project-based.	Accrual. Entity-based.
Revenue recognition	Accrued mineral sales. Hedging not considered.	Realized cash sales at point of taxation. Hedging not considered.	Accrued mineral sales and other income. Hedging gains generally taxable. Hedging losses variably handled.
Capital recovery	Depreciation/ amortization rules modified to ensure royalty payments from start of operations. No immediate expensing or accelerated depreciation.	Capital assets fully expensed at the time incurred. Cost of acquiring leases or project excluded.	As an incentive, mining-specific assets (i.e., other than normal depreciable assets) may be expensed immediately or depreciated on an accelerated basis. A capital allowance may apply.
Recurrent operational expenses	Normal accruals.	Fully deducted on a cash basis when incurred.	Normal accruals.
Interest expenses	Deduction not allowed.	Deduction not allowed	Deduction allowed within "thin-capitalization" rules.
"Normal profit"	Not applicable, but "notional" funding costs may apply.	Allowed and set on the basis of long-term government bond rate (LTBR) plus risk premium, if government does not commit to refunding accumulated losses in case of mine closure.	Not applicable.
Loss carry forward	Allowed at their historical cost.	Allowed and uplifted by LTBR plus risk premium.	Allowed at their historical cost.
Return lodgements	Provisional. Quarterly with annual reconciliations.	Quarterly or more frequently for large projects.	Provisional. Quarterly or more frequently for large projects with annual reconciliations.

of acquired mining rights and/or the resource must be clearly identified and consistently applied.

From a policy perspective, determining an appropriate level of "normal" profit for various stages in the value-adding chain is a major issue. In theory, each individual project has a different level of risk that should be compensated for differently in the rate of

normal profit. In practice, legislation is generally written on the basis of a single rate of financial return for all projects, which in itself detracts from the economic neutrality of this type of tax.

Resource rent tax is generally deductible for the purpose of assessing corporate income tax.

This is not an exhaustive list of the issues an administrative authority has to contend with. The authors recommend involving the senior officers who will be charged with collection and verification of a resource rent tax in the process of formulating the relevant policy, legislation, and regulations. It would also be good practice to involve industry representatives and practitioners in the field of tax accounting. In spite of significant efforts to consult, it took over 10 years, many rulings and amendments, a number of court challenges, and millions of dollars in legal fees to bring the administration of the Australian Petroleum Resource Rent Tax (PRRT) to a satisfactory operational level.

While some of the issues relating to resource rent tax administration are similar to those encountered in the administration of both the ad valorem and the profit-based royalties (and of corporate income tax), they tend to be significantly amplified. Effective administration of a resource rent system requires an in-depth understanding of various facets of different types of mining operations and an appreciation of their technology and related cost characteristics. These skills are scarce and in great demand in the mining industry, with which the administrative authority would have to compete to attract and retain skilled staff. While many of the tax collection and verification skills resident in mineral royalty and income tax administration authorities are critical to the successful implementation of a resource rent-based regime, it would be a mistake to believe that one could be accommodated for without the injection of some specialized knowledge and significant and well-focused training.

Hybrid royalties

As hybrid systems are generally a combination of a profit-based royalty with an ad valorem royalty, their main administrative issues are the same as for both these systems and need not be repeated here. The Argyle Royalty Agreement (which governed the Argyle diamond mine in Western Australia) combined a base ad valorem royalty with a profit-based one that would apply only once profit exceeded a minimum threshold, the so-called "above zero profits" (AZP) condition. This provided a minimum stable royalty revenue stream for government plus additional royalty revenues once the Argyle project experienced high profitability during times of high diamond prices with past costs having been fully written off. A hybrid royalty system has some of the advantages of both regimes but also the disadvantages of both and requires clear legislation and implementation guidelines.

3.4 Non-payment of Royalties, Payment Arrangements and Default, and Interest and Penalties

Given the complexity of some of these processes, it is not surprising that companies occasionally make mistakes in self-assessing their royalty. Interestingly, under many jurisdictions there is a presumption that royalty returns should be accurate, and in many situations there is no clear definition of what constitutes a punishable breach of the law, as opposed to an error subject to later correction. The legislation and guidelines need to be clear on penalty provisions for late payment, under-payment, and

consistent non-payment. A similar issue would arise if the royalty system were based on recurrent provisional installment payments subject to annual reconciliation. Once again, criteria must be established to create a boundary: between acceptable variances (between forecast installments and actual royalty) and evidence of deliberate attempts to defer royalty payments.

The reason for a delay may be a simple oversight, delays in resolving sale revenues, or possibly company cash flow problems. More rarely, under-payment or even non-payment may be a deliberate attempt to avoid royalties.

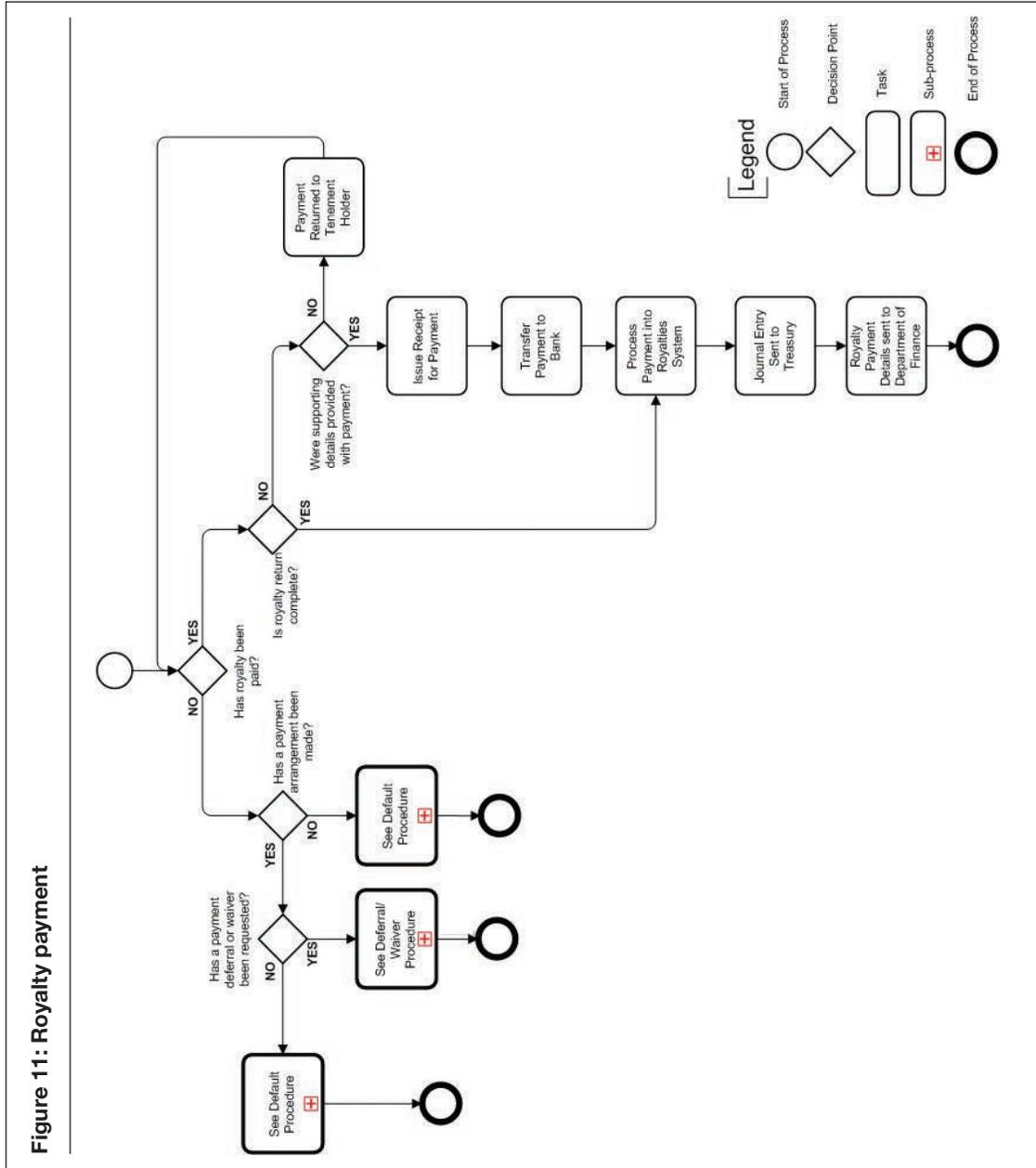
In just about all jurisdictions, payment of royalties is a key condition for the granting of and maintenance of a mining license. Sanctions may range from charging increasing rates of interest on outstanding payments (in case of delays) to progressive fines, culminating in forfeiture of mining titles and even jailing for serious breaches and avoidance. In our experience, most legislation and regulations are often reasonably specific about interest and penalties for late or non-payment of royalties when due, but often do not include provisions for waiving or deferral of royalties in cases of temporary hardship.

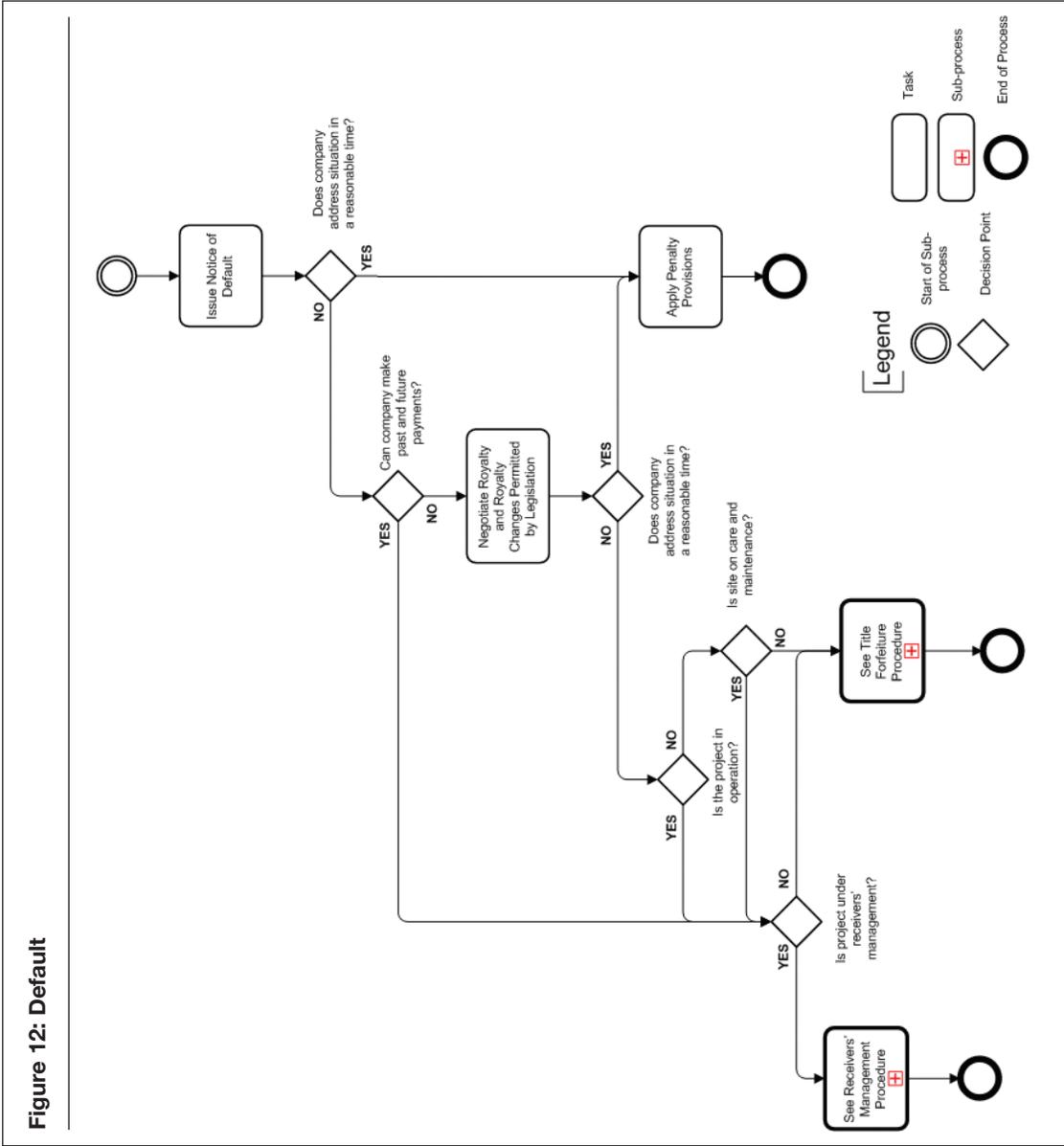
Governments are generally uncomfortable dealing with situations where potential, possibly temporary cash flow problems may result in the closure of a mining operation, with concurrent loss of jobs and loss of regional economic benefits. Such a situation often involves ministerial involvement and discretion to enter into payment arrangements that may or may not be explicitly allowed in the legislation. The flow charts in Figures 11 through 15 show the range of possible circumstances that may occur and the related policy and administrative procedures to address them. The charts distinguish between two situations that provisions in the legislation may exist to deal with:

- Expected or unexpected but unintentional incapacity to pay royalties
- Deliberate attempts to avoid royalties

Administrative considerations. In the first instance, there may be provisions in the legislation to either waive or defer royalty payments. This may be subject to the company submitting, prior to the due date, evidence that projected cash flows are negative in the short term and the mine may have to close with job losses if royalty payments were demanded. Waivers or deferrals should be granted if there is a high likelihood that the operation will once again become cash flow-positive in the foreseeable future. A situation may also arise where the company may not have anticipated cash flow shortages and therefore may have not applied in time for a waiver or deferral, but later finds itself incapable of paying royalties. In such cases, ministerial determination may be needed if the legislation specifically requires companies to lodge an application for waiving or deferral of royalty payments within a specified period of time.

In the second instance, a royalty return verification or audit may have revealed irregularities or evidence that the company has become insolvent or illiquid, and a receiver/administrator may have been called in to manage the operation and determine whether a sale of the project as a going concern would be possible as an alternative to liquidation. In such a case, forfeiture of title, resumption of the land, and imposition of a fine may not be the best course of action for government, as government may become just one of many creditors and recover only a fraction of what is due. In this context, while outstanding corporate income tax has seniority in terms of creditors, the same is not necessarily the case for royalties. Under these circumstances, government may wish to become part of a scheme of arrangement, hopefully maintaining operations with





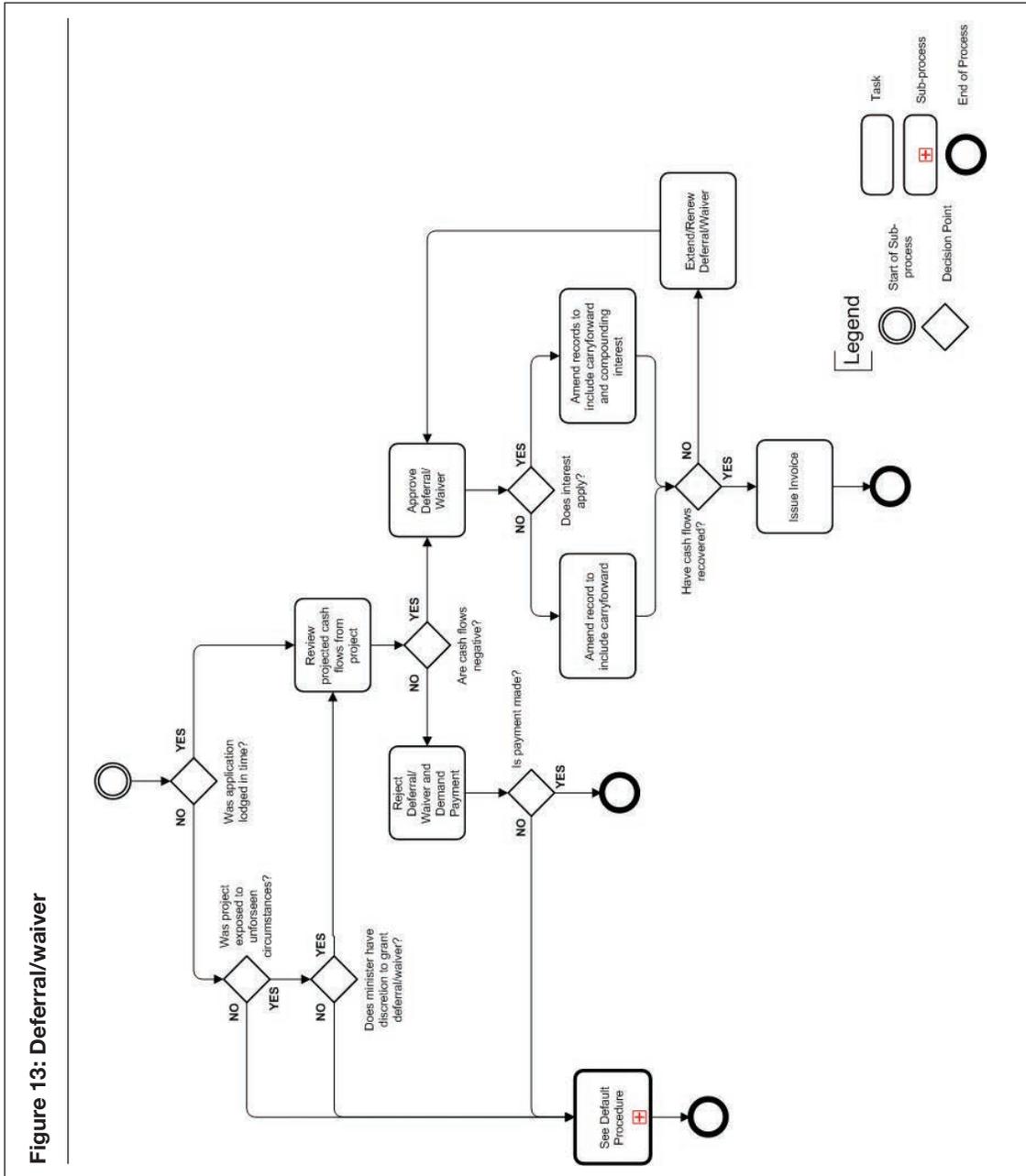


Figure 14: Receivers' management

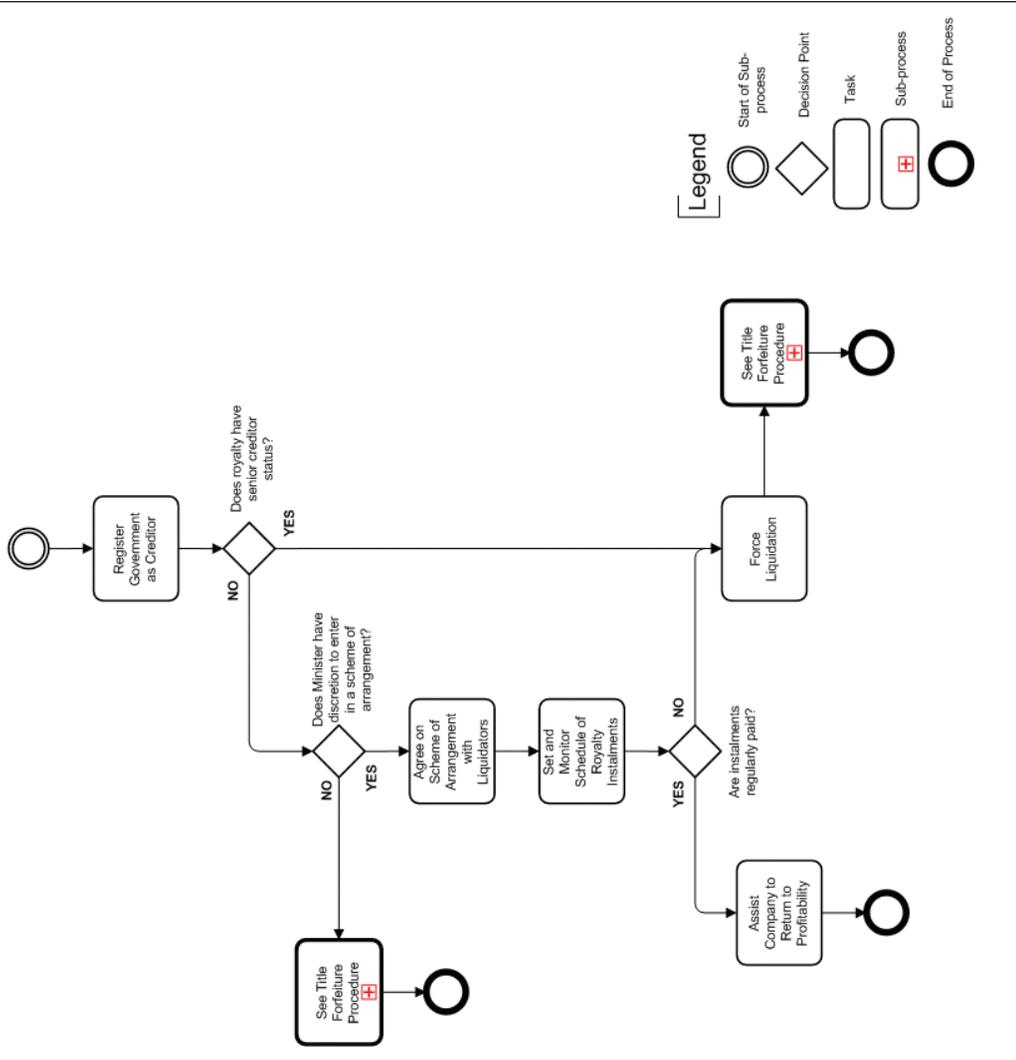
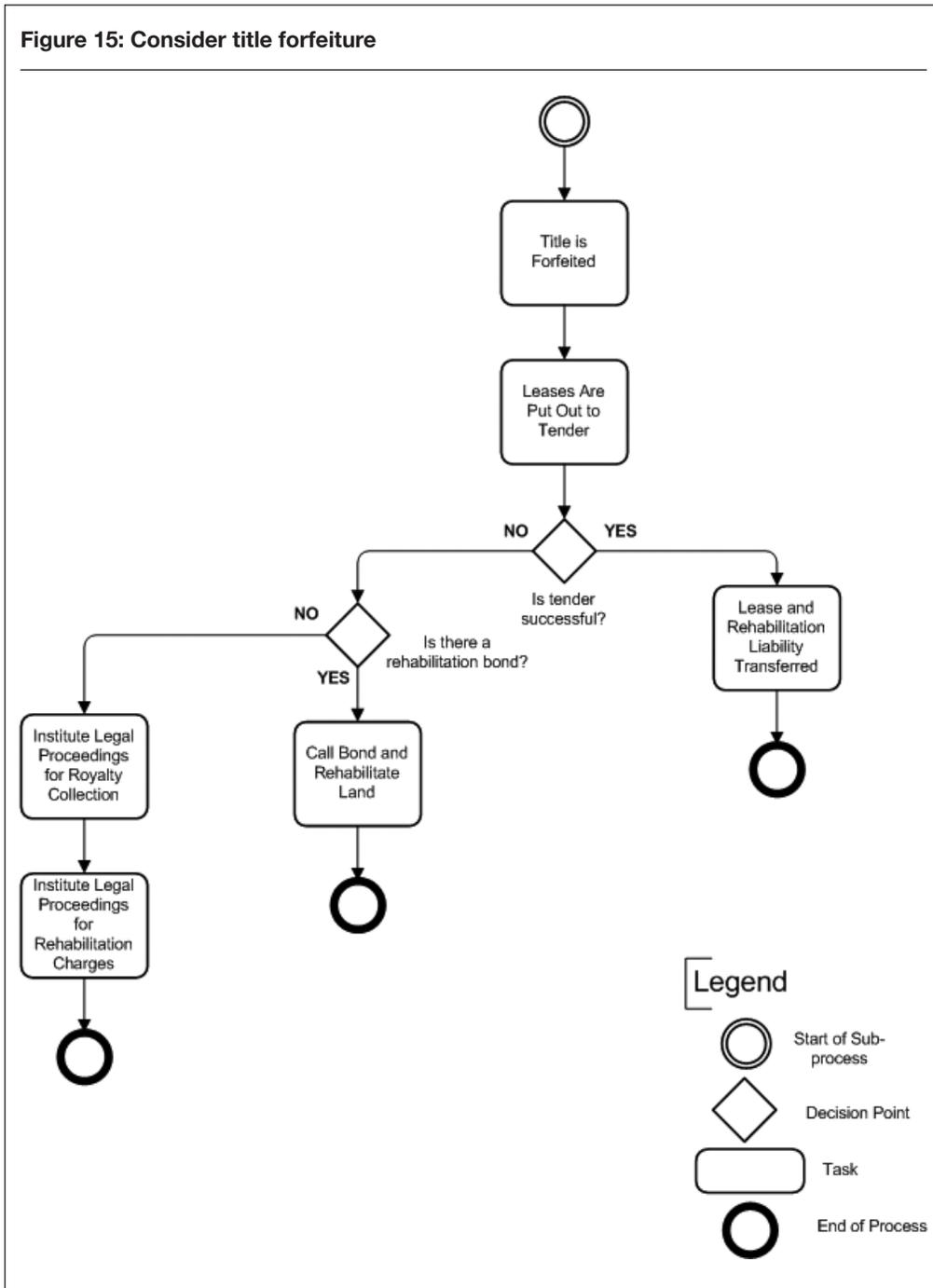


Figure 15: Consider title forfeiture



no loss of jobs and leading to later recovery of outstanding royalties, if necessary by instalments.

In cases of deliberate avoidance, the mine may still be operating or may have been abandoned. If the mine is operating and profitable, government will have the opportunity to impose interest for the delay as well as fines that, depending on the degree of intentionality in avoiding royalties, should be heavy so as to deter future breaches. Heavy penalties proportional to the degree of misbehavior are an essential element of a self-assessed royalty system.

If the company has abandoned the site, government can only institute legal proceedings, together with other creditors, to recover the relevant outstanding royalty and related interest and fines. This process is not always successful, as it is not always possible to locate and prosecute liable parties, or doing so in a foreign context may not be financially justifiable. The mine site would then become an orphan site. Having resumed the title, government may then put it out for tender and through this process recover some of its outstanding debts. It would also be wise to make it a condition for the incoming party to take on board, as part of the tender, responsibility for ultimate site rehabilitation. If the tender is unsuccessful, then, in the absence of a rehabilitation bond having been put in place at the start of the original operations, government will be further burdened by land rehabilitation costs.

Note

¹ OECD Forum on Tax Administration, March 2011, Table 18.

Mining-Specific Components of Corporate Income Tax

The importance of mineral taxation as a source of revenue to governments is well recognized. Boadway and Keen (2010) note that, in many countries, taxes from the mineral sector can account for a sizeable proportion of the total revenue collected. Hogan and Goldsworthy (2010) point out that, while royalties were the government revenue-raising instrument of choice for the minerals sector prior to World War II, following World War II there has been a shift toward income tax as the major revenue raising instrument for this sector. Investment incentives, such as accelerated depreciation and loss-carry forward provisions, were also progressively incorporated into the income tax regime applying to mining.

Corporate income tax (CIT) is levied on all sectors of the economy; companies operating within the mining sector are commonly subject to a range of special mining-specific provisions within the CIT legislation. Alternatively, the taxation conditions specific to mining may be contained in other pieces of senior mining legislation. These special provisions give rise to issues that are not commonly present in all other industries and may result in additional taxation being levied from the mining sector, or in a range of fiscal incentives designed to encourage investment in the mining industry in the country. In some jurisdictions, for example, the corporate income tax rate applicable to mining profits may be set higher than the general rate in an effort to appropriate a greater share of the economic rent (Garnaut and Clunies-Ross, 1983). Conversely, in other jurisdictions, the tax rate for mining may be set lower than the general rate, thus providing a fiscal incentive.

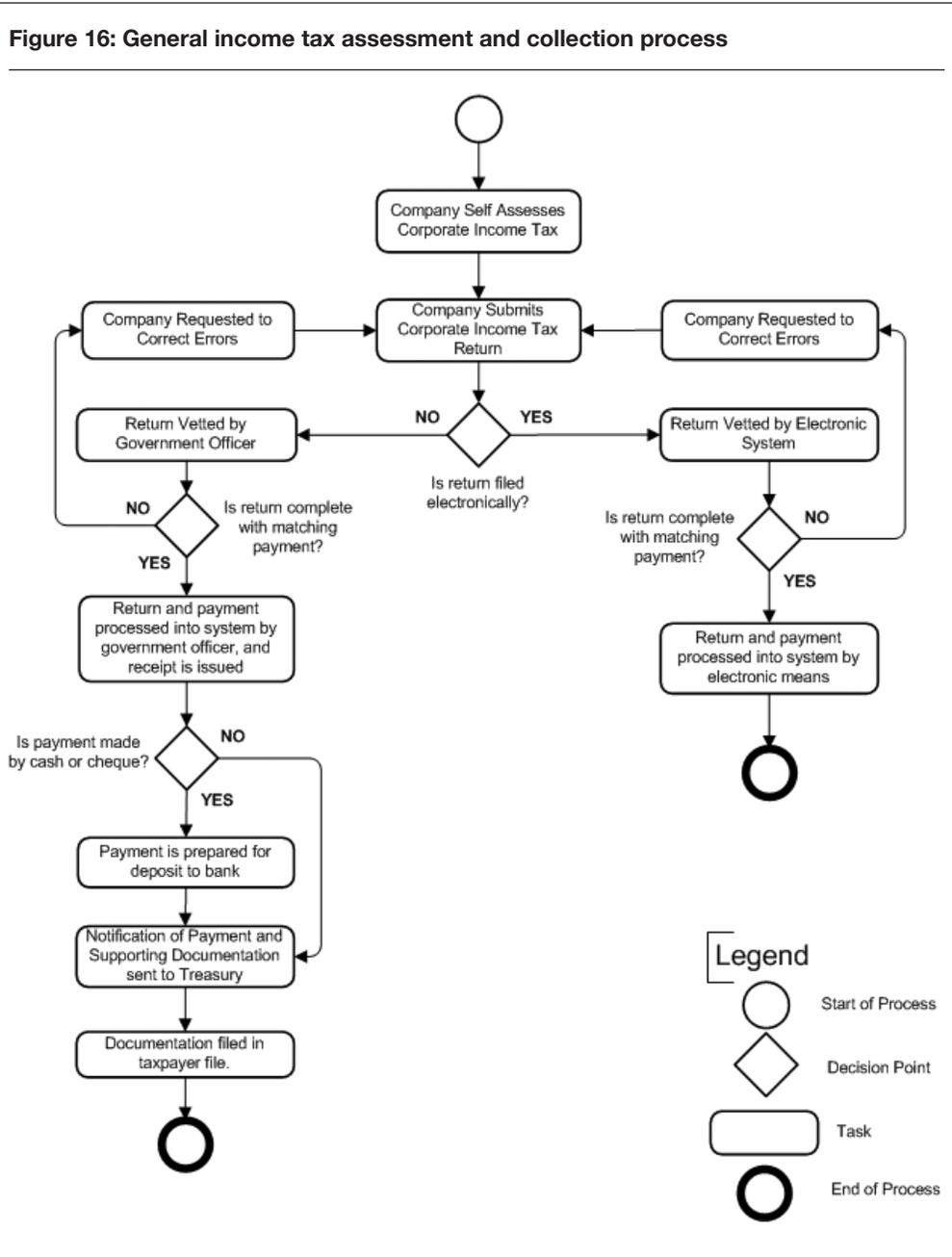
Calder (2010a) analyzes the administrative challenges associated with taxation of the minerals industry, and argues for a simplified taxation system as one method of alleviating some of the challenges that exist, especially in developing nations. He also discusses (Calder, 2010b) the tendency, especially in recent decades, for governments to move toward the self-assessment systems of CIT. He divides the administrative functions into routine and non-routine functions, and discusses some of the ways in which administrative procedures and institutional capacity can be strengthened for dealing with taxation of the minerals sector.

While the discussions of tax administration and of the non-routine functions in Calder (2010a, 2010b) provide a starting point for identifying the issues associated with CIT, they are undertaken with all sources of resource taxation in mind (CIT, mineral royalties, and so on). As many of the issues identified do arise when levying CIT on firms operating within the mining sector, their treatment may need to be different from consideration of CIT administration in general. This chapter complements those broader-ranging discussions by focusing exclusively on the aspects of CIT that are specific to the

minerals industry, and discusses some of the most common administrative issues and considerations arising from enforcement of CIT systems in this sector.

4.1 Defining a Project as a Taxable Unit: The Process of Ring-fencing

Corporate income taxes are generally levied at the entity level, with the general assessment and collection process illustrated in Figure 16. In the mining industry, they can



be project or license-specific entities (the most common approach in developing countries) or multinational corporate entities that have multiple projects operating in geographically dispersed locations across multiple fiscal regimes. Boadway and Keen (2010) discuss some of the issues that can arise in the minerals sector because of these large multinational organizations, and the authors identify the ring-fencing of operations as one method of dealing with them. Mullins (2010) agrees with the notion that ring-fencing can ensure government revenue, but he also notes that it may foster aggressive tax planning on the part of companies, in particular the use of transfer pricing, which will be discussed in the following section.

The “sharing in governance of extractive industries” (GOXI, 2010) initiative addresses the practice of ring-fencing, and notes that there are two key consequences to this practice, with one being positive and the other negative from a governmental point of view. On the positive side, ring-fencing avoids potential delays in the receipt of revenues from mining projects by disallowing the write-off of certain expenditures incurred beyond the producing area. On the negative side, by disallowing the write-off of expenditures occurring beyond the project boundary, ring-fencing can eliminate the incentive for companies to invest in exploration, as they are unable to recover these costs. Thus, ring-fencing can slow the development of the minerals sector.

In the African region, it is common for countries to have a requirement in their mining legislation that a mining license containing one or more operating mine sites be held by a license-specific corporate entity, sometimes including minority government ownership. In such situations, the license holder and the entity, for tax purposes, are effectively the same.

Administrative considerations. The administration system must clearly define what constitutes a project, and which license or licenses relate to it for the purpose of taxation. A clear definition of ring-fencing is critical when taxation is to be levied on a project-by-project basis in a manner that is consistent with the policy and conditions, including any tax incentives that were in force or agreed to when the project received approval to mine. If a tax holiday (which is not recommended) applies, mining companies should be required to clearly state the date upon which production from a project commenced so that the tax holiday can be correctly timed and monitored. This requirement should also be maintained in subsequent CIT filings so that it is clear when any fiscal incentive expires.

4.2 Revenue-related Issues

Mullins (2010) states that one of the key challenges for governments is how to maintain their tax base when aggressive tax planning is used. The tax base will be highly dependent on the revenue function within a CIT system and, in the simplest terms, revenue is calculated as the volume of mineral extracted and sold multiplied by the unit price received. GOXI (2010) notes that good practice generally utilizes a method of netting back the price paid by the final consumer to the mining face, so that the rents accrue at the extraction point. Calder (2010b) notes that to accurately establish production volumes there is a need for continuous, highly technical processes, often necessitating the use of complex equipment. (The same applies, of course, for the calculation of royalties and CIT). Calder also notes that, in the context of calculating revenues, there can be difficulties associated with identifying the applicable price.

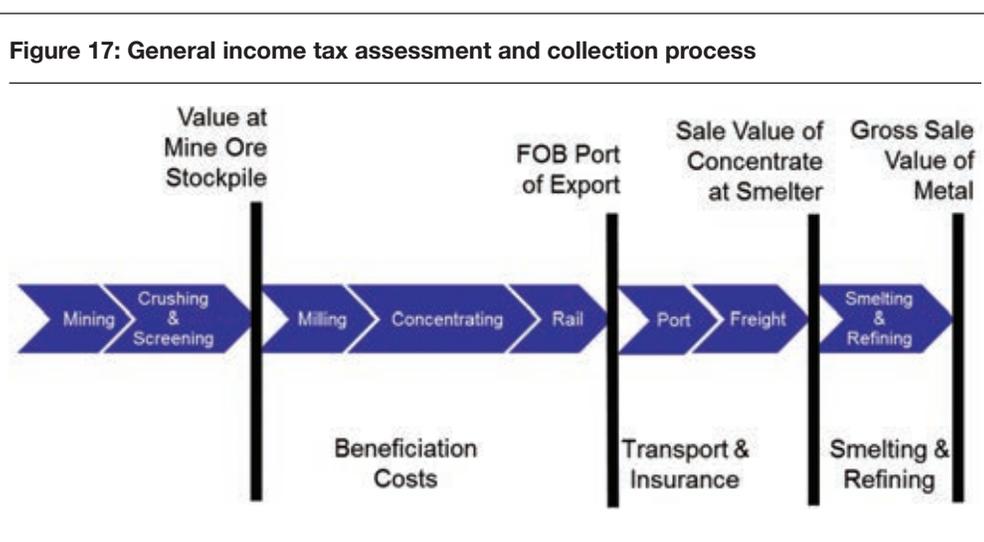
4.2.1 Mineral prices and revenue determination

Revenues in the mining industry are calculated based on the price that is or could have been realized from selling the mineral product into the market. CIT (and mineral royalty) collecting agencies must therefore be vigilant to ensure that the revenues declared by companies in their returns are based on actual or fair and reasonable estimates of the prices for the products sold. Calder (2010b) points out that this actually may be undertaken as a process separate from audit functions, whereby the administrative authority identifies prices in advance. Calder discusses some of the approaches that can be used to establish a market value/price.

In many developing countries, where the main mineral output is gold, determining the price of the mineral product sold at the time of transaction does not raise any particular issues. This is because virtually all companies process and sell gold in metallic form (doré), and information about daily gold prices is readily available to government agencies administering revenue collection. As for mineral royalties, some complexity may arise if the doré contains appreciable quantities of valuable by-products such as platinum, osmium, and so on.

It is a different situation for other mineral products and commodities unless they are also processed to and sold in a form that has a well-established terminal market. This is not, of course, the case in many developing countries where foreign mine owners have chosen not to invest the very significant amounts of capital needed to establish fully integrated downstream processing facilities. As a result, revenues in the mining industry are, in many cases, based on the price that is deemed to have been realized for selling intermediate, nonstandard products that are not continuously traded on a terminal market to not-at-arm's-length customers. Some of these intermediate products are shown in Figure 17.

Further, the prices received can at times be based on contracts that have been entered into far in advance of actual delivery of the product. As a result, many mineral products are, and will continue to be, sold at intermediate stages of processing, in most cases in the form of crushed and screened ore and various forms of concentrates. Large volumes of



these products are marketed throughout the world, but their prices are generally set by contracts that often reflect unique specifications, and are not readily available to the public.

Administrative considerations. Consequently, the fiscal laws applicable to mining operations must clearly state how the price for different products that could be sold is to be determined when revenue is declared for tax purposes. Relevant legislation and regulations should address the methodology to determine the auditable physical volume/weight of products sold, the quality/metal content of products, and applicable pricing methodologies (e.g., uncontrolled benchmark, net back, cost plus, or residual pricing). Irrespective of the clarity of the rules, circumstances generally impose a considerable load on the administration system to ensure that the policy intents are achieved. The relevant agencies should be adequately resourced, both in terms of numbers and skill level of its human resources.

Mining companies should be required to substantiate any costs associated with transportation and downstream processing that are required to convert their intermediate product into a final saleable product. An outline of the pricing methodology to be used should be submitted in support of the CIT return on an annual basis, and related documentation should be collated and made available on demand. The administrative agency should keep abreast of relevant price and cost changes to satisfy itself of the realism of self-assessed submissions.

4.2.2 Transfer pricing

Mullins (2010) says that abusive transfer pricing is one of the key issues, both internationally and domestically, that needs to be dealt with in legislation because of the difficulty in identifying its occurrence. Mullins further notes that there are numerous opportunities for abusive transfer pricing throughout the various stages of the mining cycle (production, processing/refining, transporting, marketing, and distribution). Any of these could occur geographically in a different tax regime and therefore provide an opportunity to avoid taxes using aggressive tax planning measures. Calder (2010a) argues that issues associated with transfer pricing are one of the areas of concern in the administration of resource taxes where simplification may be useful.

If mineral processing is part of the operations of a tax-paying company and the products are sold at-arm's-length, then no ambiguity arises in assessing the taxable income of the entity.

A more complex challenge arises if a mineral product is sold in a transaction that is not-at-arm's-length to a processing company that is not part of the taxed entity, but is related to or co-owned by a common holding company. In this case, no price would be set in the marketplace for the product transferred, and either of two situations may arise:

- The mineral may be processed by the related company and then sold after value has been added to it in an at-arm's-length transaction for a documentable price.
- The original mineral product may be blended and co-processed with other mineral products of different provenance before being sold; in which case the price realized in the first at-arm's-length sale has no direct relevance to the original product.

Administrative considerations. In the first instance, the history of the product must be followed through subsequent processing phases until it is actually sold for the first time in a genuine at-arm's-length transaction. The price realized in the first

at-arm's-length sale should be used as the base from which the necessary transfer price is derived. Given the price realized in the at-arm's-length sale of the first processed product sold, there are a number of methodologies that can be used to derive the price at any point along the value-adding chain for mining. These include, among others:

- **The net back method.** All expenditures incurred downstream from the taxing point are deducted from the price realized in the at-arm's-length sale of the first processed product. This method, which pushes the economic rent upstream of the taxing point, is the most commonly used.
- **The cost-plus method.** The price at any point on the value-adding chain is derived by accumulating all the expenditures incurred upstream of that point. This method, which pushes the economic rent down the processing chain, is very seldom used.
- **The residual price (or transactional profit) method.** The difference between the netback price and the cost plus price (in effect the total profit to the point of the first at-arm's-length sale) is apportioned between the two to determine the price at the taxing point.

If the processing of the original product cannot be followed downstream or the product is blended before the first at-arm's-length sale takes place, and no other satisfactory valuation method can be found, then legislation may need to provide for the price of the mineral product at the taxing point to be set by ministerial determination, with cognizance of general market conditions.

Needless to say, as with some ad valorem royalties, transfer pricing processes may be very complex to administer in the context of CIT. This is particularly the case if the related procedures are not clearly specified in considerable detail, failing which the process may be open to abuse. Many jurisdictions make use of or have formally adopted the comprehensive OECD *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations* (OECD, 2010).

4.2.3 Hedging

Minerals are often sold by means of forward contracts, whereby the forward price is received with certainty at the time of delivery, thus hedging price risk. If the spot price at the time of delivery is lower than the forward price, the metal supplier would have realized a hedging gain. Calder (2010a; Appendix I) provides an in-depth discussion of the issues associated with the taxation of hedging instruments. He outlines the four broad policy options that are available for treating these instruments within a resource tax regime. While the author notes that the treatment of hedging gains and losses is a policy issue, he points out that it does have administrative implications, and thus the administrative system should be taken into account when designing the applicable policy.

With a few exceptions, hedging gains are not taken into account when assessing mineral royalties, but generally they do form part of the realized taxable income for the purpose of levying CIT. Conversely, a supplier may be unable to deliver the contracted physical metal on the due date because of a shortfall in production. Under these circumstances, the supplier may be forced to buy metal on the spot market to make the delivery. If the spot price is higher than the negotiated forward price, the supplier will realize a hedging loss. Under most jurisdictions the view would be formed that the supplier was not hedging but speculating on the forward market and the consequent loss is more

often than not disallowed as a deduction against operating taxable income. Occasionally the loss may be allowed as a deduction against future hedging gains.

Administrative considerations. In the case of hedging, companies should include within their CIT return summaries of hedging gains and losses, and hold ready for inspection on demand relevant detailed documentation stating the amount of their production that has been sold forward, as well as the price at which each delivery was sold. These procedures will allow for timely monitoring and assessment of revenues against the policy that governs them.

4.3 Asset Creation and Capital Recovery Rules

One area of corporate income taxation that can cause a great deal of complexity is the application of capital recovery rules. These rules allow organizations (across all industry sectors) the opportunity to recoup their investment through appropriate deductions from their taxable income, and thus a reduction in the tax assessed and eventually paid. Calder (2010a) mentions that the application of different rates of depreciation or uplift of exploration, development, and other capital costs specific to the mining industry for the purpose of accelerating depreciation (sometimes referred to as a capital allowance) can contribute to a more complex system. Calder recognizes that using standardized depreciation rates, or allowing the immediate write-off of certain costs, would create a system that is less sophisticated and therefore easier to administer, but inevitably some government revenue would be lost in the process. He does, however, say that these lost revenues could be overcome through adjustments to other taxation measures, such as an increased royalty rate.

4.3.1 Defining assets and broad asset categories

- Capital expenditure (CAPEX) differs from recurrent operating expenditure in that it creates assets. Assets are items of value defined by three characteristics: They can be valued with an acceptable degree of confidence.
- They are owned or controlled by the entity.
- They will generate benefits beyond the current period.

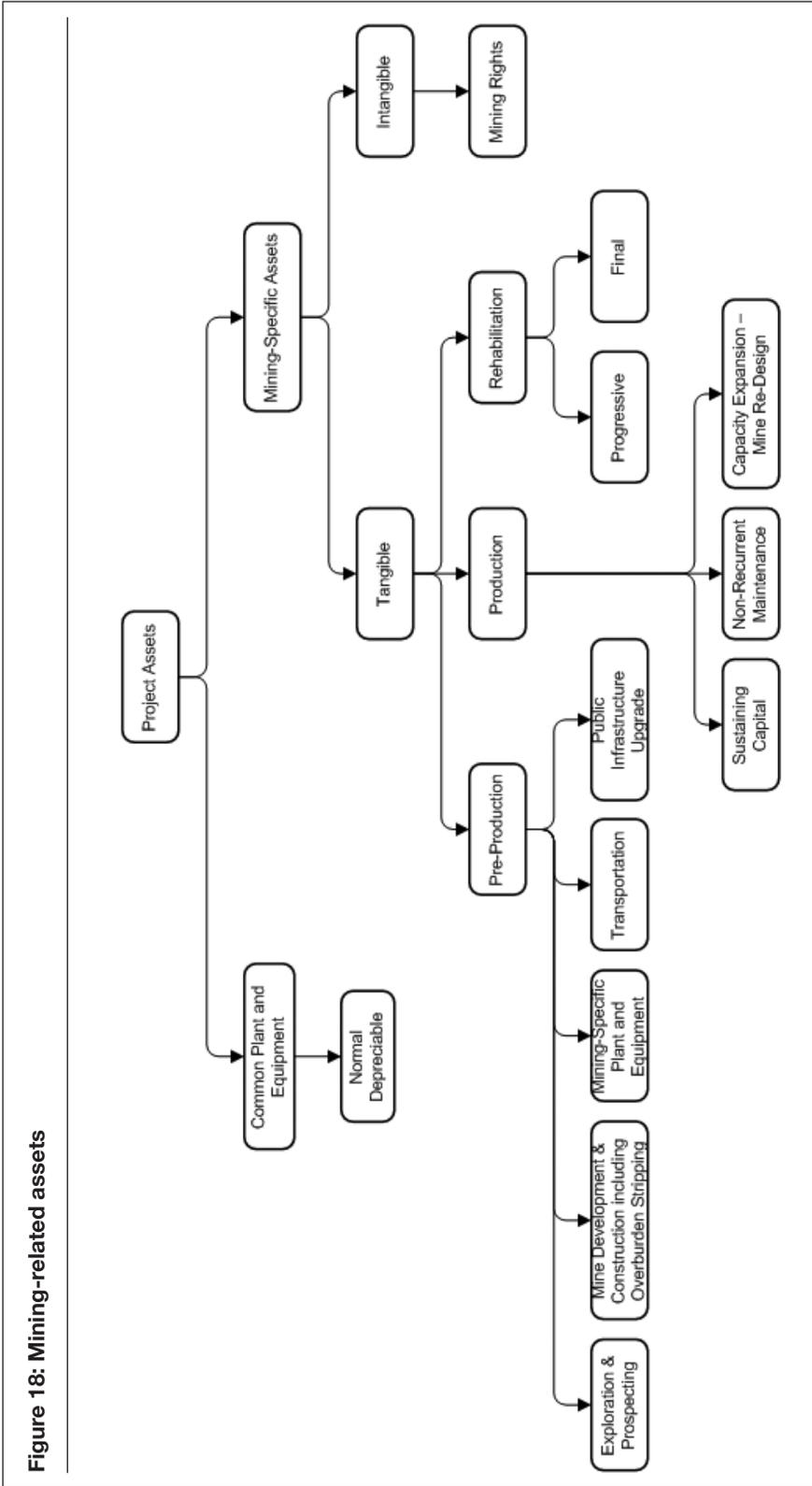
Mining assets are created throughout the mining cycle, including these stages:

- Pre-production stage (exploration and prospecting, construction, and development, including overburden stripping and preventive environmental activities).
- Production stage (sustaining and expansion capital expenditure, non-recurrent maintenance, and so on).
- Final environmental and site rehabilitation.

The above range of mining-related assets is summarized in Figure 18. Both tangible and intangible assets are created in the process:

- Some are “normal depreciable” assets (i.e., non-mining-specific) that the mining industry uses in common with any other sector of the economy.
- Others are “mining-specific” assets unique to the mining sector.

The capital recovery rules (e.g., depreciation for tangible assets and amortization for intangible assets) applying to the two broad categories of assets—normal depreciable and mining-specific—are generally different and vary from jurisdiction to jurisdiction, giving rise to a variety of possible administrative issues. Normal depreciable assets will



include a variety of common items of plant and equipment, which in some cases are identified by default insofar as they do not appear on an official “mining assets list” commonly issued and used by the customs and mining regulatory authorities. As the depreciation approach for normal depreciable assets is economy-wide, the reader is referred to the relevant general corporate income tax legislation and guides applicable to their country, or the country of interest, for relevant depreciation rates and allowed depreciation methods for various asset categories. For example, the Australian system is described in the Australian Taxation Office’s *2011 Guide to Depreciating Assets* (ATO, 2011).

4.3.2 Capital recovery rules: Depreciation and amortization

Different jurisdictions may adopt different depreciation and amortization methods across the board or for specific asset categories. As a general rule in the mining industry, for CIT purposes these methods may include one or more of the following:

- Immediate expensing.
- Depreciation/amortization over the “useful life” of the asset on either a constant rate over time (straight-line method) or an accelerated basis (declining-balance method).
- Depreciation/amortization on a unit-of-production basis.

Immediate expensing and accelerated depreciation represent significant fiscal incentives, as they are mechanisms whereby a mining company recovers its invested capital early in the productive life of a project. In addition, as a further incentive for investment in new capital items, the depreciable asset cost may be increased by a set percentage, or “capital allowance factor,” which has the effect of further accelerating the rate of depreciation in the early years of production. Depreciation charges for a new asset generally commence in the year in which the asset is installed and ready for use.

It must be noted that the rates of depreciation allowed for fiscal purposes are generally more accelerated than those relating to the engineering useful lives of assets in actual mining operations, which are the depreciation charges used in compiling the profit and loss statement for the mining company. This practice adheres to accrual-based accounting conventions that better match the revenue generated in each period with the relevant expenditures, including the capital recovery costs needed to generate it. Thus, the accelerated depreciation used for fiscal purposes has the effect of deferring tax to later stages in the project life, and therefore brings the cash flows forward to the initial critical years in a project’s life when capital is most needed.

Different assets may be grouped in the asset register of a company and depreciated in two ways:

- Under different categories to which different useful lives apply.
- Pooled, sometimes at the project level and depreciated at a single common rate set by government or as a function of the expected life of the project.

Under the pooling approach, the cost of any new “sustaining” capital asset is generally added to the opening written-down value (i.e., historical cost base minus accumulated depreciation) of the pooled assets and depreciated over the residual project life. This makes administration of accelerated, or declining-value, depreciation easier to handle from the point of view of both companies and government. In the absence of

pooling, depreciation charges must be calculated for different asset categories at their individual depreciation rates for different years of acquisition of the various assets.

Administrative considerations. It will be necessary for government to provide guidance to industry on what items are considered mining-specific assets and, if multiple classifications exist, which items can be included within each asset category and/or depreciation pool. For this purpose, government must maintain and publish a comprehensive listing of all assets specific to the mining industry, the classification/category to which those assets belong, and their effective lives. (Lists of mining equipment are often maintained by the Mines Department in many jurisdictions). Typical effective lives for various mining-specific assets are generally provided in schedules released by the relevant taxation authority. An example of typical asset lives in the context of the Australian fiscal system can be found in the Australian Tax Office's Taxation Ruling 2012/12, which is accessible online at; <http://law.ato.gov.au/atolaw/view.htm?docid=TXR/TR20122/NAT/ATO/00001>.

Government should publish guidelines and examples showing how the assets' cost bases are calculated (i.e., whether installation costs, import duties, and other cost components are included) and how depreciation is to be calculated (e.g., by the straight line or declining value method) for each classification. The guidelines should be readily available to and understandable by mining companies. A good example is the information provided by the Australian Tax Office (2011). This type of publication will vastly reduce the potential for interpretational disputes on the treatment of tangible capital assets for tax purposes. Any changes to the assets that are included within an asset classification or pool, or to the methods for calculating allowable depreciation expenditure, should be communicated by means of published rulings and/or amendments, along with examples of any calculations that are subject to change.

Box 4.1: The Uniform Capital Allowance system in Australia

Identifying the cost base of an asset upon which to calculate the annual depreciation expense is an important component within the taxation system, as it can have profound effects on the amount and timing of revenues that are collected by government. In Australia, the Uniform Capital Allowance (UCA) system is used. The guidelines for the UCA are published annually on the Australian Tax Office (ATO) website (www.ato.gov.au). These guidelines outline not only the methods by which assets are depreciated but also the expenditures that are allowed to be included within the calculation of the cost base for a depreciating asset. In these guidelines, the cost base for a depreciating asset has two elements:

- First, the amounts that have been taken to be paid to hold the asset. These will include the purchase price itself, as well as any additional expenditures that have been incurred for starting to hold the asset. These expenditures must be directly connected with the holding of the asset, such as travel expenses incurred for the sole purpose of travelling to an overseas location to acquire the asset.
- Second, the amounts that have been "taken to be paid" since first holding the asset to bring the asset into use for the purpose of producing revenue. These include amounts paid to bring the asset to its current condition and location, such as improvement expenses, advertising, or commissioning expenditures.

The phrase "taken to be paid" is used within the UCA documentation to recognize the fact that cash does not necessarily change hands for some of the amounts, but rather they are non-cash benefits, or an increase in a liability, for which the market value is used. The guidelines are also specific in excluding amounts that can be deducted or are taken into account in working out a tax-deductible amount under provisions that lie outside of the UCA.

The role of the administration system is also to collect information to ensure that the amounts being deducted as depreciation/amortization of capital assets are in line with the intent of the policies and procedures outlined above. For this purpose, mining companies should be required to maintain a detailed asset register that can be easily accessed upon request by government officials, in case a need to cross-check the asset register against depreciation charges and the list of approved mining equipment arises. The revenue-collecting agency may find it useful to build a time series of the aggregated level of capital investments and depreciation/amortization charges reported in past fiscal periods, and set some tolerance boundaries that, if crossed, would prompt the need for clarification. Access to the asset register will also be important to determine the written-down value of assets that may be sold by the company, to re-set future capital charges, particularly if capital gain tax applies in the country (as discussed in a later section).

4.3.3 Pre-production stage

Much of the capital investment necessary to establish the productive capacity of a mining project takes place during the pre-production stage. As a result, the CIT system must recognize and adopt methods for treating these expenditures.

Treatment of exploration and prospecting expenses

In the mining industry, a large amount of capital is invested during the exploration phase. These are high-risk expenditures, as only a minority of exploration projects undertaken by a company will actually result in a mineral discovery and development of a viable mining project. Consequently, concessions are often included in the mining policy of many countries that allow these expenses, which may have no creation of tangible assets associated with them, to be deducted from taxable revenue when and if a project becomes a producing mine.

To attract globally mobile exploration/development capital, many jurisdictions allow one of these concessions:

- Immediate expensing of exploration expenditures when incurred, which, as exploration projects do not generate revenue, results in losses being incurred that are brought forward, accumulated, and eventually deducted as soon as production commences and revenue is generated by the project.
- Capitalization, i.e., the creation of a tangible asset in the form of the project in the explorer's balance sheet, and its subsequent deduction by way of depreciation charges when revenue starts being generated by a project.

Sophisticated legislation includes in its regulations a clear definition of what constitutes exploration and prospecting expenditure. In general, this tends to include all activities ranging from upstream project generation to initial and resource-delineation drilling, to the completion of the feasibility study and the decision to mine.

To the extent that some exploration assets allowable under the definition of "exploration and prospecting" are common, with some assets needed for the development and construction phases, there is risk involved if exploration is immediately expensed but development assets are to be depreciated at a relatively slow rate. Assets may be acquired or constructed in excess of reasonable exploration needs with the intention of using them during the development and production phases, thus reducing overall tax liability in exchange for the opportunity cost of funding the surplus assets.

Administrative considerations. It is important that the legislation clearly define the boundary between exploration and the following development phase, particularly when exploration expenditures are to be immediately expensed or depreciated at a more accelerated rate than that for development/construction assets. Guidelines and examples of how the allowable deductions from taxable income are to be calculated should also be provided. Publishing this guidance in an easily accessible location will reduce the occurrence of discrepancies and disputes.

It may also be advisable to gauge whether the exploration expenses claimed are realistic in relation to the scope of the project as portrayed in technical reports. If expenditure appears excessive, carry out some desktop and, if necessary, physical inspection of the relevant assets, inventory, and so on.

Box 4.2: The boundary between exploration and development expenditures

An area of tax administration that causes issues for many governments dealing with the mining sector is the division between expenditures for exploration and those incurred for mine development. While there is no hard-and-fast rule on where this boundary lies, the Australian tax authorities have clearly defined within the *Master Tax Guide* what entails an “exploration expenditure,” with all other expenditures considered part of the development undertaken as part of the mining-proper stage. This publication is made readily available to industry through the ATO’s publications website, and thus promotes transparency in the tax administration system.

Section 19-040 of the *Master Tax Guide* defines the “Scope of Exploration or Prospecting Expenditure” as being a factual matter that depends on the nature and purpose of the expenditure. Thus, even though the usual division between exploration and development is the point at which a decision is made to undertake mine development, in some circumstances, expenditures on exploration and prospecting can continue beyond this decision point in parallel to mining expenditures. In general, exploration or prospecting expenditures are those incurred for the purpose of obtaining information about and evaluating areas that are believed to contain minerals, either in Greenfield areas or within or near an operating mine.

Specifically, these expenditures can include, but are not limited to, geological mapping (aerial, regional, etc.), geophysical surveys, magnetic surveys, seismic surveys, drilling (either systematic within a Greenfield area or within a mine by crosscuts, winzes, rises, etc.), as well as early-stage evaluation studies undertaken to identify the economic feasibility of mining the minerals prior to making the decision to mine. Section 19-040 specifically excludes any expenditure that is associated with moneys borrowed to finance the operations, such as interest expenses, which may be deductible under other taxation rules.

Treatment of mining rights

For accounting purposes, although the value of the resource identified in a project significantly affects the value of mining company shares, it does not represent an asset on its balance sheet if the company was the discoverer. This is because resources fail the test of being capable of being valued with a sufficient level of confidence and of being owned and/or controlled by the company (in the majority of cases, the resources in the ground belong to the state until actually mined). By contrast, if the project was acquired by the company subsequent to its discovery by a previous owner, the difference between the acquisition cost for the project and the value of its tangible assets (previous exploration, development/construction, plant and equipment, and so on) represents an intangible asset (in many cases called “mining rights”) on the acquirer’s balance sheet.

Mining rights are generally amortized on a unit-of-production basis—that is, on the basis of the tonnes of ore mined in each period as a proportion of the total mining reserves of the project. This represents a legitimate cost of extracting the resource. Adequate legislation would describe how the effective lives for these mining rights, and thus their amortization expense, are to be calculated for the purposes of identifying the CIT base. Issues do, however, arise; the concept of mining reserves is not a static one. While it is true that reserves are gradually depleted, it is also possible that depletion may be counteracted by further exploration during production and by rises in the price of the commodity lowering the cut-off grade on which the original reserves were based.

Administrative considerations. These changes may require review of the amended mining plans to assess the applicable new mine life and the related new allowable rates of amortization and of possible clawbacks, if warranted. This type of administrative difficulty is common to the administration of the less commonly applied depletion allowance (see discussion below).

Treatment of depletion allowance (if available)

In a very limited number of jurisdictions, a depletion allowance is provided under the mining legislation as a fiscal incentive to invest. This allowance may be related to the acquisition price for the resources, in which case its amortization is very similar to that of mining rights, or it may be cast as a percentage of gross sales revenue. In other cases it relates to the tonnage and value of the ore in the resource supporting the mining operation. Boadway and Keen (2010) note that the depletion allowance is analogous to depreciation for producing assets and thus it makes sense that it should be included as part of the annual income taxation system. However, this must be done only to the extent that the acquisition expenses associated with the asset have not been expensed elsewhere. In these cases, the depletion allowance will effectively be a subsidy to extraction, which could be thought of as a negative royalty.

Throughout the life of a mining project, companies remove and add ore to their reserves as further extraction and resource delineation take place in advance of production. In addition, the value of the resource may change as a function of the volatility of the commodity price. On this basis, and as a matter of policy, a depletion allowance is not considered an efficient strategy for providing a fiscal incentive or subsidy.

Administrative considerations. Because of the above complexities, depletion allowances have invariably proved to be a difficult concession to administer, and are nowadays very rarely adopted. When they are included in legislation, companies need to be informed, through clear and accessible guidelines, about which methods they are allowed to use to calculate and progressively adjust both the value and unit bases for the depletion allowance. The administration system should also require companies to submit the detailed calculation of both the cost base and depletion allowance claimed so that they can be validated against the published guidelines. This is a particularly difficult area to administer because it requires a deep knowledge of the mining industry, which may not be adequate in most nontechnical administrative authorities.

Treatment of mine development costs: Overburden stripping

In the case of an open-cut mine, development often includes the need to remove at times significant tonnages of overburden to expose the ore in readiness for mining. Overburden stripping is often carried out very rapidly by specialized contractors using large

equipment, often within a single accounting period. Normally, this cost is capitalized in the value of the project and depreciated using different methods under different jurisdictions. These methods, depending on the case, include:

- Depreciation on a unit-of-production basis.
- Immediate expenditure, as a fiscal incentive at the early critical stages of the project.

Administrative considerations. Depreciation on a unit-of-production basis may create the same administrative difficulties as do the amortization of mining rights and the application of a depletion allowance. By contrast, immediate expensing does not create any administrative difficulty, but may represent a high cost to government revenue.

Treatment of mine development and construction costs

The mine development and construction stage generally is interpreted as including all the expenditures incurred from the point at which a decision to develop the mine is made, following a successful feasibility study, to the point where ore is actually exposed in readiness for extraction. As a consequence, mine development and construction include a wide range of activities—the sinking of mine shafts, all necessary tunnelling, construction of ore shoots, ventilation shafts, and so on—as well as all the civil engineering work relating to road works, water tanks and pipelines, electrical installations, fuel depots, airstrips, and the building facilities to house the processing plant, the work force, the mess hall, mine offices, and so on. Some items of plant and equipment unique to mining (not normal depreciable assets) also fall in this category. The bulk of these investments take place on or adjacent to the relevant mining leases.

On-lease mine development and construction costs are often pooled and depreciated on a declining-value basis over a set interval of time, or the life of the mine, whichever is least. Alternatively, different asset categories are depreciated individually using appropriate useful asset lives as indicated by the taxing authority.

Other pre-production, mining-specific investments, however, may take place outside the boundary of the mining lease(s). These may nonetheless create legitimate depreciation/amortization charges against the revenue generated by a project. These assets include broad categories such as:

- Transportation assets
- Upgrades of public infrastructure

The first may include off-lease roads or railways (with related culverts, bridges, and so on) that connect the mine with a processing plant or a port from which minerals are exported. Transportation assets may include stockpiling, blending, reclaiming and ship-loading facilities, and, in some cases, the construction of piers and the dredging of navigation channels.

The second group includes all contributions that may be required to upgrade existing public infrastructure (roads, water and electrical supply capacity, schools, hospitals, and so on) so that it can accommodate the increased demands placed by the establishment of the mine and the population increase that comes with the influx of the related workforce and their families to the local community.

Off-lease transportation and infrastructural assets are generally pooled and depreciated over relatively long useful lives, up to 25 years.

Administrative considerations. Monitoring of realistic depreciation charges for this group of assets generally does not pose severe difficulties if the charges relate to a single project. An area of complexity, however, arises in instances where some of the mining equipment and processing and transportation facilities are shared by different projects. In this case, the relevant depreciation charges will need to be apportioned generally on the basis of the respective tonnages of ore and waste moved in the various projects, which may vary from year to year. The taxing authority must ensure that accurate and complete records of material movements are kept and provided annually to the relevant department of mines for future reference. Cost attribution must also include the cost of any redundant capacity, if present.

4.3.4 Production stage

While much of the capital investment necessary to establish the productive capacity of the mine takes place during the pre-production stage, significant sums of capital may also be invested during the production stage of a mining project.

Sustaining, expansion, and mine redesign capital expenditure

These investments generally take one of the following forms:

- Sustaining capital investments relating to the replacement of capital assets with a useful life shorter than the life of the mine, or because of obsolescence or asset refurbishment, thus prolonging their useful lives (non-recurrent maintenance).
- Production capacity expansion, while broadly maintaining the original mining method/design.
- Significant redesign of the mine, for example, the development of an underground mine below or adjacent to an existing open cut.

Administrative considerations. These types of investments do not present any significant administrative issues beyond those encountered for similar assets created during the pre-production stage, particularly if the relevant assets are pooled. In cases of asset replacement, some complexity may be created if the disposal of the assets being replaced generates a capital gain, which may either engender a capital tax liability or, alternatively, be allowed to roll over into the funding for the relevant replacement asset without generating a capital gain tax liability.

4.3.5 Site rehabilitation stage

Unless gradual progressive rehabilitation is technically possible, in which case rehabilitation costs may either be an immediately deductible capital expense or become part of annual recurrent expenses, a large level of capital expenditure is often required for closure and final rehabilitation of a mine site. As these expenses are incurred mostly at the end of a project life, often after revenues have stopped flowing, allowances are made for provisional amounts to be claimed against taxable revenue during the course of operations, generally on a unit-of-production basis.

The total amount to be provisioned for is generally estimated on the basis of the area of land disturbed and the nature and severity of the disturbance. To ensure that actual

funds will be available to carry out the necessary site rehabilitation after the closure of the mine, companies are sometimes required to lodge an unconditional performance bond or bank guarantee with the mining regulatory authority. The bond is released only after approved rehabilitation work is satisfactorily carried out. From a government perspective, the use of unconditional performance bonds has the drawback that the relevant bonded amounts, unless regularly adequately indexed, may prove inadequate to rehabilitate the land in the distant future if a company abandons the site without carrying out any rehabilitation.

Maintaining an up-to-date, effective bonding system is very complex, both administratively and politically. In addition, particularly for smaller companies, the cost of establishing and servicing a bank guarantee may be significant. In some cases banks will require that the bond be cash-backed—that is, backed by equivalent term deposits at relatively modest rates of interest. At best, bonds will be backed by specific or floating claims on a company's assets, reducing the company's capacity to raise project loans. On top of this, bond maintenance fees are paid annually, which can amount from less than 1 percent for very creditworthy companies to several percentage points of the amount bonded for less established ones. In aggregate, bank bond guarantees may lock up a significant level of capital that would otherwise be invested in exploration and mine development.

To obviate these difficulties and lessen the cost to industry, Western Australia has recently introduced an industry-wide fiduciary trust fund as a substitute for bank guarantees. This approach would be feasible in other countries as long as they host a number of mining operations sufficient to generate adequate funds without excessive impact on the finances of those companies.

Box 4.3: Western Australia's mine-site rehabilitation fiduciary fund

Individual mines contribute a given percentage of their estimated rehabilitation liability to the fund. The amount of liability is self-assessed annually (subject to clear government guidelines and physical control) on the basis of the area of land progressively disturbed and/or rehabilitated and the severity of the disturbance. The funds, to be invested in government bonds, will first be allowed to accumulate to an amount sufficient to cover the largest possible government rehabilitation risk, with any future surplus funds to be shared between rehabilitation of previously abandoned sites and, eventually, a partial rebate of past contributions to companies that complete final rehabilitation of their project land to the satisfaction of the Department of Mines and Petroleum—thus creating a financial incentive to behave in an environmentally desirable manner.

Administrative considerations. Care must be exercised to ensure that these provisional amounts allocated for rehabilitation are adequate but do not, in aggregate, exceed the actual funds likely to be required to cover the final rehabilitation expenditure, thus deferring tax. For this reason, companies should be required to submit a table showing the cumulative provisions claimed for rehabilitation purposes, including any current provisions. At the end of the mine life, the company should be required to reconcile the actual rehabilitation expenses and the cumulative provisions, where actual expenses are substantiated through normal processes. If this reconciliation shows that over-provisioning has occurred, the company will be required to remit the applicable taxes to the government. The CIT administration system should clearly outline which rehabilitation expenses are tax deductible and how they are to be provisioned for over

the course of the operating mine life. This information also needs to be documented and made accessible to the mining companies.

In some jurisdictions, this is calculated on a per-unit-of-production basis. This practice often leads to administrative complexity because of the difficulty associated with estimating, in realistic terms at the start of the project, the full rehabilitation cost, and because the ore throughput and area disturbed are likely to change over the life of the mine. The alternative practice of agreeing to an estimated future rehabilitation cost, while simple, may create the risk of government being exposed to possible rehabilitation cost overruns at the closure of the mine or even, in the absence of bank guarantees, the full cost, if the company becomes illiquid.

By contrast, maintenance of rehabilitation performance bonds or contributions to a rehabilitation trust fund should be considered allowable recurrent expenses and should not create any ambiguity.

4.4 Other Deductions

Capital recovery rules that allow organizations within the mining sector the opportunity to recoup their investments are not the only source of deductions that add complexity to the CIT system. There are also issues associated with operating expenses, financing arrangements and other tax incentives that must be dealt with in the tax administration system.

4.4.1 Corporate overheads

Project-specific and license-specific mining companies may be subsidiaries of multinational corporations, which in many cases operate in numerous fiscal regimes around the globe. Invariably, project companies obtain support from the corporate head offices of their holding companies located offshore.

Support can be in the form of business overheads (e.g., accounting services, human resources management and training, marketing support, procurement), IT services (e.g., software and hardware support, systems acquisition), and proprietary specialized functions and technologies. As a result, from an administrative point of view, the need arises to ensure that transfer costs for these services being charged to the project are fair, reasonable, and in line with the market, and do not constitute a means of avoiding tax. Calder (2010a) suggests a system that places limits on the amount of deductible costs paid to associated companies. While this system would be much easier to administer, it would not be accurate in the recognition of the costs associated with doing business unless some of the services needed could be provided in the country by unrelated companies. However, particularly in developing countries where there may not be access to unrelated alternative providers of the relevant services, this approach would amount to imposing a tax on costs of production, thus distorting investment decisions.

Accordingly, policy must state deductibility criteria. These may be set on the basis of uncontrolled benchmark costs (see OECD Guidelines) for the range of goods and services provided and may include some form of capping as a percentage of total project cost.

Administrative considerations. Clear legislation, regulations, and procedures must be drafted to provide practical rules as to what proportion of indirect costs incurred by an associated company, domestically or offshore, are allowable deductions, and whether they are to be capped at a specific level. It would also be desirable for regulations to list specifically the items of expenditure that are not allowable deductions. Not surprisingly, this is an area where genuine misunderstandings as well as loopholes may arise.

Consequently, the administration system should require clear identification of the indirect overhead expenses attributed to the project and claimed as deductions. Ideally, the percentage that these expenses represent of the total corresponding expenses recorded by the relevant related service providers in their accounts at the consolidated holding or associated company level should also be required information. But documentation of how these total amounts are attributed to each of the company's projects operating in different geographical locations may prove difficult or even impossible to obtain. Under these circumstances, the administrative authority may ask the company to identify significant transactions involving an associated party, and then may set percentage caps based on estimates of the market cost of outsourcing individual goods and services, and on general industry practice.

4.4.2 Borrowing from associated companies: The question of thin capitalization

Of particular complexity within the global nature of the mining industry is the area of deductibility of interest expenses when debt financing is provided by an associated overseas finance company. In some cases, the company owning the project and the finance company providing loans to fund its development may be controlled or largely influenced by the same parent company. On one hand, this type of arrangement may be an effective vehicle to procure project development funds in otherwise unsympathetic equity and debt markets. On the other hand, it may be an avenue to repatriate project cash flows to the overseas holding company in the form of tax-deductible interest payments as opposed to dividends, which would not be tax deductible and subjected to withholding tax.

Because of the relationship between the project and the financing companies, and their commonality of interests at a consolidated level, the debt provider may feel no constraints to push the debt-to-equity ratio of the project beyond a level that would normally be considered prudent for normal project financing under comparable circumstances. This is generally referred to as "thin capitalization." The captive nature of the funding deal may also provide an opportunity to charge above-market rates of interest. Further complexity and avenues for tax minimization may arise if either the finance company or the holding company (or both) are registered in a country that has a tax treaty with the country hosting the project, or in a tax haven.

Administrative considerations. The legislative framework needs to be clear and specific about the degree to which a mining company can borrow from an associated overseas company. Documentation should be required that clearly shows the nature of any relationship, if present, between the holding company and the lender, and the terms of any borrowing. This documentation must show that the interest being paid is to service a true interest-bearing loan in a funding structure that does not cause the project to vastly exceed generally acceptable debt-to-equity industry standards. Documentation should also demonstrate that interest expenses do not represent, at least in part, a quasi-dividend that will eventually flow back to the parent holding company. This payment may, in some cases, not only be free of any withholding tax or subject to a lower one, but also provide a tax shield by virtue of its deductibility.

Borrowing limitations may be expressed in the form of approved capitalization levels, which in many jurisdictions are set at debt-to-equity ratios ranging from 2:1 to 3:1. Mullins (2010), however, notes that, depending on the geographic location, levels can actually be in the broader range from 1.5:1 to 4:1. Unless a common understanding between government and industry is achieved at the beginning of the project about

government's requirements for funding structure, the administrative process will be exposed to severe risk of disputes and expensive litigation.

Mullins (2010) notes that the response of many countries to the issue of thin capitalization has been to include rules within the tax design that limit the amount of interest deductions in situations where the debt-to-equity ratio is considered high by the taxing authority. The alternative, however, of arbitrarily reclassifying as dividends the interest expenses that are deemed excessive and applying withholding tax to them is fraught with legal and administrative complexity.

4.4.3 Deductibility of royalties

As previously discussed, mineral resources are owned by the state in most jurisdictions, and an additional charge is usually levied on their extraction in the form of royalties. As a royalty is therefore a necessary cost of production, in most cases companies are afforded the right to deduct their royalty payments for the purpose of assessing their taxable income as a base for CIT.

Administrative considerations. The policies applicable to the mining industry must clearly state how royalty payments are to be treated for the purpose of calculating corporate income taxes, and it is the role of the administration system to enforce that policy. In jurisdictions where the processes of royalty and CIT collection are fully integrated in a single ministry or agency, these two imposts may be consolidated in a single return and there is no ambiguity about whether the right amount of royalty has been deducted for the purpose of assessing taxable income.

However, there are many instances where at least some elements of the royalty collection process are carried out at a different level of government (e.g., provincial or state, in the case of a federation) or in an agency that is not part of the ministry of finance (often the mines department). In these cases, it is essential that the CIT collecting agency be authorized to source accurate royalty information from the royalty-collecting authority database. Companies should also be required to submit documentation that substantiates the amount of royalties paid. If the periodic royalty returns are housed in an accessible area within government, then this substantiation may be as simple as an annual reconciliation. However, if the royalty returns are not easily accessible, companies should be required to submit, on demand, all royalty returns for the year for substantiation purposes. Depending on the type of royalty that applies, some form of reconciliation of the income on which the royalty was based may also be possible.

4.4.4 Tax holidays

In some jurisdictions, a tax holiday is provided to allow companies a period to fully capture profits in the early years of revenue generation. Tax holidays are not a recommended method of providing investment incentives, as they have the potential to generate a number of complex issues likely to provoke disputes and tax avoidance. From a government policy perspective, tax holidays do not normally represent a desirable way to convey a tax incentive compared with the other options available. GOXI (2010) notes that the practical use of tax holidays has exposed serious investment and operating distortions, and thus tax holidays are becoming increasingly rare. Common issues arising from the provision of a tax holiday can include:

- If the tax holiday is time-based and unconstrained, companies may increase the rate of extraction or preferentially extract high-grade ore, increasing the amount

of tax relief well above that originally envisioned. Such an approach would also result in the shortening of the original mine life. As an extreme example, if a mine with a proposed ten-year life and a five-year unconstrained tax holiday were to double production (contrary to the original mine plans), its reserves would be exhausted in only five years and no income tax would be paid.

- There have been instances when development of a new satellite mine within a project area was considered reason to trigger a new tax holiday concession.
- To the extent that items of plant and equipment are being utilized and start depreciating from the start of production, the related depreciation charges should be deducted in assessing the taxable income to which a 0 percent rate of corporate income tax will apply during the tax holiday period. In some cases, however, these charges are not deducted but accumulated, and deducted from taxable income generated after the tax holiday period expires, which effectively results in an extension of the tax holiday and significant erosion of overall future tax collection.

A tax holiday can reasonably be granted:

- On a time basis, e.g., over the first five years of production, irrespective of production levels. This constitutes a very open-handed arrangement, which may result in potentially unpredictable and unfavorable outcomes from the point of view of government.
- On a tonnage-of-ore-extracted basis. If the tax holiday were intended by government to apply to a project on the basis of the ore production rates initially proposed in the feasibility study supporting the application for approval to mine, it could be argued that the time length of the holiday does not relate to a specified time period, but rather to the length of time anticipated for a specified tonnage to be extracted.

Box 4.4: Tax holidays in the Malian Mining Code

The Mining Code of 1991 in Mali provides for a five-year tax holiday from the commencement of a mining project as a means for companies to recoup some of the large capital expenditures associated with starting a mining operation. While this tax holiday was removed in the Mining Code of 1999, the majority of companies still operate under the Mining Code of 1991 because of the date when the exploration license was acquired and provisions in their stability agreement. Thus, they continue to enjoy the five-year tax holiday. This can cause distortions in the amount of revenue collected from these operations.

Under the tax holiday regime in Mali, which is not tied to a level of production or the feasibility study that project approval was based on, it is possible for a mining company to either mine their orebody at an increased rate or preferentially extract high-grade ore during the exemption period. If an operation chooses to increase their extraction rate, it is conceivable that little if any ore might remain to be mined after the exemption period to which corporate taxation would be applied. In addition, if a company chooses to preferentially extract high-grade ore during the tax holiday period, only low-grade, unprofitable ore might remain after the exemption period expires. In either case, government would not have the opportunity to realize the revenues from taxation that they expected to receive when the project was approved. This gap in the legislation can be a source of contention between the mining company and civil society, as revenue collections can fall well short of the latter's expectations.

Box continues on next page

Box 4.4 (continued)

A second issue is the treatment of extensions to currently operating mining projects. Under the Malian system, a mining project must be established as an incorporated company. In situations where additional reserves are located within the same mining lease, the question arises as to whether the new operations are part of the existing operations, for which the tax holiday may have already expired, or constitute a new company, which would enjoy a new tax holiday for five years, based on the exploration lease having been acquired before 1999. In this situation, the same issues would arise: Potential extraction of the new orebody at an increased rate, or high grading of the orebody so as to reduce the total amount of taxes paid.

There are many issues associated with the provision of a tax holiday. It is very important for government to identify the consequences that such legislative tax concessions can have, and to ensure that clear definitions and appropriate government approvals exist for changes in both the operating environment and the treatment of new projects that are discovered on an existing mining lease.

Administrative considerations. Tax holidays create administrative complexity, ambiguity, and the potential for tax avoidance. As a matter of policy, the authors believe it is better for governments to avoid offering this type of incentive. However, in cases where a tax holiday is granted in the early years of production, or where one already exists, the role of the CIT administration system is to ensure that the tax holiday granted is not being abused through potential loopholes created by poor or ambiguous definitions. The administration of the tax holiday is facilitated if the legislation clearly identifies what constitutes a mining project, whether the time over which the tax holiday is to apply is unconstrained in terms of tonnages to be extracted, and how depreciation expenses and consequential losses are to be treated within the tax holiday period.

Box 4.5: The FIFO workforce in Australia

The issue of which expenditures should be deductible for a mining company has recently been debated in Australia, specifically regarding fly-in, fly-out (FIFO) and drive-in, drive-out (DIDO) workforces. In a House of Representatives Standing Committee report, "Cancer of the bush or salvation for our cities?", the recommendation has been made to review tax concessions that are offered to mining companies related to Fringe Benefits Tax (FBT) and the use of a FIFO workforce.

The FBT was introduced in Australia in 1986 as a tax, paid by companies, for providing employees with non-monetary remuneration, such as the provision of vehicles and housing. Companies that operate in isolated areas are provided with a FBT exemption for these expenses and allowed to deduct as an operating expense the costs associated with using a FIFO workforce (e.g., travel to site, accommodation, catering). The intent of the exemptions is to provide incentives for people to work in isolated locations, where the local workforce is normally less than required, for the purpose of developing resources. While the intent of these tax exemptions and deductions was to develop remote areas, the House Committee argues that they actually promote the use of a FIFO workforce rather than promoting the development of the region.

From a taxation perspective, allowing companies to deduct FIFO expenses as operating expenses and exempting them from FBT is effectively subsidization of the mining operations by the Australian Government. While this is the intent for truly isolated projects, some projects that enjoy the FIFO exemptions are in reasonable proximity to regional communities, which raises the question of whether these exemptions and deductions are warranted after a suitable length of time (e.g., a year).

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Box 4.5 (continued)

Opponents of changing the FBT exemption rules point to increasing costs of production within the mining sector; they argue that raising the costs of production further, by removing some of the benefits, will make some projects unprofitable—and may lead to unemployment in the future, if companies move their investment to lower-cost locals. Other reasons given against abolition of the concessions are the need for employees to be able to choose where they live and the changing dynamics of the family unit, where spouses are frequently now employed in other industries. As a result, employees should not be penalized for choosing to live in a location that will support the career of their spouse, while allowing them to work on a FIFO roster. The government should review the intent of the concessions, ask whether the application of the exemptions is promoting that intent, model the long-term effects of legislating changes to the exemptions, and make an informed decision that is in the best interests of civil society.

If a tax holiday is to be granted, it should be defined as a time interval corresponding to a specific annual ore throughput, as outlined in the feasibility study submitted with the application for the granting of the mining permit; as a specific cumulative tonnage extracted at a given grade; or on the basis of a cumulative production expressed in terms of contained metal. Relevant documentation should be provided by the mining company on an annual basis, either within the CIT return or, as is more frequently the case, in separate documents that clearly identify the current revenues and production levels applicable to each license or project. Depending on whether tax is paid in installments and the method for determining the amount of each installment, forecasting of future production levels may also be required.

4.5 Capital Gains Tax

“Capital gains” is the difference between the price realized in the sale of an asset and its written-down value in the tax books (i.e., the difference between the original acquisition cost and the accumulated depreciation calculated using the relevant fiscal rate of depreciation/amortization).

The asset that is disposed of may be one of two types:

- A specified level of equity or the whole of an exploration or mining project, including both intangible assets (such as mining rights in the form of exploration, and mining licenses or tenements) and tangible assets in the form of relevant development, construction, infrastructure and plant, and equipment.
- Individual tangible assets, such as specific items of plant and equipment, transportation assets, and so on.

If an exploration or mining project is disposed of, it is possible that the amount spent on the relevant tangible assets, as held in the balance sheet of the company disposing of equity in the project, may be significantly low relative to the price paid by the acquiring company. This is commonly the case when advanced exploration projects are sold after a discovery by a junior company that is incapable of funding their development, with much of the received consideration being represented by the value of the resource rather than previous investment by the junior company. Under these circumstances, the junior company would realize a very large proportion of profit in the form of capital gains. The

tax treatment of capital gains raises interesting philosophical issues and consequently varies among different jurisdictions.

On the one hand, it could be validly argued that the mineral discovery was the culmination of a large number of previous unsuccessful exploration projects and that, on this account, it would be unfair and erroneous to compute the realized capital gains by subtracting from the price received for the project only the tangible costs incurred on the specific project alone. This philosophical approach creates a rationale for reducing the applicable tax rate or even exempts these capital gains from tax altogether—a position to be found in many jurisdictions. To the extent that junior companies are extremely active in raising risk-equity funds to undertake initial and risky mineral exploration, particularly in developing countries, a fiscal regime that would severely tax capital gains realized on disposal of mining tenements could discourage exploration to a point that would prove counterproductive for the countries involved.

The assessability of gains on the disposal of mining titles and/or equity in projects can also generate particularly contentious issues because both the value and timing of the consideration changing hands may not be easy to ascertain. Particular difficulties arise in assessing the value of the consideration if it includes components such as performance shares and/or options contingent on the achievement of agreed technical or financial milestones.

Recent amendments to international accounting standards¹ have been adopted in many countries. They require valuation of the consideration relating to a project acquisition to be based on “fair value,” defined as including, aside from cash and consideration shares, the value of consideration options or warrants, and of any contingent component of the consideration, irrespective of the fact that the probability of achieving the relevant milestones may be relatively low. To the extent that the value of the resource is generally incorporated in the price of a company’s share, this problem is less likely to arise if the acquisition of equity in a project is in the form of purchase of a parcel of shares in the holding company, particularly if the shares are listed and quoted on an active stock exchange.

Determining the amount of realized capital gains with a higher degree of accuracy is less complex in cases where the asset disposed of is an established operating mine that has changed hands before. In this case, the amount of capital gains would, in all likelihood, be a relatively lower proportion of the consideration received. Consequently, taxing it would not have significant consequences on later investments.

It is possible that during the life of a mining project some of its tangible assets may be disposed of, either domestically or across border, by at-arm’s-length sale or by transfer for use in another project within the holding company’s portfolio.

If the price of the assets sold is unequivocally set in a contestable market by way of at-arm’s-length sale, no ambiguity arises about the amount of capital gains realized. Conversely, sometimes capital losses are realized.

Some jurisdictions add any capital gains to other taxable income, to be taxed at the prevailing corporate income tax rate. If this is the case, the system is generally symmetrical in that the buyer is allowed to depreciate/amortize the price paid over time. Government therefore derives a timing gain because it levies capital gains tax at the time of the acquisition but incurs the cost of the deductions gradually over time. Sometimes a concessionary tax rate (e.g., 50 percent of the CIT rate) is applied to capital gains. Should this be the case, deductibility of costs incurred by the buyer needs to be adjusted accordingly or perhaps disallowed altogether. Most tax systems are asymmetrical: They either

do not allow deduction of capital losses against recurrent taxable income generated by operations or legislative provisions may exist for such losses to be carried forward, with their eventual deduction generally limited to offset future capital gains.

These issues are clearly recognized in the *Extractive Industries Source Book* (GOXI, 2010) as creating significant complications and still requiring clear policy formulation about effective ways to address them.

As mining projects may proceed over long periods of time, situations may arise where items of plant and equipment may reach the end of their productive lives long before the mine closes. In many cases, these assets are sold and replaced with new plant and equipment to maintain operational capacity. Some jurisdictions include provisions for exempting any capital gains from tax if gains are to be rolled over into the acquisition cost of replacement items for the plant or equipment sold.

Other issues may arise on the side of the acquiring party related to the deductibility of as-yet undeducted losses acquired in proportion to the level of equity acquired by virtue of the transaction.

Administrative considerations. The fiscal policy must be clear as to whether capital gains tax is to be applied to gains on disposal of intangible mining assets in the form of mining rights and tenements, or whether taxation is limited solely to gains realized on the disposal of tangible assets (and if so, at what rate). The policy must also be clear about the treatment of potential capital losses. Policy and procedures concerning the tax treatment of capital gains and losses are generally absent or poorly articulated in many developing countries and sometimes ambiguous in developed ones. This is an area still in need of significant legislative effort.

Assuming that capital gains tax applies, in a situation where equipment is transferred to a related operation, either locally or abroad, the administration system needs to provide guidance on how this equipment is to be treated.

In the case where the related operation is local, it may be required that the asset effectively undergoes a sale between the two operations, thereby triggering a tax liability through the potential capital gains. The cost base of the asset is then depreciated by the acquiring operation. If the related operation is in another country, then export duties may also be applied when the asset leaves the country.

In the absence of an active domestic market for second-hand plant and equipment, the value may have to be set on the basis of sales achieved in a reference foreign market for similar assets of comparable age and condition, in some cases including consideration of likely transport cost to take the relevant items to the country of destination. Alternatively, the price could be deemed to be that of a modern asset replacement depreciated on the basis of the same number of years of use as for the asset disposed of. The least desirable approach would be for government to have the power to determine the value of the asset being disposed of at the discretion of the relevant minister but with general reference to markets. Whatever the treatment, companies need to be made fully aware of the related tax implications.

4.6 Ensuring Compliance with the Mining-tax Framework

In many jurisdictions, corporate income taxes are self-assessed (Calder, 2010b) and paid to government on a provisional basis, with the frequency of payment depending on the size of the company. While the rules for payment are not specific to the mining

sector, most mining companies are affected because of their size, especially those that exist within developing nations. As a result, most medium-size mining companies will pay provisional taxes on a quarterly basis, while larger ones will make payments on a monthly basis. The provisional payments are then reconciled within a few months of the end of the financial year, in connection with the final CIT return. In situations where a company's provisional assessment understates the actual taxes payable beyond a pre-specified allowable range, interest and/or penalties may apply. Through this process the government is provided with stability in the amount and the timing of their cash flows.

The fiscal policy related to the mining industry broadly outlines the fiscal provisions that government has determined will apply to the industry. The purpose of the relevant legislation and related regulations is to ensure that the intent of these policies is enacted in law. Such legislation provides the powers and the legal framework within which the administrative apparatus of government works.

In light of the special circumstances associated with the mining industry, which may justify a number of special provisions and investment incentives generally provided through the CIT regime, complete and comprehensive consistency is critical between the fiscal policy, related legislation, and administrative processes and procedures, thus minimizing ambiguity. Failure to do this can lead to disputes and the demand for rulings and interpretation by tribunals or the courts. One way of achieving this consistency is to consult personnel experienced in practical administration during the policy development process. While the mining-specific provisions and incentives will be different depending on the fiscal regime of individual countries, they will have an impact on three main areas concerned with implementing an administration system, namely:

- Information that must be provided to mining companies by the government for the purpose of self-assessing their corporate income tax.
- Additional supporting documentation that should be collated by mining companies and either submitted as back-up or made available on request for inspection, to substantiate their corporate income tax returns. Use of the collected information to identify risk in, and reconcile, CIT returns.

4.6.1 Providing guidance information to taxpayers

It is in the best interest of the administrative system to ensure that companies understand their rights and obligations within the legal framework, so as to facilitate accurate and ready compliance with the government's requirements. The ultimate aim should be to move the responsibility for accurately assessing corporate income tax liability to the mining company, by means of self-assessment and reporting, with appropriate verification and review processes in place. Calder (2010b) states that one method of helping companies comply with tax rules is through the use of a well-designed tax return. These returns, if appropriate, can provide the taxpayer guidance on the type of information required by the government.

Depending on their policy and legislative frameworks, different fiscal regimes have varying levels of complexity which reflect the balance among competing fiscal objectives (see Section 2.2). Regardless of the level of complexity, it is important that taxpayers clearly understand their reporting requirements. As a result, the administration system

must play an educational role by providing appropriately drafted comprehensive information, guidelines, and worked-out examples that facilitate company reporting.

Administrative considerations. Companies must be made aware of when and how data are to be submitted and, when relying on self-assessment, what supporting data and documentation should be kept and for how long. As mining companies are global in nature, their information will often exist in multiple languages and be denominated in multiple currencies. The reporting requirements need to clearly state in what language (almost always the official language of the host nation) and in what currencies supporting documents are to be supplied. Protocols to address how to handle relevant exchange rates must also be provided.

The information that is required by the mining industry arises from the specific risk points that have been identified in sections 4.1 through 4.5. Ideally, the guidelines and corresponding worked-out examples that are to be used in calculating a company's CIT will be made available to the mining industry at one clearly identifiable customer service interface, in the form of both hard copy and electronic means (e.g., a website). This location should contain as many worked-out examples as possible so that interpretations are in line with government's thinking. As mining industry practices continually evolve, from both a technical and financial point of view, this information should be regularly updated. When a new issue is identified that could lead to misinterpretation, a worked-out example outlining the correct interpretation should be created, widely circulated in an appropriate newsletter, and included in the guidance publication. Prudent and timely maintenance of these publications will allow companies the opportunity to review any changes, and comply with the current corporate income tax regime.

Assistance should also be provided to companies by competent officers who can provide further guidance and answers to any additional query, thus ultimately reducing the administrative burden on government. This may require development of a customer-focused culture within the relevant departments. In the case of misinterpretation and ambiguity, the taxing authority should provide timely rulings both at its own discretion and also on request to allow companies the opportunity to comply with the legislation. In many jurisdictions, simple clarifications of the intent of the policy are provided over the telephone via a central "Government Help Line." For more contentious issues that result from unforeseen ambiguity in the legislation, a clearly defined process for issuing rulings needs to be put in place. This process should describe:

- The method(s) through which government will receive requests for clarification.
- The format in which the request is to be presented.
- The back-up that must be submitted with a request for a ruling.
- The level of authority within government that can make rulings on different matters.

Government should endeavor to issue rulings on issues promptly, thus deflating emerging contention. Once a ruling has been made, a note containing this ruling and worked-out examples (if applicable) should be made available to all companies in the industry so that a consistent application of the legislation is used, and a similar ruling is not requested in the future.

4.6.2 Substantiating corporate income tax returns

Because of the mining industry's global reach, its elevated levels of uncertainty, and the complex nature of its operations and products sold, the CIT administration system will require a level of documentation that is specialized—and in some cases beyond the documentation already provided—to substantiate returns from most other industries. Sufficient documentation must be collected that enables government officials responsible for verifying CIT returns to re-calculate any material figures in the tax return. While the hurdle for materiality depends on the fiscal regime that is in place, many jurisdictions use a rate of 5 percent of the gross revenue figure to represent the hurdle above which an account is material to the results.

With respect to the mining industry, the risk points identified in sections 4.1 through 4.5 have the potential to produce these material effects upon the calculation of CIT. As a result, companies should be required to maintain documentation in support of these calculations. A clear listing of the required supporting documents should be provided to companies operating in the mining industry via the customer service interface, including guidance on whether it is to be submitted to government with the CIT return or maintained at company headquarters for periodic inspection.

Administrative considerations. It is imperative for the government agency responsible for verifying the validity of CIT returns to collect sufficient supporting documentation at the time of tax filing. A clear process outlining how and where this documentation is to be stored following collection should be created to facilitate efficient use of that information in the review process for the purposes of identifying and reconciling risk.

4.6.3 Reviewing procedures to validate and reconcile corporate income tax returns

With processes and procedures in place to collect sufficient information to substantiate the CIT returns submitted by mining companies, the tax administration system must develop procedures to ensure accurate and timely validation of returns for risk management. These review and reconciliation processes are required to ensure that the revenue collected by government in the form of CIT is consistent with the intent of the legislation, and that the guidelines and worked-out examples are being provided to the industry are being followed.

For this purpose, the tax administration system should:

- Require audited accounts by an approved external auditor to be submitted annually.
- Develop a review process and formulate procedures for performing site inspections.
- Reconcile actual versus budget, explain revenue budget variances, and forecast future revenues from corporate taxation.

Independently audited accounts

The mining industry is very complex, operating on a global scale and mostly in remote areas. Performing field inspections and audits to reconcile corporate accounts can therefore be time-consuming and costly, and requires adequate knowledge of the mining industry, of finance, and of the applicable CIT legislation. Generally, few people within any tax collection authority possess that specialized knowledge. As a result, in a

self-assessment system it is good practice for the CIT administration system to require that company accounts be audited annually by qualified external auditors. This requirement may be in common with the demand of the prevailing company law.

External auditing companies are generally very large, usually with operations in numerous locations around the globe. As a result, they have access to the required knowledge and experience in auditing CIT returns from the mining industry. In an administration that lacks in-house knowledge of the mining industry, the use of approved external auditors will ensure that company accounts have been verified by someone with the prerequisite knowledge prior to comparison against the CIT return for the identification of risk areas that may warrant further investigation. The process becomes more efficient when people with industry knowledge can quickly identify key risk points and spare using valuable resources to investigate areas that do not require attention.

Administrative considerations. If mining companies are to use an approved external auditor, government must provide an easily accessible, relevant, up-to-date list of acceptable auditors to select from. Alternatively, companies may propose an auditor subject to government's approval. It must be made clear to both the mining companies and the audit companies on the approved list what their reporting responsibilities are, and the penalties for misrepresentation of the tax situation.

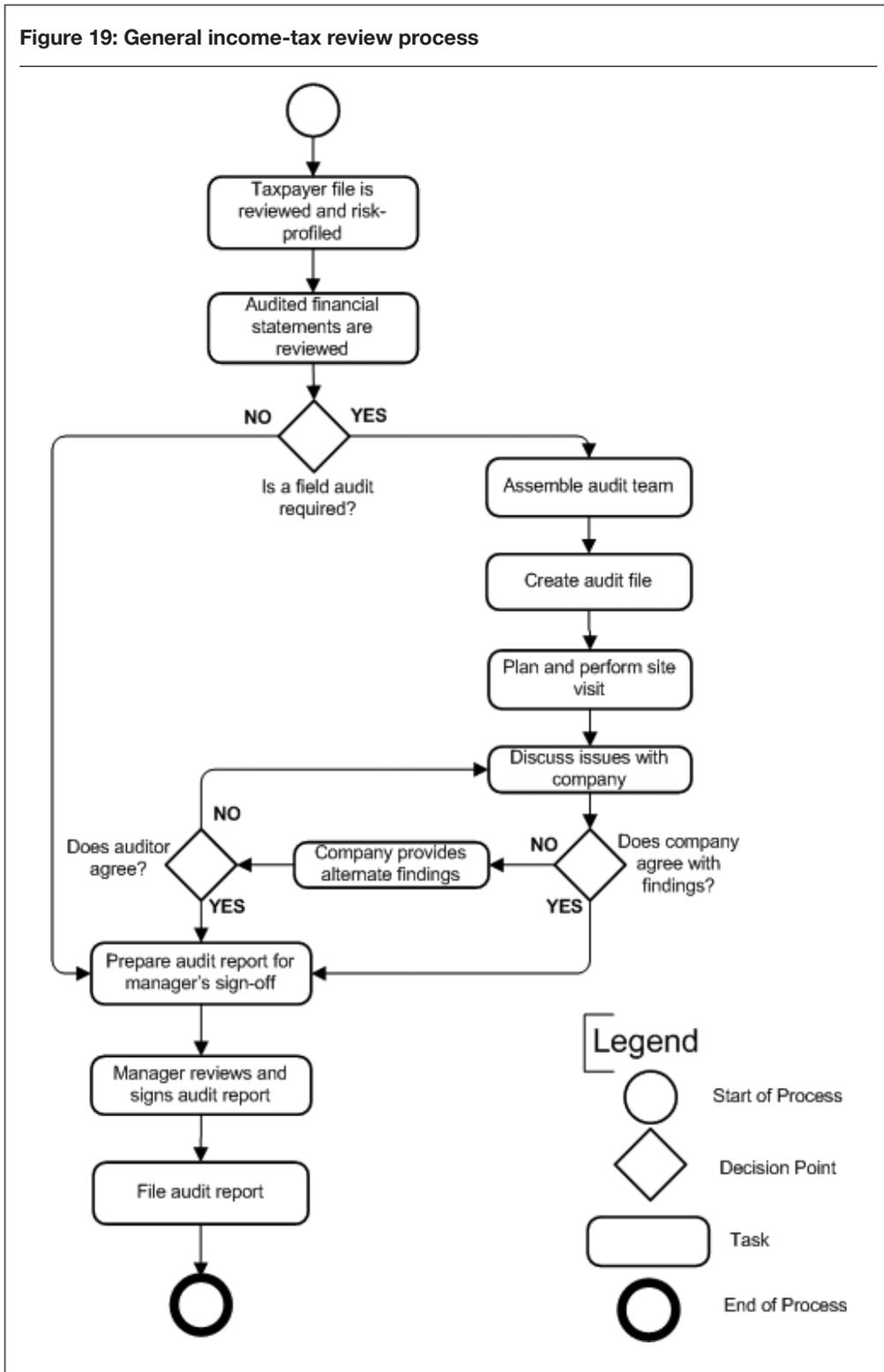
It is imperative that government collect the finalized, audited financial statements and store them in a secure location, readily available for use in reviewing the CIT return. This review process will be used to establish time series and bands of tolerance, which will facilitate the identification of risks based on the items discussed in sections 4.1 through 4.5, and will direct government toward areas of further investigation yielding the highest level of public benefit.

Review plan

Even with the use of qualified external auditors to ensure that company accounts are calculated in line with the legislation and accepted accounting standards, the government still has a responsibility to review CIT returns for compliance. This requirement arises partially from unforeseen ambiguity within the legislation that may be interpreted in different ways, and partially from the timing of completion of the CIT return and external audit. However, since a qualified person has been used to audit the company accounts, this review process can focus on reconciling the two pieces of information and identifying any areas of discrepancy deserving further investigation. This process is outlined in Figure 19.

The tax authority should be clear about the objectives of the review undertaken, and develop a clear review plan and strategy based on risk analysis. The tax authority should undertake both comprehensive and issue-based reviews of the CIT returns submitted by mining companies, according to the plan, on a frequency that focuses primarily on high-risk cases, but nonetheless, includes less risky companies on a less-frequent basis. The idea is that possible irregularities should be identified on a timely basis, and dealt with while they are still manageable. Ideally, reviews of high-risk companies would be performed annually, but through the required use of external auditors, the majority of them could be limited to a desk review and reconciliation of the CIT return with the externally audited financial statements. After an annual reconciliation, the government can be confident that the tax assessed and paid in the period is consistent with that displayed in the company's audited accounts.

Figure 19: General income-tax review process



Desk reviews should be complemented by a site visit system that selects a handful of companies for field inspection each year. GOXI (2010) recognizes the importance of having within the audit process knowledgeable people who understand the industry. Calder (2010b) states that a single skillful auditor with an understanding of the legislation who is asking pertinent questions can be more efficient reviewing files from his desk than a whole army of unskilled field auditors.

This system is primarily risk-based and therefore should focus on companies in whose documentation an initial review has identified potential issues and inconsistencies between the tax return and audited set of accounts. The rest of the companies will be selected for further review on a rotating basis in accordance with their historical risk profile. In reality, the number of site inspections performed each year, and thus the frequency for each company, will depend on the resources available within government who have knowledge of the mining industry. However, as noted by Calder (2010b), good planning in the review process will reduce the number of records that an auditor must review, limiting the drain on this scarce human resource. While the frequency of review for individual taxpayers should be a function of their risk profiling, aside from those with very high risk, who may need annual review, the goal would be to see that each company is thoroughly audited on average every three or four years.

Depending on the nature and complexity of the tax rules, site inspections may require a degree of mining knowledge and expertise in addition to accounting and knowledge of the tax legislation. As tax officers who thoroughly understand the mining industry will be scarce, one option is to undertake these field audits in collaboration with other government agencies that house the required knowledge. In many cases, people with the right expertise will reside within the department of mines and can offer the technical insight required to perform a comprehensive review of CIT.

Administrative considerations. Site inspections can be time-consuming, from the preparation of the review file to contacting the company to schedule a site visit to finally undertaking the inspection. In many cases, an experienced person with the full spectrum of knowledge required to perform these tasks cannot be easily recruited and retained under the employment conditions of the tax authority, and the process must depend on less-experienced associates for assistance. Having a clear set of well-documented procedures can make this process more efficient and place less pressure on scarce human resources. Documenting these processes will ensure consistent application and continuity, particularly when key personnel leave an administering unit.

The procedures manual should document all aspects of the audit process. It should clearly define what documentation is to be collected from within the government in the first instance, and where it is located, as well as any additional information that should be drawn from external sources. Procedures should also explicitly describe the format required for this documentation, so that it is ready for the field visit.

Within these procedures, the timing of initial contact with an audit subject should be clearly identified, as well as the preparation time that should be allowed in scheduling an appointment. The procedures manual should also describe the manner in which a field visit is to be conducted, including the proper way to approach mining company representatives.

Budget reconciliation and forecasting

Finally, the CIT administration system needs to develop procedures for collecting information in a form that is not only suitable for controlling and validating revenue

collection but also facilitates forecasting and planning. While data collection for regulatory purposes may be a separate process from forecasting, processes should be in place to ensure that the two data sets are consistent.

Forecasting needs to be carried out at two levels: project and aggregate. Forecasts made at a project level can be used for first-pass assessment of whether future income tax returns are realistic, or deserve more in-depth scrutiny. They can also provide the public with information on industry trends and performance. Sound project-level information, including relevant data on mineral royalties, should be transmitted in a timely manner to other government agencies charged with the formulation of economic planning and integrated into national budgets.

Processes should be put in place to reconcile revenue actually collected against revenue budgeted both at project and aggregated industry levels. Significant variances require cursory investigation; if no obvious explanation for discrepancies emerges, then the matter should be the subject of a more in depth audit. Variance analysis and revision of revenue forecasts will allow tracking of the effectiveness of current rules and regulations in achieving the objectives of government, and may create the need for informed adjustments to applicable policies.

Administrative considerations. When using the information that is collected from the mining industry to inform the public about industry trends, government must be careful to protect commercial confidentiality. The public release of project-specific data should not allow the project to be identified.

4.6.4 Dispute resolution and penalties for non-compliance

While it is anticipated that the policies and procedures forming the taxation regime will be clear, misinterpretations and errors will inevitably occur, resulting in disputes and the possible application of penalties. An important component of a self-assessment system is to provide government with the legislated power and the administrative capacity to levy penalties for non-compliance.

As not all cases of non-compliance warrant penalties, it is also important to develop procedures that can resolve conflict without resorting to the application of penalties. Calder (2010b) notes that resolving the majority of disputes through agreement during the audit process is an important component of a taxation system, as it can avoid resource-intensive formal litigation. He discusses the main issues that cause many disputes to elevate beyond amicable resolution, and describes the means through which these disputes can be resolved.

These procedures should be clearly documented in a manual that facilitates equitable application across the mining industry. By making these documented procedures available to mining companies, the whole process also becomes more transparent. Within this process, the government agency, the dispute resolution mechanism to be used, and the level of government representation to be involved should all be clearly stated. How the dispute would progress if unresolved, at each level, should also be clear.

In the event that the dispute resolution procedures do not provide a solution, the administration system must have the authority to levy penalties upon offenders. While the penalties must be set out in legislation, the process by which they will be levied should be communicated to the industry through the industry interface.

The levying of penalties should be transparent as to how interest and penalties are to be applied. Interest should apply for late payments, except when the reason for the

delay is attributable to the tax authority, and can be levied at increasing rates, based on the degree of delay in submitting required documentation or making required payments. Penalties, ranging from progressively increasing fines, to the forfeiture of mining rights, and even possible incarceration, can arise from non-compliance with policies, non-compliance with submission procedures, or misrepresentation by either companies or external auditors. The means and the legal processes by which different penalties are applied in each of these situations need to be clearly identified.

Administrative considerations. For the dispute resolution processes and procedures to act as a deterrent, they must be clearly communicated to the industry. The information package available to companies should reiterate the penalties at every level for non-compliance with the legislated requirements.

Note

¹ These amendments to the International Accounting Standards were made in 2009.

Other Mineral Revenue Streams

This sourcebook is primarily directed at providing practical guidance in the administration of taxes that are applied specifically to mining projects and companies. However, mining companies also generate a number of other revenue streams to government. Mullins (2010) notes that, while the resource sector should ideally be treated much as other industries are with respect to these revenues, the reality is that this rarely happens in practice. Whether because of the size of the operations, or as a method of attracting investment into the industry, the differences can have a significant impact on the revenue received by a government. This chapter briefly touches on those other revenue sources generated by mining companies, and discusses some of the key administrative issues that may arise.

5.1 Government Equity and Dividends

In a number of countries there is a requirement for the government to have an equity interest in any large-scale mining project. The interest may be free-carried (typically at a minimum of around 10 percent), but higher equity interests may be acquired at a fair price (McPherson, 2010). This provides a further opportunity for governments to receive revenue from a mining project, by way of dividends.

This arrangement, depending on the form in which equity is held and the consequent dividend stream, means that the government shares some of the project risk. If the equity is in the form of ordinary shares, then the board of the company determines how much of the profits (if any) should be distributed by way of a dividend, and how much should go into debt reduction or into retained earnings and used to support future operations. To the extent that mining companies seem to be frequently in need of capital, there is no guarantee that revenue will be forthcoming from dividends, even if the company does earn a profit. This also means that the amount of revenue generated by dividends is unpredictable and may change from year to year.

Other arrangements that have been adopted in some countries see the state taking a share of the net cash flow from a project in lieu of dividends. While this still requires the project to generate positive net cash flows before the government receives any revenue from this arrangement, the advantage is that payments are calculated according to an agreed-to formula, and the amount and timing of payment are not up to the discretion of the company board.

Administration of any equity rights and revenue is typically run out of an agency within the finance ministry. Where the state holds ordinary shares, it must have access to the normal audited company financial statements to ensure that the proper payment is received. However the tax legislation in a country typically provides its tax agency with the right to directly audit a company's accounts, so government can be reasonably assured that a proper statement of profit is declared.

Box 5.1: State participation in mining ventures

In many developing countries, national governments participate in mining ventures in a variety of different ways. Some have state-owned mining enterprises, a few have put production sharing arrangements in place, and many countries in Africa have equity participation in projects.

Equity may be acquired on normal commercial terms, or as a carried interest whereby government pays for its share through a variety of financial offsets, or as a free-carried interest. In West African countries such as Mali and Burkina Faso, for example, the mining code requires a company to allocate to the state a 10 percent equity interest in the project-specific mining company established to hold the mining lease for a large-scale mine. This allocation is free-carried and the 10 percent state interest must be maintained if there is further equity raising. This type of arrangement does not preclude the state from acquiring further equity participation, should it so choose, by commercial means.

Where a government holds shares in a project, it most commonly participates in dividend distributions (if any are made by the company). However, dividend payments are at the discretion of the Board of Directors and, particularly with gold mining companies, are unreliable sources of government revenue from mining projects.

Consequently, governments need to look at the benefits to be gained from, and alternatives to, state equity participation.

The Government of Ghana in 2003 entered into an Investment Agreement with Newmont Ghana Gold and other project participants that entitled the Government to receive a share of cash flow from the mining operations carried out under the Agreement. Having been ratified by Parliament, this Agreement amends the mining legislation in regard to those operations to the extent that it substitutes a right for the state to receive 10 percent of the net cash flow from the operations in lieu of the Minerals and Mining Act provisions for a 10 percent free-carried interest. The Agreement specifies cost factors to be taken into account in determining the net cash flow, and the revenue stream is therefore relatively predictable. Under the Agreement, the government waives its right to acquire any other interest in the project until 15 years after commencement of production, but after that it may acquire up to 20 percent equity at fair market value.

This free-carried equity holding often entitles the government to board representation, but generally this will be in a minority position and therefore the government representatives will not be able to determine the dividend policy of the company. However, there can be the risk of real (or at least perceived) conflict of interest if the government representative is also an officer of a regulatory agency charged with overseeing some aspect of the mining company's operations. Company directors should act in the best interest of the company, which at times may not coincide with the best interest of the state. There must be clarity and accountability as to the roles and responsibilities of the government board representative (and distinguished from that of government officers assigned to ensure that any dividend payments declared are actually paid).

Administration of share holdings is relatively straightforward and consists largely of ensuring that payments due are received on time, and banked in the appropriate account. The amount due to be paid is either known in advance or declared by the Board of Directors of the company, with payment being due on a fixed date. No particular knowledge of mining company accounting is required in this role.

Administration of an arrangement involving a share of net cash flow should also be relatively straightforward to administer if the net cash flow is derived from independently audited financial statements.

5.2 Tenement Rentals and Fees

The fees charged for surface rentals for exploration and mining tenements (or licenses) are commonly set at a level that reimburses the administering agency for the costs of administering the tenement system. Therefore, the charges represent a fee for service, not a tax or an impost on the economic rent of a project. Accordingly, these fees are most commonly payable directly to, and deposited into, the account of the agency providing the service (usually the mines department or equivalent).

However, surface rentals can also be used as an instrument of government policy, particularly if there is a policy of “use it or lose it” adopted to encourage a more rapid turnover of exploration ground. In this case, it is common to see the rent charged per unit of tenement area increase by two or even three times after the initial term of the exploration permit, if the mineral exploration tenement is not relinquished or converted to a mining permit. In this case, the revenue exceeds the cost of administering the sources and constitutes a tax.

As these charges are not strictly a part of the mining tax regime, they are not considered further in this sourcebook.

5.3 Withholding Taxes (WHT)

Withholding tax (WHT) is a form of taxation many governments use to ensure that taxes are actually paid on revenue earned in country by non-residents, as there is no practical way to force a non-resident to file annual income tax returns (GOXI, 2010). The most common form of WHT is that levied on the remittance of dividends to foreign shareholders. WHT ensures that tax is paid on the disbursement of relevant funds by taxing them at their source, rather than waiting for the recipients to pay the tax.

While WHT, especially as applied to dividends, is not unique to the mining industry, there are two other instances where the application of WHT can have a large impact on revenue. The first is the application of a WHT on a proportion of the interest paid to overseas lenders of funds as one of the means that governments can use to deal with the issue of thin capitalization within the mining sector. By capping the maximum debt-to-equity ratio allowed, any excess interest payments are treated as if they were dividends, thus attracting WHT. This has the effect of deterring multinational companies from capitalizing their projects too thinly, which reduces the payments made to government through CIT because of the deductibility of interest payments. The combined contribution to revenue made by the combination of higher CIT and WHT may be appreciable.

The second instance where governments will sometimes levy a WHT is on payments to foreign subcontractors. In the mining industry, where a great deal of the work is performed by subcontractors, and these subcontractors operate on a global scale, a substantial amount of revenue can result from these WHT payments. A source of concern for many developing nations is that they should receive the full amount of taxation that is due to them. In this context, governments should tax work performed in their country by these subcontractors, who will normally be based overseas, making it otherwise difficult to ensure that taxes are actually collected. Calder (2010a, Appendix II) describes the application of WHT in this area, noting that subcontractors who pay CIT in the local country can recoup these WHT by having them credited against their CIT payment.

An issue in the application of WHT, especially in developing nations, is having the necessary skilled people available to reconcile these payments against CIT payments. As very large sums of money can be involved where the mining industry is concerned,

the government needs to ensure that it has procedures and protocols in place enabling the relevant agency to reconcile the payments efficiently, and to return any overpayments in a timely manner.

5.4 Commonly Exempted Items: Custom Duties and Value-added Tax

The mining industry in many jurisdictions, including many in West Africa, is commonly exempted under relevant legislation from paying some non-mining-specific taxes (such as customs duties and value-added tax, or VAT) that are normally levied on commercial entities. It is important to have systems in place that manage and monitor the revenue foregone by the state through these exemptions, so government can be certain of the level of fiscal incentive that it is offering companies operating within its mining sector.

Standard practice is to levy customs duties on imported goods at various rates. In this process, imported items are physically inspected by customs officers and checked against the bill of lading before being released to the recipient. The amount of customs duty payable is levied according to the type and value of the goods as set out in customs legislation.

However, to encourage mining investment, many developing countries provide either exemptions or concessional rates of duty for imported mining equipment. Mullins (2010) notes that, on account of the large values associated with mining equipment, exemptions are sometimes provided to minimize dealings with customs officials and thus reduce opportunities for corruption to enter the system. In this context, the main administration issue is more to ensure that rightful duty is not foregone on items imported by mining companies that are not subject to exemption or concession. Matters may become more complicated when the same item attracts a different level of concession if it is used in different phases of mining, such as exploration or production mining.

The power for granting such exemptions is commonly found in the mining legislation, and it is important for such legislation to make clear that it takes precedence over the customs legislation. Good administrative practice sees the value of the duty assessed as usual under the customs legislation, and then the duty payable either reduced or set to zero, as required under the mining legislation. This allows the duty assessed to be subsequently levied if the item is exported or used for purposes other than those which attract the mining concession (e.g., a haul truck on-sold to a non-mining company). In these circumstances, different jurisdictions may apply customs duty on different value bases for second-hand plant and equipment, such as book value or market value.

It is also important to clearly describe in subsidiary legislation/regulations the nature of the items that attract the exemptions/concessions. The first challenge is to make the definitions in the regulations as clear as possible to distinguish between goods that are explicitly intended for mining and goods that are for general use (such as photocopiers) but are used incidentally by mining companies. This is commonly done by establishing a “mining list” compiled jointly by the customs and mines agencies.

Assuming adequate customs inspection and administration processes, the major administrative challenge for customs officers in regard to the mining sector is verifying on the ground whether items being imported are in fact on the “mining list.” As most customs inspectors are not experienced in mining, they often cannot easily recognize a piece of equipment as being on the list or otherwise. This applies both for the initial importation and subsequent site inspections and audit checks to ensure that the equipment is in fact still being used for the intended purpose and has not been on-sold.

One strategy that has been used to overcome this problem in some jurisdictions is to have joint inspections between customs officers and officers from the mines department who are more familiar with mining equipment. This, however, involves duplication, uses valuable and often scarce resources, and is therefore inefficient. An alternative strategy involving selected customs officers being specifically trained to identify mining equipment carries a higher risk of disputes arising, especially as the types of minerals being extracted expands and the related technology to process them can vary widely. This approach therefore requires continuous training and updating of skills.

If the level and constancy of customs work on mining warrants it, a more efficient and effective strategy is to recruit a person with mining skills (such as a mining engineer) as a customs officer. This person could then form the nucleus of a team that builds capacity in this sector within the agency as needed.

Value-added tax (VAT) is another generally applicable tax for which the mining industry is commonly treated differently under either the mining or tax legislation. In an industry like mining, where the majority of the output is exported to world markets, it is usual practice to zero-rate exports for VAT (Mullins, 2010; GOXI, 2010).

As a result, in many jurisdictions mining companies are commonly rebated VAT paid on their inputs when their products are exported. In practice, they pay VAT in common with all other taxpayers at the time of purchase and are then reimbursed by the government.

This process can cause administrative issues for governments that lack the necessary skills to administer it effectively. Also, in many instances cash flow problems are created for governments and consequently, in some cases, reimbursement of VAT to companies may be delayed. To ensure that funds are available for reimbursement, good practice requires that an adequate proportion of the VAT collected should be deposited into a special account where it is held available for reimbursement when needed.

Box 5.2: Reimbursement of value-added tax

Inputs into the resource industry are subject to a value-added tax (VAT) in most countries, but their outputs are primarily exported and accordingly attract zero VAT. Consequently reimbursements are commonly payable to mining companies, and these can cause significant cash flow difficulties in developing countries. Companies often complained in the past of long delays in receiving reimbursements.

To ameliorate these difficulties, Burkina Faso* and Mali* now deposit VAT receipts from mining companies directly into accounts held with the Banque Centrale des Etats de L'Afrique de L'Ouest (BCEAO). This ensures that funds are available when required for reimbursement. Upon presentation of the appropriate certification from the Directorate General of Taxation to the BCEAO, the amount to be reimbursed is transferred directly by the BCEAO to the creditor's bank account.

It is now a legal requirement in Burkina Faso for reimbursement to be paid within two months of lodgement of a valid claim. As of June 2012, reimbursements were being processed in less than 25 days.

(*Reference: Presentations by Mali and Burkina Faso delegations to World Bank Workshop on Improving Mining Tax Administration Frameworks in West Africa, Accra, Ghana, September 2012)

Institutional and Administrative Capacity

The foregoing chapters have outlined the policy, legislative, and procedural aspects that must be considered when setting up a mineral revenue administration system. What has been described so far can provide the framework, but the administration system, regardless of the revenue stream being collected, is only as good as the people and facilities that support it. A well-designed fiscal regime that is poorly implemented may fall far short of its tax-raising potential (GOXI, 2010). Thus, if the system is to be successful, then the necessary human and physical resources need to be provided.

Calder (2010b) separated the institutional issues associated with mineral tax administration into those regarding the organization per se and those regarding the administrative capacity. Through this division, he discussed some alternatives for alleviating the issues that arise within the taxation system by focusing on issues of a structural nature, which are usually more difficult to alter, and issues of a resourcing nature, which can in many instances be tackled more easily, if the necessary financial support is made available.

This chapter complements Calder's work through a further discussion of some of the relevant issues to consider in the context of the regulation and administration of the mining industry in general, and specifically of mining tax administration.

6.1 Institutional Structure

The manner in which mining taxation is collected and distributed at the national, regional, and local levels varies considerably across different countries.

At one extreme, in countries where the process of levying mining royalties and taxes is centralized, the redistribution of the related revenues to the benefit of regional communities is achieved through the government budgetary process. This is often the case in developing countries, particularly in Africa. Advocates for this fiscal approach contend that central government has not only greater institutional capacity but also has the advantage of smoothing the cyclicity of mining revenues, by virtue of having more diversified revenue bases relative to lower levels of government. Advocates also argue that centralization of revenue collection and redistribution through budgetary processes facilitates macroeconomic planning, especially in countries that are highly dependent on mineral revenues. Some, however, argue that in many cases this approach has not resulted in a fair distribution of mineral royalties and taxes back to the regions that experienced the direct impact of mining operations. This has sometimes been the source of discontent in the regional communities and has created political pressure resulting in the current trend towards decentralization (ICMM, 2009).

At the other extreme are countries where mining revenue collection is decentralized to different levels of government. In a federation, the separation of roles and responsibilities between central and state governments is generally enshrined in the constitution. For example, corporate income tax may be a federal government responsibility, while land-related issues, including mining regulation and administration, may be the responsibility of, and legislated by, state or provincial governments. The jurisdiction in which the mineral rights are vested tends to be the predominant factor in determining which level of government collects mineral royalties. This is a form of compromise, as financial resources are redistributed to broadly defined regions rather than the individual communities directly affected by mining, which would in general not have the administrative capacity to effectively and efficiently collect revenue. There are examples of both successful and unsuccessful decentralized systems.

Legislation must be very clear in defining the respective powers of central and state governments with respect to raising revenue from the mining industry. Ideally, processes should also be explicit as to how such revenues are to be redistributed after collection, to avoid major differences in the standards of living of different states of a federation, depending on whether they are mineral-rich or not.

For simplicity, and as is the practice in many African nations on account of the importance of the mining sector, the remainder of this discussion will assume that all fiscal matters in relation to mining are dealt with at the national level.

Institutional structure is ultimately a choice for governments to make. Calder (2010b) focuses his discussion of the organizational issues on four areas:

- Should a centralized or dispersed administration system be used?
- What level of cooperation is required between agencies?
- What organizational structure should exist within the tax agency?
- Should a separate non-civil service agency be used for resource tax administration?

As a general principle, no matter how the tax administration system is structured, clear accountability is needed for the different functions allocated to specific ministries and agencies, in such a way that potential overlaps of responsibility do not arise or are minimal. Ideally, for example, there should be clear separation between government agencies that are responsible for general administration and regulation of the mining industry (potentially within the mines ministry) and agencies responsible for the collection of mineral revenue (most commonly within the finance ministry).

Box 6.1: Redistribution of mining taxation revenues versus decentralized collection systems and related boundary issues

The method of redistribution of and the beneficiaries of mining tax revenues vary widely.

In most African countries, collections is at the national level, and redistribution to the provincial and local level of government occurs through budgetary processes—sometimes through the establishment of Mineral Development Funds (MDF) to which a set percentage of revenue is credited, as for instance in Ghana, Namibia, and South Africa. Redistribution through a budgetary process must ensure not only horizontal fiscal equity (i.e., that the benefits from mining taxation lift the standard of living throughout the nation) but also compensation to the community directly affected by the mining project.

(Box continues on next page)

Box 6.1 (continued)

In some jurisdictions, royalty collections are centralized but redistribution of a set percentage to lower level of government and/or communities is enshrined in legislation (e.g., 20 percent for communities in Papua New Guinea and Mozambique and 40 percent in the Philippines). The redistributed amount in the Philippines is redirected to the provinces (20 percent), municipalities (45 percent), and villages (barangays) affected by mining (35 percent). Peru has a similar system, which includes a 5 percent payment to the national universities in the region where the mine is located.

In China and Indonesia, revenue collection takes place at both the central and the provincial/regional level. The Chinese central government collects royalties, while the provinces collect a mineral resources compensation fee, 50 percent of which they remit to central government. Indonesia splits 20 percent of royalties to central government and 80 percent to the regions, of which 64 percent goes to the regencies and 16 percent to provincial government.

The constitution of many nations (e.g., Argentina and Brazil), particularly federations (e.g., Australia, Canada, and the United States) vests ownership of the minerals in the province/state in which they occur. The provinces/states generally collect and retain mineral royalties at different rates, while the central/federal government collects and generally redistributes corporate income tax. As an example, Australia has eight separate state/territory governments, each with an upper and lower house that draft and enact legislation to regulate, among other things, the mining industry and the collection of mineral royalties. The federal government traditionally has primary responsibility for corporate income tax and a Petroleum Resource Rent Tax (PRRT) on off-shore operations beyond the territorial waters of the states.

Both centralized and decentralized systems have their pluses and minuses. Communities affected by mining in a centralized system generally complain that an insufficient percentage of royalties is redistributed to them and clamor for the right to levy and retain some form of royalty directly, even though they may not have adequate administrative institutions to do so. Strengthening sub-national administrative institutions is a key prerequisite to ensure an acceptable degree of accountability and probity in the collection and dispersion of mining tax revenues.

Problems also arise in decentralized systems. As an example, recently the Australian federal government legislated to levy a Mineral Resource Rent Tax (MRRT) on iron ore and coal and to extend the PRRT to on-shore petroleum production. The states resisted these encroachments and defended their taxing powers to levy mineral royalties on these commodities. To avoid double taxation, the federal government was forced to refund to companies the amount of royalty paid to the states, thus exposing the integrity of their budget to possible increases in royalty rates by the states. On the other side of the coin, following the recent boom in commodity prices, royalty collections for iron ore and coal have sky-rocketed but their benefits will not be fully enjoyed by the mineral-rich states. Increased royalties are offset by the redistribution of the Good and Services Tax (GST) collected in each state by the federal horizontal fiscal equalization policy (Grant Commission Process), which attempts to maintain comparable standards of living in non-mineral-rich states. As a consequence, in 2011–2012, Western Australia received only 45 cents for each dollar of GST collected in the state.

A typical allocation of the functional responsibilities and duties associated with the mining industry looks like this:

- **Ministry of Mines**
 - Mining policy (e.g., tenement allocation policy and exploration incentive policy)
 - Analysis of mine feasibility studies submitted with mining permit applications
 - Liaison with the mining industry
 - Geological mapping and provision of geoscientific data (typically by a Geological Survey)

- Mines administration functions (typically provided by a Mines Department), including:
 - monitoring of exploration reports (including relevant exploration expenditure)
 - mine production monitoring, recording, and long-term forecasting
 - verification of product grade and price
 - market monitoring and collection of industry statistics, assistance with annual budget, forecasting
- **Ministry of Finance**
 - Fiscal policy
 - Budget and finance functions (typically within the treasury department)
 - Revenue assessment and collection functions (typically tax or state revenue office)
 - Duties and excise functions (typically by a customs department)

Clearly a variety of possible structural arrangements across the ministries are involved with the mining industry, and one of the greatest threats to successful mining tax administration is a “silo” culture within government, whereby an agency sees its role as critical in isolation from that of others in the system. It is most important that within the key agencies a culture of information and knowledge sharing exists, since effective mineral revenue administration requires a combination of all the necessary skill sets. Calder (2010b) notes that the minerals sector presents a challenge to administrative capacity, especially in developing countries where many of the routine functions associated with tax administration are frequently not supported by adequate skills and resources.

Consistent with this view, participants in the Mining Tax Administration Workshop held in Ghana (see Appendix C) agreed that a key factor for efficient mineral tax administration included, among other things, “institutional cooperation and coordination and information sharing between the ministries of finance and mining.” Based on “the conditions and realities of countries,” options for achieving this coordination range from sharing resources between existing departments in charge of finance and minerals to setting up committees, task forces, units, or agencies that bring together a group of “mining-sector practitioners” with a diverse set of skills to provide the following services and advice:

- A center of knowledge and expertise about the mining industry, especially its economic and financial aspects.
- A source of specialist mining advice to revenue collecting agencies.
- A reliable and consistent set of data for formulating national budgets and reporting.
- A group that could monitor industry trends and developments and make forecasts.
- A group that could undertake financial modeling to inform fiscal policy decisions related to mining, and to cross-check revenues received from mining companies.
- A group for monitoring the financial performance of mining companies in which the government has an equity holding, and for monitoring related dividends.

- A source of training, development, and career advancement for staff in relevant agencies.
- A group with the capacity to inform or lead negotiations of mining agreements and to monitor overall compliance by a company with the terms of its agreement.
- A pool of staff with skills in finance and mining that could be shared between agencies.

Additionally, this group could provide a pool of legal expertise with the capacity to interpret current legislation, issue rulings, and draft accurate and effective new pieces of legislation, as well as legal expertise in dispute resolution and litigation.

While a collaborative culture is being developed, formalized arrangements are desirable to facilitate interdepartmental cooperation on critical elements of the fiscal regime. For example, physical audits and knowledge of mineral products and markets generally require technical skills that often reside in the ministry of mines, whereas financial audit and knowledge of financial instruments clearly require skills found in the ministry of finance. Collaboration between officers from the mines and customs departments to jointly undertake customs inspections associated with “mining lists” already exists in many jurisdictions. This collaboration is simply an acknowledgment of the need for mining industry knowledge in the identification of mining-related equipment, and that such knowledge is available in a mines department.

Having a more formalized Intergovernmental Task Force/Committee might be desirable to deal with issues such as these:

- Negotiation of stability agreements.
- Monitoring of company performance under stability agreements.
- Joint policy development on mineral valuation for royalties, including policies on not-at-arm’s-length sales, hedging, gold loans, and transfer prices.
- Company reporting requirements.

This approach would help to further develop a culture of sharing between agencies and reduce the vulnerability of any individual agency to a loss of skilled staff.

Box 6.2: Structural options for a task force

Several variants of the task force concept already exist or have been proposed:

- Members of the task force remain within their home agencies and meet periodically to resolve cross-agency issues, as happens with the Ghana Revenue Task Force.¹ This model is essentially a mechanism to coordinate activities between the various institutions such as the Minerals Commission; Ministries of Mines, of Finance, and of Lands; and the Bank of Ghana. Its purpose is to identify the various revenue streams and ensure that the mining companies pay what is required of them.
- As proposed by A.B. Traore², members might constitute a “Center of Expertise” for the mining sector,³ with a mission to:
 - Receive, centralize, and treat data from directorates
 - Analyze monitoring reports

(Box continues on next page)

Box 6.2 (continued)

- Analyze declarations and supporting attached documents
- Draft orientation notes and proposals to the attention of directorates charged with the administration of the sector
- Such a Center would be established by special statute so that it could offer incentive-based salaries to attract and retain appropriately skilled officers. In this model, the task force does not have a front-line role with the mining companies. The Center would have high-level staff assigned to it, with a range of skills including:
 - Mining engineer/geological engineer
 - Economist
 - Financial analyst
 - Company lawyer
 - Computer database manager
- Members constitute a stand-alone task force with a front-line role, such as the Tanzania Minerals Audit Agency.⁴ The TMAA is a semi-autonomous institution established by statute to monitor and audit mining operations and financial and tax records of mining entities, and to ensure that sound environmental management is taking place in all mining areas.

¹ As described by Edward Gyamerah in his presentation to the Mining Tax Administration Workshop in Ghana, September 2012.

² Ibid.

³ As suggested by A.B. Traore in his presentation “Management of taxes on the revenue of mining companies,” presented to the Mining Tax Administration Workshop in Ghana, September 2012.

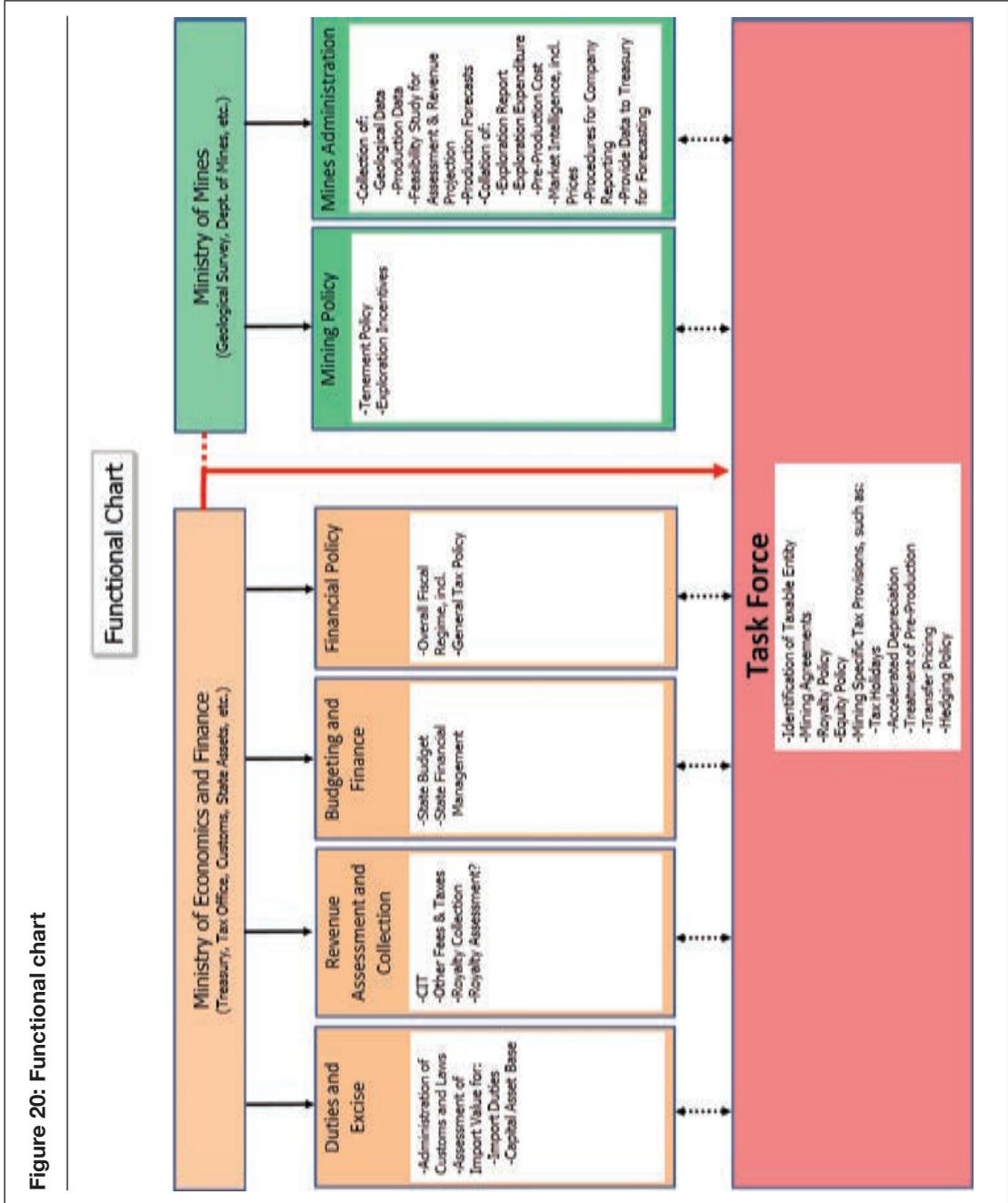
⁴ V.B. Mwashe, TMAA presentation to the Mining Tax Administration Workshop in Ghana, September 2012.

In 2009, Tanzania established a semi-autonomous Tanzania Minerals Audit Agency (TMAA).¹ The TMAA “is mandated to monitor and audit mining operations, financial and tax records of mining entities, and ensure sound environmental management in all mining areas for large, medium and small scale miners.”² It performs physical audits at mine operations, which include collecting samples for analysis at the TMAA laboratory to check the quality and the quantity of minerals being exported. It has, under a rotating system, one full-time auditor in every large scale mine. However, being semi-autonomous, it faces challenges in the “overlapping roles and mandates between government institutions/regulators.”³

The South African Revenue Service (SARS) has a sophisticated risk-based audit and compliance activity that prioritizes risks at both the class or sector level and the specific taxpayer level. This involves intelligence gathering (external data from third parties), analysis of historic tax returns (looking for anomalies), and assessing compliance risk behavior.⁴ The frequency and extent of audit, and hence the allocation of resources, are varied accordingly.

Even if such a formalized task force is not adopted, there is merit in having within key agencies that deal with mining a specialist group composed of people who have not only the skills but also the networks and culture to link with other relevant officers in other agencies. Within the Ministry of Economics and Finance in Burkina Faso, for example, institutional capacity in the Tax Department is being increased by the creation of a unit dedicated to auditing companies in the mining sector.⁵

Figure 20 shows the typical distribution of functional responsibilities between ministries, and illustrates how a task force would relate to the overall allocation of



responsibilities. Given the importance of mining revenue in all relevant jurisdictions, it would seem logical for this group, or task force, to fall under the leadership of the Ministry of Finance, with linkages back to the functional groups in the individual agencies responsible for taxation, mining administration, customs administration, and so on.

The structural model chosen by government for implementation of the task force concept will depend on the pre-existing level of inter-agency collaboration, the capacity (in both skills and numbers of staff) that exists currently, the desire to drive cultural change within the administration of that particular jurisdiction, and other factors discussed below.

As Calder (2010b) has pointed out, however, “the primary issue is the need for a more centralized and coordinated approach, as well as a step change in transparency and professionalism, whether this occurs within an existing civil service structure or not.”

While it is desirable for the responsibilities for policy formulation, implementation, and administration to reside in the same institution, most likely the Ministry of Finance, there are cases where this is not the practice. Such a separation arises from the need to take into account in fiscal policy formulation a range of technical factors and skills which are normally found in the Ministry for Mines. An adequate level of both types of skills is generally not found in a single department, and inter-departmental cooperation is critical to success.

The skill sets required for policy formulation and system administration are different but complementary. Calder (2010a) notes that policy formulation should take administrative complexity into account. A policy created in ignorance of the administrative issues that might arise in its implementation is unlikely to yield an optimal outcome. This is particularly relevant where capacity constraints are likely—that is, skilled people to administer the fiscal policy regime are in short supply.

It is considered good practice to have the actual revenue collection solely the responsibility of the Treasury, or a similar agency within the Finance Ministry. This, however, is not the case in all jurisdictions. Given the complexity of royalty calculation in some situations, particularly where lengthy value chains are involved in reaching the first at-arm’s-length sale, a particular knowledge of mineral processing technology and/or logistics may be required. Where such knowledge is in short supply within government, it would be sensible to draw on the resources of the Mines Department. Furthermore, the Mines Department is normally the source of knowledge for government on industry trends, performance, and cost data globally, which places it in a position to give advice on reasonable production costs on an industry-wide scale. In this way, it can provide a valuable resource to the tax collection authority.

The extent to which a clear separation of responsibilities can be achieved will depend on the scale of the industry and the government resources available for management of the industry, particularly the availability of appropriate skill sets across government.

The risks in having all functions associated with revenue collection undertaken by one group should be considered and managed. Calder (2010b) states that the main theoretical advantage to a dispersed system that spreads the administration across multiple agencies is that “if no one office controls the whole tax procedure, it reduces the risk of serious error and collusion.” As a result, in a centralized system, integrity control and transparency measures will be important, as will the use of independent audits. On the other hand, having a specialist group may allow remuneration in excess of normal

civil-service average salaries, in order to recognize skills in high demand (which itself facilitates avoidance of corruption). It could also be a group that will facilitate the collection and reporting of data for independent audits such as the Extractive Industries Transparency Initiative (EITI).

A fundamental requirement for an efficient and effective mining tax regime is the availability and exchange of information between relevant government agencies. This calls for institutional arrangements within government that ensure:

- Responsibility for collection of necessary data sets from companies (and from the industry more broadly) is allocated to the most appropriate agency and that unnecessary duplication is avoided.
- All agencies are aware of the data sets held by and available from others.
- The data sets are harmonized and the terms used by one agency mean the same thing in another (e.g., is a “year” financial or annual, are mine production weights quoted dry or wet, and so on).

As a general rule, it will become obvious that the fewer the agencies involved, the simpler this will be. For example, efficiencies will be created from having exploration and mining related data (including pre-production expenditure) collected and recorded centrally within a Mines Department, and from there made available to relevant government agencies. The matters associated with support and IT systems are expanded on further in section 6.3.

6.2 Human Resources: Attraction, Development, and Retention

In many countries, a relatively small number of companies contribute a major proportion of the government’s revenue coming from mining activities. Consequently, specialized or centralized administrative units need not be large to deal with a generally small customer base. The most important thing is to focus on quality, not quantity of staff.

The key issue is usually whether an appropriate number of professional staff, especially those with auditing skills, is available to the responsible agency. However, fragmentation of mining revenue administration across several agencies carrying out similar or duplicated functions has the effect of reducing the number of professionals who can be effectively applied to the necessary tasks.

Calder (2010b) notes that, since a number of factors influence the resource tax administration system, there is no simple guide to the number of staff required. Among other factors, the number of officers will depend on:

- Size of the sector
- Number of companies
- Complexity of the royalty system to be administered
- Complexity of administrative procedures
- Extent to which procedures are automated

The allocation of available staff should reflect an agency’s compliance objectives and strategy. Revenue administrations can rarely afford or secure enough resources to tackle all risks, and therefore have to be selective in terms of risk management strategy.

Their starting point, however, should be the need to effectively manage the risks presented by the largest companies that account for the majority of government revenue. The allocation of staff to royalty administration, for example, should be based on a detailed assessment of the staff required for effective implementation of compliance (mainly audit) and taxpayer service plans. The numbers of professional staff required may be quite small in absolute terms, but staff with appropriate qualifications and skills are often scarce and in demand.

Most countries in attendance at the Mining Tax Administration Workshop held in Ghana emphasized the challenges in dealing with highly experienced company staff on complex matters. They felt they were at a distinct disadvantage in the more complex areas such as royalty administration, and hence favored simplified rules that exclude complex valuation issues such as forward contract sales and other hedging arrangements.

Since the effectiveness of any administration system ultimately depends upon the resources that support it, all agencies that have significant involvement with the mining industry should put in place a staff attraction, development, and retention strategy. To begin with, each agency should determine:

- The roles required for key officers to efficiently and effectively carry out the agency's mandate in relation to the mining industry.
- A formal job description for each role that shows responsibility and reporting lines.
- The essential and desirable skills required to undertake such roles.
- The people with the necessary skills currently available within the agency.
- A skills acquisition and retention program that includes succession planning.

If such a skills inventory is done in a coordinated way across all the relevant agencies, it will help identify the existing capability and the areas of greatest need across government and will assist in developing people with knowledge of mining, finance, and the applicable legislation. Since people with this breadth of knowledge are rare, especially within government agencies, it is essential to train them, use them effectively, retain them, and plan for their succession. These issues are expanded on in the following sections.

6.2.1 Training

Calder (2010b) states that "training for resource tax auditors and managers needs to provide a thorough grounding in resource industry operations and accounting, in national resource tax legislation and the issues it presents, in audit powers and techniques, and in the use of any IT available to support audit activity." To effectively match the expertise (both technical and financial) available in mining companies, senior officers responsible for administering the collection of revenues from the mining industry need a sound understanding of what drives value in that industry. As a result, they require knowledge of mining, finance, and the relevant mining tax legislation. By training these people in the area of mineral finance, for example, they will become equipped with a basic knowledge of the industry, the trade-offs between capital and operating costs, and how cash flows are projected in a mining project feasibility study. This will provide a sound foundation for understanding the logic behind different methods for levying royalties, for example, and the important data that must be collected to adequately assess and audit royalty returns.

Box 6.3: Minimizing corruption in tax administration

Corrupt practices in the administration of mineral revenues can result in a significant reduction in funds available for government, through either the siphoning off revenues received or the under-collection of revenues being facilitated and/or sanctioned by persons receiving inducements. There are three ways of minimizing such risks.

Reduce opportunities for corrupt behavior going undetected by:

- Minimizing the discretion of ministers and officers. Set out rules, procedures, and definitions clearly and unambiguously in legislation or in manuals.
- Making decisions on any remaining discretionary matters transparent, with a statutory requirement for the minister or officer to give reasons for their decisions.
- Having a non-tax-assessment agency (often Treasury) do forecast estimates of mining revenues expected to be received on, say, a half-yearly basis and seeking explanations for differences with actual revenues received.
- Having tax-assessment officers (if there is not a self-assessment regime in place) separate from tax collection officers (often attached to Treasury).
- Having IT systems in which production data and payment data are capable of being interrogated by more than one officer or departmental section.
- Having payments made electronically.
- Having independent internal and/or external auditors undertake random audit checks.

Reduce incentives for corrupt behavior by:

- Employing key government officers with pay and conditions that recognize the importance of their role, and encourage a sense of pride in doing “public service.”
- Seeking to reduce the gap between the salary key officers can earn in government versus industry, thus reducing the incentive for such officers to actively seek out employment in industry or to accept inducements.

Ensure there are significant penalties for breaches of ethics by:

- Having an explicit Code of Ethics that applies to officers dealing with the resources industry, setting out what is expected and what is unacceptable behaviour.
- Having an enforcement regime that imposes significant, timely, and evident penalties for behavior that breaches the Code.

Emphasis should be given to identifying the key roles (such as high value/high risk functions) in each agency where up-skilling is required. These skills can be acquired through focused training courses, including practical components that not only provide a theoretical base but also show how that theory can be applied. Ideally, these officers will come from those currently employed within the revenue agencies, as they must also have a deep knowledge of the relevant legislation and procedures. Accredited training providers should be sought, preferably those who can create standardized courses that deliver consistent information, knowledge, and skills to groups of trainees over time.

It is important that the content and quality of the training courses matches the seniority and experience of officers undertaking it, as well as the future roles that they may be likely to fill in the administration system. At the more senior levels, customized training should be considered, including the opportunity to travel abroad to acquire further formal educational qualifications and to visit mining administrators in other jurisdictions.

While training can be relatively expensive initially, and perhaps disruptive to work flow in the short term, a well-structured training program returns dividends in the long

run. Trained senior officers will be in a position to provide guidance and training to others within their agency, and to establish a culture of excellence in administration.

6.2.2 Effective utilization of personnel

The combination of skills in mining, finance, and tax legislation will make these officers a valuable but still relatively scarce asset within government. As a result, efforts should be made to use their skills productively across government. Because these skill sets are not easily developed, there may be merit in pooling such officers by bringing them together as a task force, as suggested in 6.1 above, rather than having them scattered too thinly throughout the various government agencies. Appointment to the task force may be by rotation over defined periods during which officers enhance their skills, afterward going back to their original departments and disseminating what they have learned.

Collaboration between those with policy and administrative skill sets would also assist in the formulation of well-informed changes and amendments to policy. This task force could monitor the performance of current policy settings, comparing forecast revenues against actual and making informed recommendations for improvements to either processes or policies. This task force could also forecast the likely impact of proposed changes to the policies, providing an understanding of the effects prior to an implementation decision being made.

One area where caution should be exercised is in the choice of government representatives to serve on boards of mining companies in which the state has an equity interest (typically 10 percent to 20 percent and often free-carried). Appointing government officers from either the mines or finance ministries who have some familiarity with the mining industry to these positions may seem appropriate. However, when these officers have an industry regulatory role, their selection sets up a potential conflict of interest between their responsibility to the company (as a board member) and their responsibility to the state (as a civil servant). Such conflicts are highly undesirable and should be avoided where possible.

6.2.3 Staff retention

Another issue faced by mining tax administration systems is retaining skilled people within government. As officers become more highly skilled, they also become highly valued and may be attracted away from their government posts for more lucrative positions within industry. As a result, government should be prepared to pay such people a premium—for example, a skills bonus. Overall, given the small numbers of officers involved, the cost will be low relative to the income generated from the function.

Calder (2010b) discusses the issue of remuneration for people skilled in the mining administration area. He notes that in many instances it is difficult for government to pay these people appropriately because of the hierarchical remuneration systems that exist within government agencies. Also, he notes that increased remuneration alone may not always have the effect of motivating people to perform according to set targets and objectives. Instead, a shift in culture is also required to facilitate management by objectives.

In the agencies of some countries, a lack of motivation and the absence of a “management by objectives” culture were noted to be a contributing factor to under-performance.⁶ Having people on staff with acknowledged expertise in the field will also assist with communication between government and industry, alleviating the potential for the mining industry to feel that the government does not understand

their situation. Furthermore, many officers may find it attractive to be able to move from one job to another across government agencies as a career development path, and this may be facilitated by having a more formalized structure for dealing with the mining industry.

6.2.4 Succession planning

Eventually, highly skilled people will move on to other roles, either within government or external to it. As a result, succession planning must be considered when developing the human resource aspects of the mining tax administration system.

Development of procedures manuals that describe the main aspects of royalty administration and the mining-specific aspects of income tax administration should be a priority. While the intimate knowledge of the mining industry and experience in dealing with it may be lost for a period of time when key officers resign, having up-to-date manuals that clearly and exhaustively describe the processes will reduce the training time required for replacement when a suitable replacement is identified.

Ideally, personnel with the aptitude to move into mining-revenue administration roles will be identified early, through routine staff development protocols, and thus given the opportunity to “understudy” experienced officers, ensuring a constant development of these highly sought-after skills.

6.3 Support Systems and IT Resources

At the center of any good administration system is a system for recording and tabulating the data required for the collection, verification, and administration of information to support the mineral revenue collection system. Calder (2010b) notes that, while in theory IT is not essential for resource tax administration, in practice it helps in all sorts of ways, and has thus become necessary to the systems. The database that sits in the middle of the administration system is normally supported by the use of IT systems, and should include at least the following data:

- Project details, reference to relevant mining tenements, actual mine production, assay details, long-term revenue forecasts (based on project feasibility study data initially), company performance, and market prices (typically collected by the mines ministry).
- Periodic royalty payments, physical sales, periodic company taxation payments and verification, customs verification, and audit results and reconciliation of outstanding payments (typically by the finance ministry).
- Templates for royalty return, income tax returns, and production returns.

6.3.1 Storage and maintenance of information

Secure storage and maintenance of information that is collected are important for the administration of any industry. Accurate and comprehensive information that is readily available when required is central to reviewing corporate income tax returns for compliance purposes, as well as for making sound decisions for the future. A comprehensive and integrated information system is even more important when dealing with the mining industry, where royalties are also paid, on account of the wide range of government agencies with which companies are in contact and to which they submit data. The system used to store data should: (1) be robust, (2) provide the necessary security of

confidential information, (3) be accessible to all those authorized to use it, and (4) host reliable and up-to-date information.

- **Robust system.** The information storage system put in place for the purpose of housing data received from the mining industry should be based on a reliable IT platform and an infrastructure that is available to all relevant agencies. Ideally, this IT system would host all information (such as mineral tenements, production data, corporate income taxes, and royalties) that is collected by various agencies from mining companies. Use of off-the-shelf databases and other data manipulation software should be standardized across relevant agencies to facilitate both software maintenance and, more importantly, information sharing.

Reliability is a challenge in locations that suffer from power fluctuations and outages. A reliable Uninterruptible Power Supply (UPS) system is essential to ensure that data are secure and protected against loss. Scheduled daily back-ups are absolutely essential. Ideally, this back-up will be stored off-site wherever possible.

Finally, business continuity planning is fundamental to a robust, 24/7 data system. This planning must account for both short-term situations like power outages, as well as those from long-term occurrences like floods and fires.

- **Security of information.** A significant amount of company information held by government will be commercial-in-confidence and must be protected from deliberate or inadvertent access by outside parties. Consequently, the administration system, and in particular the database, must be structured in such a way that data can be partitioned as between open access and confidential data sets. As a result, government will have the ability to restrict access to confidential information to authorized personnel only.
- **Centrally accessible to facilitate electronic lodgement.** The information storage system should be based on an IT platform that is available to all relevant agencies. Ideally, this IT system will host all information (e.g., production data, corporate income taxes, royalties) that is collected by various agencies from mining companies. However, this makes the need for robust business continuity planning all the more critical.

Ideally, companies should be able to file their tax and royalty returns directly on-line in a format that allows, following checks by the automated system and a government representative, easy uploading into the database. This process will alleviate the requirement for data to be re-entered manually by a government employee, not only reducing the potential for error, but also freeing scarce resources that can be used for performing other duties.

The IT system needs to be accessible to government agencies that require information at different times and at different levels of aggregation. It should also facilitate the preparation of reports required for the Extractive Industries Transparency Initiative (EITI). As a result, it should be based on one of these models:

- Centralized data warehousing of distributed systems residing in various agencies, each having ownership and clear responsibility for the maintenance of their relevant databases according to centrally established and enforced protocols, which should foster a culture of information sharing.

- Owned, housed, and maintained in a central location by a single agency responsible for the provision of information services to various user agencies. This is the preferred format if infrastructure exists to support reliable access by the various government agencies that require it.

Under the second arrangement, various data sets may still be collected at individual agencies, but may be uploaded immediately or in frequent regular batches to the centralized system. After upload, these data sets become the responsibility of the agency specifically charged with and resourced for the task of making the relevant information available to groups responsible for assessing, collecting, and auditing either corporate income tax or royalty payments. For example, the documentation collected by the agencies responsible for the collection of periodic royalty returns and those responsible for collecting production data to monitor operations can be used to validate the revenues submitted on a corporate income tax return. Through a centralized system, this information would be available to legitimate users on-line when and as required, and does not need to be requested, which would take time, and complicate the administration process.

- **Reliable, up-to-date information.** The IT system that is implemented needs to ensure that the information it houses is accurate, up-to-date, and secure so it can be relied upon by government. This is an important aspect to its implementation, as poor data can result in confusion, undesirable disputes between companies and government agencies and, ultimately, the system consequently falling into disuse.

To ensure the accuracy of the data, the system should be maintained by a dedicated team, with access provided to users from all agencies based on their information needs. Mining companies' access should be limited to the capacity to submit tax and/or royalty returns on-line, and to historical data relating to their previous tax and other returns. The centralized database should also be the source of general publically available statistical information about the mining industry in the country for use by any interested party.

An accompanying procedures manual should be developed outlining the quality assurance and quality control steps required before batch-processing of information into the system, and should specifically outline the official hierarchy of access to the system. Through this practice of eliminating poor data entries, the reliability of the data within the system will progressively improve.

6.4 Implementation of Initiatives

Having identified possible gaps between current actual practice and the principles of good administrative practice in regard to mining tax administration, as discussed in this sourcebook, the challenge is then to implement the necessary changes. This change process needs to be driven at senior levels if it is to be effective. For example, an inter-ministerial group (including or reporting to the minister of finance and minister for mines) might be established to jointly review and make recommendations for improvement in regard to:

- The adequacy of legislation governing the mining tax regime in all its aspects, to ensure that it accurately reflects government's objectives and provides adequate and clear powers and guidance for effective administration and enforcement.

- The robustness and flexibility of legislation and contractual (stability) agreements to deal with changing and uncertain circumstances as they emerge over the life of a mine.
- The institutional structures and arrangements in place for administration of the mining tax regime, to ensure there is appropriate and adequate separation of responsibilities.
- The adequacy of arrangements to ensure that administrative capacity and practicalities are taken into account in mining tax policy formulation and legislative drafting.
- Ensuring that the level of sophistication and complexity of the legislation do not exceed the administrative capacity of the agencies that must enforce it
- The adequacy of current inter-departmental collaboration and methods for fostering a culture of improved collaboration and information sharing.
- The adequacy and appropriateness of formal industry liaison arrangements.

There is also an opportunity to establish an inter-departmental working group at the director general level to review, assess, make recommendations for improvement, and draft policies to better address issues with regard to:

- The adequacy and consistency of the definition of terms, processes, and procedures set out in legislation; regulations; guidelines; and so on.
- The treatment of domestic and cross-border not-at-arm's length sales, related issues of benchmark and transfer pricing, indirect corporate and technical service charges from related companies, provision of debt funding by foreign related companies, hedging, and gold loans.
- The adequacy of human resources in terms of both numbers and necessary skills in agencies responsible for administration of the mining tax regime overall.
- The adequacy of staff attraction, development, and retention programs within agencies and across government as a whole, including prioritizing key areas in the administration system requiring capacity building.
- The adequacy and efficiency of information/data collection, processing, storage, and sharing across government as a whole.
- The need for harmonization across government of data definitions in regard to the mining industry and the fiscal regime relating to it.
- The adequacy of plans for business continuity and for information security.

This list of topics for joint consideration is not exhaustive. Rather, it is meant to be illustrative of the types of issues that need to be dealt with, and at what level within government. Obviously, not all subjects have the same priority, nor do they all need to be dealt with simultaneously.

The priority and urgency of any given issue will vary from jurisdiction to jurisdiction. However, what is important is that improvement be driven from the top in a structured manner, and that accountability and reporting arrangements are clearly established from the outset. Equally important is the need for all relevant agencies to collaborate in delivering improved outcomes. This requires the nominated participants to participate actively in joint studies, bringing their particular perspectives to bear while remaining willing to listen to and understand the positions of other parties.

Accordingly, it is recommended that priorities initially be determined at the ministerial level, and that a program of work be established with formal reporting on progress back to ministers at regular intervals. A realistic but challenging timeframe for completion of reviews and so forth needs to be established at the outset to ensure momentum is not lost. Likewise, for issues of a more procedural nature, an Interdepartmental Committee of Directors General may choose to delegate the actual work to other senior agency representatives, but with clear terms of reference and reporting guidelines and deadlines. The Task Force recommended in 6.1 above would be an appropriate group to undertake this work.

If such a structured approach is adopted, government can be confident of making significant and continuous improvements to its mining tax administration and collection framework.

6.5 Industry Liaison

Mining is playing an increasingly important role in the development of many African countries and has the potential to contribute to the economic and human development of these countries. Mining companies also generally recognize that they need local support to maintain the so-called “community license to operate.” A healthy relationship between mining companies and government is desirable from the perspective of both sides, as it helps to maintain public support and, in the longer term, the government revenue and economic development benefits that flow from mining.

When government is considering new or varied policies and procedures to regulate mining, consultation with the industry is advisable to ensure government has the opportunity to explain the need for, and the reasoning behind, proposed policy and/or legislative changes that may affect project development and investment attraction. Regular liaison between government and industry also ensures that the views of industry are taken into account. In so doing, healthy relationships are maintained and the country therefore continues to be seen as an attractive investment location.

Box 6.4: Consultation with industry

It is good practice for governments to consult with the resources industry when formulating policy and procedures in regard to mining taxation. This should occur first, as part of the policy formulation process and second, as part of the process of setting up administrative procedures for implementing the tax policy.

Discussions at the policy level allow government to understand what responses by industry to proposed policies (or policy changes) are likely in terms of future levels of investment, or the effects that the proposed fiscal regime may have on the way projects would be financed in response to it. Such consultation is particularly important in situations where a lot of new investment in the country is under consideration and investors need to factor possible policy changes into their project planning. A “no surprises” approach also avoids the development of perceptions of so-called “sovereign risk.”

Once a policy is established, consultation needs to occur regarding the implementation of administrative procedures. This provides an opportunity for clear understanding to be established between industry and government about what information companies will need to provide, the form of that information, the frequency of reporting, and time limits on reporting and tax payments, as well as dispute resolution procedures and sanctions for non-performance. This allows companies to set up internal systems that will provide the required information on a routine basis.

Industry representatives at the Mining Tax Administration Workshop held in Ghana in September 2012 emphasized the general inadequacy or lack of consultation on changes to mining fiscal regimes as a major obstacle to investment in West Africa, given the long-lived nature of investments in mining projects. They pointed out that the perception of country risk arising from sudden changes in government policy and taxation levels can have very deleterious effects on the investment attractiveness of a country.

The need for more open dialogue with industry prior to the announcement of policy changes was generally recognized by the government representatives at the workshop, who indicated their willingness to undertake appropriate and effective consultation/communication initiatives in the future.

Consultation will need to occur through formal meetings both with industry associations (e.g., Chambers of Mines) and with individual companies. As a general rule, broad policy matters are best discussed with the industry as a whole in the first instance, so there can be no perception that some companies are receiving more-favored treatment from government.

Whether or not an industry association has been established, it is good practice for government to establish a formal industry liaison committee, which should meet regularly, with broad industry representation and key government agency support. In such a forum, revenue-collecting agencies can highlight areas of general concern (if any) with industry's reporting, alert industry to any procedural changes being contemplated, and get industry feedback on legislative changes to taxation arrangements—all with a broad aim of creating "no surprises." Similarly, industry can raise issues that it may have and present alternative constructive criticisms and suggestions to the government representatives in a cooperative spirit.

Notes

¹ V.B. Mwase, TMAA presentation, Mining Tax Administration Workshop in Ghana (Appendix C).

² Ibid.

³ Ibid.

⁴ Chris du Plessis, SARS presentation, "A South African Perspective," Mining Tax Administration Workshop in Ghana (Appendix C).

⁵ P.P. Nikiema, D.G. des Impôts, Burkina Faso, presentation at the Mining Tax Administration Workshop in Ghana (Appendix C).

⁶ A.B. Traore presentation, "Public Administrations: Institutional Capacity and Coordination of Activities," at the Mining Tax Administration Workshop in Ghana (Appendix C).

Self-Assessment for Mining Tax Administration Systems

For countries wishing to make a first-pass assessment of the effectiveness and efficiency of their own mining tax administration systems, the following tools have been provided in this sourcebook:

- **Appendix A** is a qualitative self-assessment exercise based on recognized principles of good administrative practices. The evaluation can be undertaken either at the individual agency level or across the entire mining tax administrative apparatus of the country.
- **Appendix B** is a theme-specific questionnaire examining the main sources of government revenue, as well as the systems and resources to collect them from the mining industry. The questionnaire of Appendix B has four main components covering:
 - Mineral royalty regime
 - Corporate income tax and other taxes specific to mining
 - Data handling and reporting
 - Administrative responsibilities

Appendix A contains a total of 48 statements ordered under 9 groups of fundamental principles of good administrative practice. It is designed to allow self-assessment of the degree to which the actual administrative practices in the country conform with the desirable features of an effective and efficient mining taxation regime. The table allows the level of conformity with each desirable feature to be scored on a scale of 1 to 5, where 1 represents a very low level and 5 a very high one.

While the questionnaire in Appendix B was first developed to collect relevant information ahead of field reviews of the current tax collection and administration systems of selected West African countries, it lends itself to broader geographical application. It is intended that this sourcebook will be complemented by appropriate training material and used to conduct future tax administration reviews and workshops in developing countries. The questionnaire in Appendix B will be administered ahead of such initiatives, for the systematic and comprehensive collection of information relating to each aspect of the administrative regime relevant to the main mining revenue streams.

The questionnaire was designed to allow for the fact that tax policy and administration regimes vary from country to country; consequently, not all questions are relevant to all individual jurisdictions.

By considering how to answer each question, respondents will be prompted to identify and record any potential problems in need of resolution to improve the efficacy of their regimes. To the extent that the questionnaire addresses different aspects of mining revenue collection, it will need to be compiled by officers with relevant expertise from different agencies. Such collaboration may help identify gaps and inconsistencies in the understanding of aspects of the applicable regime among various agencies that need to be resolved at an inter-agency level.

The current questionnaire was improved based on the experience gained in administering it in its initial format in three West African countries. It is intended that further improvements will be progressively introduced in the questionnaire's content and structure, and the way it is administered, as it will be deployed to other countries in the future.

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APPENDIX A

Features of an Effective and Efficient Mining Taxation Regime (Self-Assessment)

DESIRABLE FEATURE	SCORE					
	1	2	3	4	5	N/A
To what extent does your regime have this feature? (1 = very low; 5 = very high)						
<i>Clarity of policies, powers, and procedures</i>						
Clear legislation provides unambiguous taxing powers, consistent with government policy						
Well-defined rules, methods of calculation, and administrative procedures are set out clearly in regulations, for example, for:						
Valuation of the bases on which royalties and/or other taxes are levied						
Identification of legitimately deductible expenses for the determination of the royalty value basis and taxable income						
Capital recovery mechanisms (depreciation and amortization)						
Clear rules govern the exercise of legislative discretion by ministers or agencies						
Minimal opportunities exist for tax avoidance and technical disputes						
Good consultative procedures between policy and administration agencies ensure that policy development takes administration and compliance issues into account.						

Stability and predictability						
Policies are stable over time, allowing businesses to invest with confidence						
Procedures are stable over time, allowing businesses to develop standardized reporting systems						
Good consultative procedures between businesses and government, at the ministerial and agency levels, allow proposed changes to policy or procedures to be foreshadowed and discussed so there are “no surprises”						
Contractual stability agreements, where used, balance stability with the need for flexibility to adjust to changing circumstances over time if necessary or desirable						
Equity and uniformity						
Policies and procedures apply, as far as possible, across all businesses in similar circumstances within the same industry sector						
Coherent and harmonized procedures exist for administration of different government revenues						
Transparency						
Policies and procedures are openly available, easily accessed, and understandable by the taxpayer and other stakeholders						
Contractual stability agreements, where used, are accessible publicly						
Systems are based on readily verifiable parameters such as LME prices, widely used indices, and the like						
Adequate and regular auditing of company financial statements is undertaken by suitably experienced, independent, and certified auditors						
Random (but planned) audits of self-assessed tax returns are performed						
“Sunset” provisions exist on the confidentiality of company data						
Timely and accurate reporting of government revenues, supported by efficient systems for providing the necessary data						
Adequate and regular auditing of government receipts against industry payments (EITI)						
Adequate and regular reporting of revenue administration performance against appropriate measurable performance indicators						
Effective internal and external audit of administration accounts and performance						
National mining companies are limited to a commercial role and subject to fiscal regulation in the same way as other commercial companies						

Enforcement						
Adequate statutory powers so that administrative requirements can be enforced effectively						
Clear, proportionate, and progressive penalties for non-compliance, including appropriate penalties for tax understatements, and interest chargeable on all tax paid late for any reason attributable to the taxpayer						
Effective application of audit and enforcement powers in practice						
Clearly defined, timely, equitable, and effective dispute resolution procedures						
Minimal need for ministerial or agency discretion						
Efficiency						
Administrative agencies have function-based organizational structures						
Administrative systems avoid duplication of function and minimise the cost to government of effective regulation and the cost to industry of compliance						
Taxation policies and systems balance economic efficiency with the capacity of government agencies to administer them and the capacity of businesses to comply with them						
A self-assessment regime, subject to rigorous enforcement and effective risk-based audit						
Effective information sharing between relevant government agencies in the mines and finance ministries to minimize duplication of data collection						
Well-structured data collection, storage, and transfer systems						
Adequately skilled and resourced administration						
Administrative agencies are adequately funded, resourced, and skilled to undertake the task assigned to them						
Appropriate industry-based specialization						
Effective recruitment, retention, and succession plans in place						
Ongoing and progressive skills development training for staff						
Appropriate and flexible use of external resources to allow affective administration while in-house capacity is being developed and/or to deal cost-effectively with peak load periods						
Adequate and appropriate information technology (hardware and software) to support administrative functions and allow easy generation of both standard and custom reports, and data sharing between agencies						

Appropriate agency-focused risk management systems						
Effective anti-fraud measures are in place						
Effective anti-corruption measures are in place						
No conflict exists between the roles government officers have as regulators and any other role they may have in relation to the industry or a company						
Measures are in place to ensure appropriate confidentiality of company information is maintained, if required by law or contract						
Regular archiving and secure storage of documents and data						
Business continuity plans in place for both short-term (e.g., power failures) and long-term interruptions						
Appropriate taxpayer-focused risk management systems						
Effective approaches to encourage and support compliance by businesses						
Strategy and organization are tailored to different levels of compliance risks presented by different taxpayer segments						
Processes are effective to identify, analyze, and rank compliance risks, at both issue and taxpayer levels, and treat the risks on a prioritized basis						
A flexible suite of compliance products can be tailored to deal with causes of non-compliance						

Sample Questionnaire for Gathering Revenue-Collection Data

(Improving Mining Tax Administration Frameworks in West Africa)

The immediate aim of this questionnaire is to identify and collect relevant information on the policies, laws, and processes directed toward collecting revenue from the mining sector currently in force in a country as a preliminary to reviewing them, with the long-term goal to use this information to build capacity and better systems. These data are to be collected by government officers from relevant ministries and departments (e.g., finance and mines) directly involved with mining taxation policy and administration for either their internal review processes or as a basis for reviews to be conducted by external consultants on their behalf.

This questionnaire seeks to help identify the relevant mining taxation statutes, the agencies responsible for their enforcement, the physical and human resources available to these agencies, and the connections between them. In some cases, legislation is specific to the mining sector, while in other areas of revenue collection, the mining sector is simply a part of the broad company sector. This questionnaire covers all revenue areas across government. An agency or person should complete only the sections about which they have a working understanding. Please indicate the appropriate legislation wherever possible, and provide a link to the relevant electronic version if one exists.

As the questionnaire is in the form of an Excel file, the fields provided for comments and providing reference to legislation can be extended as necessary to accommodate the length of the responses. Lengthy printed responses can also be attached (if provided, please identify them as "Attached" in the relevant comment/reference box).

1. Mineral Royalty Regime

This section seeks details on mineral royalties policy, administration, and collection processes. It covers current policies, legislation, and collection methods.

It also covers the level of human resources used in collection and solicits views on whether the resources are sufficient. There are separate sections for the different types of royalty systems (Sections 5 to 7), but only those actually used in a country or for specific minerals should be completed.

2. Corporate Income Tax and Other Tax Provisions Specific to Mining

This section focuses on elements of taxation legislation (other than mineral-royalties-related legislation) that are specific to the taxation of the mining industry and differentiate it from other taxpayers.

While the bulk of possible differentiation will probably be found in statutes ruling the levying of corporate income tax, many provisions specific to the mining industry will also be found dispersed in other pieces of legislation dealing with, for instance, custom and excises, indirect taxes, licensing, local government taxes, and so on. Contrary to royalty administration and collection, these revenue collection functions and processes are unlikely to be individually structured into the relevant department charged with them. They are more likely to be integrated with other related functions not exclusive to the mining industry. It is important to clearly understand the discrete roles of the various agencies.

3. Data Handling and Reporting

This section is devoted to identifying how relevant information is received, processed, and stored. It also identifies the reports regarding mining revenues that are produced and their frequency, degree of transparency, and distribution.

4. Responsibilities and Resources

This section is devoted to mapping the ministries, agencies, and positions that are responsible for policies and administration processes relating to mining taxation legislation. It also identifies the resources that are available and/or needed for policy formulation and administration of mining-taxation related legislation, in terms of people, skill sets, and information processing systems. It seeks to identify skill shortages and training requirements.

1. MINERAL ROYALTY REGIME

Country:

Agency compiled by:

Name of person completing sheet:

Role in agency:

E-mail:

	QUESTIONS	YES	NO	COMMENTS	REFERENCE TO LEGISLATION AND OTHER POLICY/PROCEDURE DOCUMENTS
1.1					
1.1.1	Does the state own all minerals? If yes, at what point does ownership transfer to the mining company?				
1.1.2	What laws set out mining royalty provisions?				
1.1.3	Can a mining title be cancelled by government if a company does not pay royalty?				
1.1.4	Can a company defer royalty payments under specific circumstances? If so, is interest applied?				
1.1.5	Do royalty statutes include any provisions for review of the royalty arrangements?				
1.1.6	Are there formal consultative mechanisms to make such reviews predictable by industry?				
1.1.7	Are any minerals exempt from royalties? If yes, please list.				
1.1.8	Are there any mineral producers who do not have to pay royalties? If so, which?				
1.1.9	Please attach a table of current royalty rates.				
1.1.10	Do different royalty rates apply to different levels of mineral processing? (e.g., ores, concentrates, metals, etc.) If yes, please provide reference.				

1.1.11	Are royalties levied at tenement, project, or aggregated company level?			
1.1.12	Is this level of aggregation carefully defined?			
1.1.13	Are different royalty regimes applied to the same mineral group depending on project size? If yes, please explain.			
1.1.14	Are there legislative provisions allowing waiving of the requirement to pay royalties? If yes, what are the specific conditions that need to be met and how is approval given?			
1.1.15	Are there specific royalty incentives/reductions for new projects? If yes, please describe.			
1.1.16	Are royalty rates negotiable? If yes, under what circumstances? Are there guidelines for negotiation?			
1.1.17	Do different royalty types/rates apply to different regions or districts? If yes, please list the differences and explain the rationale.			
1.1.18	Are there clear guidelines for the valuation of minerals for royalty purposes? Please explain.			
1.1.19	Which of the following royalty systems are in use, if any: : Payment based on volume or weight of the mineral. Payment as a percentage of value. Payment as a percentage of profit. Please describe any other type of royalty system used			
1.1.20	Is royalty due assessed by the department or self-assessed by the company?			
1.1.21	If self-assessed, are clear and easily obtainable forms/templates for royalty return submissions available?			
1.1.22	How often must companies submit royalty returns—monthly, quarterly, or annually?			
1.1.23	Must the royalty return be accompanied by actual payment? If yes, what forms of payment are acceptable?			

	QUESTIONS	YES	NO	COMMENTS	REFERENCE TO LEGISLATION AND OTHER POLICY/PROCEDURE DOCUMENTS
1.1.24	How are royalty payments processed and receipts issued? How is that information shared between government agencies?				
1.1.25	How frequently and where is royalty revenue banked?				
1.1.26	Are any provisional payments made with adjustments at a later date?				
1.1.27	When do royalty returns need to be submitted and is there a penalty for being late?				
1.1.28	Are returns to be accompanied by relevant supporting documentation?				
1.1.29	In what currency are royalty payments made? If mineral sales are in other currencies, are exchange rate details provided?				
1.1.30	Do you specify the details that companies must store for future auditing?				
1.1.31	Are royalty returns audited and, if so, by whom and when?				
1.1.32	Do audits include annual or quarterly reconciliation of sales volumes/weights/grades that are reported to government in royalty returns with those actually mined?				
1.1.33	Is mineral production compared with the mine plan approved by government?				
1.1.34	Are legal powers provided for to ensure access to company records for royalty audit purposes?				
1.1.35	Do audits include a price check against market prices?				
1.1.36	Do audits include verification of the value of metal contained in non-arm's-length transactions?				
1.1.37	Are there penalties for companies that make a wrong royalty payment? If yes, what penalties apply and can the company amend the amount payable at a later date without penalty?				

1.1.38	Are there mechanisms in place to resolve royalty disputes? If yes, what are they, and does the ministry or department issue binding rulings?				
1.1.39	How much ministerial and departmental discretion is allowed when dealing with and resolving administrative royalty issues and disputes?				
1.1.40	In the case of disputes, is legal advice obtained? If yes, internally or independently?				

2. CORPORATE INCOME TAX AND OTHER TAX PROVISIONS SPECIFIC TO MINING

Country:

Agency compiled by:

Name of person completing sheet:

Role in agency:

E-mail:

		YES	NO	COMMENTS	REFERENCE TO LEGISLATION AND OTHER POLICY/PROCEDURE DOCUMENTS
2.1	QUESTIONS-Corporate Income Tax provisions specific to mining				
	Assessment of mining taxable income				
2.1.1	What is the company taxation rate used?				
2.1.2	Is taxable income self-assessed on an accrual basis in local currency?				
2.1.3	Does income tax legislation include any provisions or incentives specific to mining? If yes, what legislation are these embodied in?				
2.1.4	Does the tax legislation differentiate mining taxpayers according to their taxable income? If yes, please provide the basis for classification.				
2.1.5	Are any mining projects exempt from corporate income tax? If yes, please explain.				

	QUESTIONS-Corporate Income Tax provisions specific to mining	YES	NO	COMMENTS	REFERENCE TO LEGISLATION AND OTHER POLICY/PROCEDURE DOCUMENTS
2.1.6	Do reduced income tax rates apply in the early years of a mining development/operation? If yes, please describe.				
2.1.7	Does an income tax holiday apply in the early years of a mining development/operation? If yes, please describe.				
2.1.8	Are mineral royalty payments an allowable deduction in determining taxable income for the purpose of assessing corporate income tax?				
2.1.9	Does your country tax capital gains on the disposal of mining assets?				
2.1.10	Is the capital gain realized on the sale of an exploration or mining project taxable?				
2.1.11	What documentation must the mining industry keep and/or submit to substantiate its recurrent operating expenses?				
2.1.12	Are capital expenditures incurred on a mining asset handled differently from that relating to "normal," non-mining assets used by all other industries? If yes, what criteria are used to differentiate mining assets from normal assets?				
2.1.13	How are capital asset values determined for the purpose of being written off or depreciated, and what documentation must the mining industry keep/submit to substantiate these values?				
2.1.14	Does the value of imported assets include import duties, if applicable?				
2.1.15	If the assets were already owned by the taxpayer, would their written-down value or market value apply?				
2.1.16	Does the taxing authority publish schedules of recommended effective lives for various capital asset categories? If no, how are depreciation rates proposed by industry validated?				

2.1.17	Does immediate writing-off and/or accelerated depreciation of the following mining-related capital expenditures apply?				
	Exploration and prospecting expenditure				
	Environmental preventive and remediation expenditure				
	Development/mining items of capital expenditure				
	Plant and equipment capital assets, whether specific to mining or of a more common nature				
	Infrastructural capital assets				
	Transportation capital assets				
2.1.18	Does your country have a resource depletion allowance?				
2.1.19	Is there an obligation for foreign mining companies to register a local subsidiary? If yes, is this entity required to be a joint venture with a domestic entity?				
2.1.20	Do different taxation conditions apply to foreign companies as opposed to their locally registered subsidiaries?				
2.1.21	Is your country a signatory of tax treaties? If yes, do any of your mining companies originate from these countries?				
2.1.22	Do your tax laws allow profits and losses realized on individual projects to be transferred and/or consolidated between related companies?				
2.1.23	What items of overhead and indirect expenditure are allowed as deductions in the determination of taxable income?				
2.1.24	Are these deductions limited to expenditure incurred in the country? (e.g., corporate functions relevant to mining projects but performed by a related foreign entity, like the provision of specialized technology or expertise)				
2.1.25	Are realized hedging gains and losses included in the calculation of taxable income?				

	QUESTIONS-Corporate Income Tax provisions specific to mining	YES	NO	COMMENTS	REFERENCE TO LEGISLATION AND OTHER POLICY/PROCEDURE DOCUMENTS
2.1.26	Are there limitations on the level of borrowing to fund a project, whether from domestic or foreign lenders?				
2.1.27	How frequently is income tax assessed and paid—monthly, quarterly, or annually?				
2.1.28	Are income tax payments in arrears at the end of the period, or in advance, based on a provisional assessment?				
2.1.29	How long after the end of a period must a tax installment be paid?				
2.1.30	Does a penalty apply to payment delays? If yes, please describe the penalty.				
2.1.31	When do annual tax reconciliations take place?				
2.1.32	Does a penalty apply if the cumulative installment payments fall short of the annual assessment of tax liability following reconciliation? If yes, please describe the penalties.				
2.1.33	How much ministerial and/or departmental discretion exists to deal with clarification of administrative issues?				
2.1.34	Are there mechanisms to resolve income tax disputes? If yes, what mechanisms are in place and does the ministry or department issue binding rulings?				
2.1.35	How much ministerial and departmental discretion is permitted when dealing with and resolving administrative income tax issues and disputes?				
2.1.36	In the case of disputes, is legal advice obtained? If yes, internally or independently?				

2.2	Other taxes including mining-specific provisions				
2.2.1	Excluding royalty and corporate income tax payments, what other taxes and charges apply to mineral projects? Please briefly describe how they are applied and which government departments administer them.				
2.2.2	Is mining exempt from property, capital, or stamp duty (transaction) taxes?				
2.2.3	Is mining exempt from sales and excise taxes?				
2.2.4	Is mining exempt from import duty on the value of imported mining plant, equipment and consumables? If yes, is there a written-down list of exempt items?				
2.2.5	Is export duty levied on the value of mineral and other exports?				
2.2.6	Is a value-added tax (VAT) levied and subsequently refunded on exports? How long is the delay between payment and refund?				
2.2.7	Are tenement registration/rent/usage fees set to recover administrative costs, or are they a net revenue raising measure?				
2.2.8	Is stamp duty (tax) applicable to the sale of exploration and/or mining projects? If yes, please describe how it is applied.				

3. DATA COLLECTION, HANDLING, STORAGE, AND REPORTING

Country:

Agency compiled by:

Name of person completing sheet:

Role in agency:

E-mail:

	QUESTIONS	YES	NO	COMMENTS	REFERENCE TO LEGISLATION AND OTHER POLICY/PROCEDURE DOCUMENTS
3.1	Mining industry information services				
3.1.1	Is mining conducted under common mining codes or under project-specific state agreements?				
3.1.2	Where is industry most likely to go for advice on mining process and procedures (permits, royalty, tax rates, etc.)?				
3.1.3	Are documents detailing this information available from government agencies? If yes, how are they made available—on paper or web-based)?				
3.1.4	Which agencies provide customer information, advice, and assistance?				
3.1.5	Do formalized channels exist for industry consultation? If yes, what are they?				
3.1.6	Is there a legislative requirement for information to be provided in the official language of the country?				
3.1.7	What proportion of staff in each relevant agency have a computer available to them, and what is their general level of computer literacy?				
3.1.8	What is the skill level and experience of key people in each agency responsible for maintaining electronic data-processing equipment?				
3.1.9	How extensively available is Internet access in each administrative department?				

3.1.10	To what degree is the Internet used in data collection, online payments, and client communications?			
3.1.11	How rigorous is the filing of electronic records and mail, and are they backed up by hard copies?			
3.1.12	Is the data speed (bandwidth) available adequate for current and foreseeable departmental use?			
3.1.13	Are paper-based forms archived on a planned basis? If yes, how frequently?			
3.1.14	How systematic and effective is the hard-copy filing system, and how easy is it to retrieve information?			
3.1.15	Is the paper-based archive secure (from fire, theft, etc.)?			
3.1.16	For how many years are paper records held?			
3.1.17	Does existing legislation require companies to keep adequate records relating to the mining taxation? If yes, what is the legislation, and for how long do the records have to be retained by the company?			
3.1.18	How often is computer data backed-up—hourly, daily, weekly?			
3.1.19	Is access to the data system hierarchical and secured by means of passwords, encryption, firewalls, etc.?			
3.1.20	Are data backed-up off-site (in another location from the main system)?			
3.1.21	What facilities are available for back-up, storage, and long-term security of electronic data?			
3.1.22	If a major disaster occurred (major fire, earthquake, etc.) that severely damaged the buildings in which administration of mining revenue normally takes place, could operations continue from another location? If yes, please describe the emergency plan.			
3.1.23	How reliable is the power supply to maintain 24/7 operation of digital processing equipment?			

	QUESTIONS	YES	NO	COMMENTS	REFERENCE TO LEGISLATION AND OTHER POLICY/PROCEDURE DOCUMENTS
3.2	How are the following data received (electronically, paper forms, or both) and how are they stored (computer data base or paper forms)?				
3.2.1	Physical production data (volumes, tonnes of mineral produced)				
3.2.2	Mineral valuation data—and what is the source of those data (invoices, LME prices, other sources of information?)				
3.2.3	Royalty returns				
3.2.4	Corporate tax returns				
3.3	How are the following payments made (by cash, cheque, electronic transfer)?				
3.3.1	Royalty payments				
3.3.2	Taxation payments				
3.3.3	Dividend payments				
3.3.4	Share dividends				
3.4	How easily can the data be manipulated to prepare management reports and what software is used to prepare them?				
3.4.1	Mine production				
3.4.2	Royalty payments				
3.4.3	Tax payments				
3.4.4	Share dividend payments				

4. RESPONSIBILITIES AND RESOURCES FOR THE ADMINISTRATION OF MINING-RELATED LEGISLATION

Country:

Agency compiled by:

Name of person completing sheet:

Role in agency:

E-mail:

		YES	NO	Level and agency of person responsible	Educational level and experience required of the person responsible	What financial and/or computer skills are required, and can they be readily recruited In-country?	What training is provided in-house?
4.1	Please complete the 4 columns for each of the following roles						
4.1.1	Determining whether a mining project proceeds under a mining code or an agreement, and setting the criteria used in making this decision						
4.1.2	Administering mining projects under common mining codes						
	Pre-mining approval						
4.1.3	Negotiating any state agreement provisions						
4.1.4	Authorizing the execution of the state agreement						
4.1.5	Signing the agreement on behalf of the state						
4.1.6	Ensuring that any required free-share capital has been issued to the state						

	QUESTIONS	YES	NO	Level and agency of person responsible	Educational level and experience required of the person responsible	What financial and/or computer skills are required, and can they be readily recruited in-country?	What training is provided in-house?
	Operational phase						
4.1.7	Receiving and recording the production data (volume/weight of output) from the mining operation						
4.1.8	Receiving and recording the mineral value data						
4.1.9	Calculating the royalty payable						
4.1.10	Receiving and recording royalty payments						
4.1.11	Receiving and recording company tax data						
4.1.12	Receiving and recording company tax payments						
4.1.13	Receiving and recording company dividend payments						
	Verification of and/or auditing of compliance with						
4.1.14	Mining/exploitation permit conditions under the mining codes (including any requirement to make royalty and other payments on time)						
4.1.15	Provisions of mining state agreements						
4.1.16	Company mineral production and valuation data						
4.1.17	Royalty payments and royalty accounting arrangements						
4.1.18	Company revenue, expenditure, and profit statements						
4.1.19	Company tax payments						

4.1.20	Appropriateness of company dividend decisions and their consistency with relevant legislation							
4.1.21	Company dividend payments							
4.1.22	Free-share ownership being maintained at required level of total issued capital							
4.1.23	The degree of reconciliation between the data/amounts actually remitted to government and those declared in company financial statements							
4.1.24	Banking revenue payments from royalty, tax, and share dividends							
4.1.25	Appropriateness of declared profit, particularly regarding non-at-arm's-length transactions with related entities, and of the transfer pricing and stated distributed costs methodology used							
4.1.26	Are all these functions subject to auditing by the Government Auditor General?							
4.1.27	Are any of the above functions the subject of external audits?							
4.2	Organizational Charts							
4.2.1	Please provide organizational charts showing where in the government the policy, administration, and collection functions are carried out with regard to mining industry taxation.							
4.2.2	Please provide organizational charts for each relevant agency showing where, at divisional and branch levels, the various functions listed above are located							
4.2.3	Are all positions filled? If no, please explain why not—lack of skill availability in the market, uncompetitive salary scales, etc.?							

5. SPECIFIC ROYALTY (Specific-rate royalties are rates applied to volume or weight, such as tonnes or ounces.)

Country:

Agency compiled by:

Name of person completing sheet:

Role in agency:

E-mail:

	QUESTIONS	YES	NO	COMMENTS	REFERENCE TO LEGISLATION AND OTHER POLICY/PROCEDURE DOCUMENTS
5.1	Specific royalty				
5.5.1	Do the statutes/regulations explicitly state how to measure volumes and weights? If yes, please provide the reference.				
5.5.2	How are the volumes or weights on which the royalty is based measured and verified? What evidence of measurement/verification must be provided by companies?				
5.5.3	Are the royalty rates defined in relevant laws or legislation? If yes, how and in which statute(s) are the applicable rates defined?				
5.5.4	Are the royalty rates per unit of volume or weight irrespective of the amount produced (e.g., \$0.50 per tonne)? If no, what progressive scales are used?				
5.5.5	Are there provisions in legislation/statutes for periodical review and indexing of the rates to counteract inflation and/or commodity price movements?				

6. VALUE-BASED ROYALTY (Value-based (ad valorem) rates are applied to a measure of the value of the mineral product extracted/sold.)

Country:

Agency compiled by:

Name of person completing sheet:

Role in agency:

E-mail:

	QUESTIONS	YES	NO	COMMENTS	REFERENCE TO LEGISLATION AND OTHER POLICY/PROCEDURE DOCUMENTS
6.1	Value-based royalty				
6.6.1	Describe the valuation point for measuring value, eg., gross value, export port, ex-mine for net smelter return				
6.6.2	Do royalty rates vary with the degree of mineral processing?				
6.6.3	Are gains and losses on hedging part of the realized value to which the royalty rate is applied?				
6.6.4	What costs can be deducted in estimating the royalty value?				
6.6.5	What method is used to estimate value if the sales are not made at a commercial price?				
6.6.6	If reference prices are used, does the legislation specify which? (e.g., London Metal Exchange closing daily price)				
6.6.7	What analytical evidence of metal content must be provided by the company? Is this audited?				
6.6.8	What currencies can royalty payments be reported in and in what currencies can they be paid?				

7. PROFIT-BASED ROYALTY (Profit-based rates are rates applied to a measure of the profit generated by a mining project.)

Country:

Agency compiled by:

Name of person completing sheet:

Role in agency:

E-mail:

	QUESTIONS	YES	NO	COMMENTS	REFERENCE TO LEGISLATION AND OTHER POLICY/PROCEDURE DOCUMENTS
7.1	Profit-based royalty				
7.7.1	How is the profit defined on which the royalty is based?				
7.7.2	Is this measure of profit the same as that used for the purpose of levying corporate income tax? Describe any differences.				
7.7.3	Is the system cash based? If no, is it based on accruals or on some other basis?				
7.7.4	Is profit assessed at project or aggregated company level?				
7.7.5	Are profits and losses derived from hedging included in the calculation of a profit royalty?				
7.7.6	Are carry-forward losses included in the profit base for the royalty calculation? If yes, how are they handled and does interest apply to amounts carried forward.				
7.7.7	What was the basis for choosing the current profit-based royalty rates?				
7.7.8	What is the rate/what are rates applied to the profit?				
7.7.9	What parts of the royalty assessment process have caused disputes to date?				

Summary of the September 13–14, 2012, Tax-Administration Workshop in Ghana

A Mining Tax Administration Workshop held in Accra, Ghana, on September 13–14, 2012, was attended by representatives from various governments (Burkina Faso, Cote d'Ivoire, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Sierra Leone and Togo); civil society organizations; and the mining industry. Representatives of the Tanzanian Mineral Audit Agency and the South African Revenue Authority also attended.

The objective of the workshop was to propose a knowledge product intended to address the constraints and challenges in effective mining tax administration in West Africa.

Following discussion, the workshop participants agreed that the following factors are key for efficient mineral tax administration:

- Forward-looking fiscal and stability policies with appropriate flexibility and triggers to equitably manage the sector during low and high commodity cycles.
- Systems and processes in place to effectively address oil, gas, and mining tax payments administration. The general tax system may not be sufficient for the extractive sectors.
- Institutional cooperation, coordination, and information sharing between the ministries of finance and mines. Such coordination could be fostered by creating a culture of cross fertilization and sharing between existing departments in charge of finance and minerals including setting up committees, task forces, units, agencies, and other groups as appropriate, given the conditions and realities of individual countries.
- Strengthening technical capacity in finance and accounting for the extractive industries so that people working in these areas can better understand the information they receive, manage risks, forecast budget contributions from the sector, and foster compliance with established mineral policies.

Participants considered the workshop a good learning experience that addressed issues pertinent to improving mineral tax administration in West Africa.

The World Bank was invited to facilitate further platforms for sharing information and giving greater exposure to best practices in mining tax administration.

How to Improve Mining Tax Administration and Collection Frameworks: A Sourcebook will be used to support the workshop and will be expanded to incorporate information and feedback generated by the workshop, then published and made available to the participants and other interested parties in other developing countries. This published sourcebook represents the basis for future training and workshops on the subject to be conducted in Central, Eastern, and southern Africa, together with other interested development partners and the African Tax Administration Forum (ATAF).

Glossary of Terms and Acronyms

Above zero profit The profit threshold above which the royalty calculation switches from ad valorem to profit-based in a hybrid royalty system that is designed to provide minimum royalty payments at times of low profits.

Ad valorem royalty See *value-based royalty*.

Amortization The process of writing off, or accounting for, the decrease in value of an item, generally recognized as depreciation for intangible assets.

ATO Australian Tax Office.

Capital recovery rules Rules that govern the methods firms can employ to recover their capital investments through tax savings. See *depreciation* and *amortization*.

CET The Centre for Exploration Targeting, an unincorporated joint venture between the University of Western Australia, Curtin University, and the mining industry.

CIF Cost, insurance, and freight.

CIT Corporate income tax.

Conflict of interest Occurs when a company executive, or an organization in which he or she has a vested interest, stands to be personally or corporately affected—whether advantaged or disadvantaged—as a result of making a particular decision in his or her executive capacity.

Cut-off grade A mineral grade resulting in a unit value of ore equal to the marginal unit cost of mining it, thus defining the limits of the mineable reserves. The size of an economically exploitable ore body.

Depreciation The process of writing off, or accounting for, the decrease in value of a tangible asset in a company's books (notionally due to age or condition).

Dividend(s) The portion of the profit of a company that is distributed to shareholders based on the number of shares held by the shareholder. A company is under no obligation to pay a dividend, and its board may decide not to declare a dividend if it believes the funds should be used for other purposes, e.g., debt reduction. Dividends may be paid at different intervals depending on laws in the various jurisdictions (annually, semi-annually, or quarterly).

DMP The Department of Mines and Petroleum of the State of Western Australia.

Economic efficiency A royalty or tax is “economically efficient” if the same exploration and mining activities that would have taken place if the tax were not in place still take place if the tax is introduced. In effect, an economically efficient tax does not distort investment decisions in terms of resource allocation and is therefore “neutral.”

Economic rent The cash surplus obtained by deducting from revenue all costs of production including a “normal” rate of profit sufficient to attract and retain funds in a project.

Economic rent-based royalty/tax An impost derived by applying a percentage rate to the economic rent generated by a project.

Equitable, horizontal In economic terms, a tax is said to be “horizontally equitable” if taxpayers who generate the same amount of economic rent pay the same amount of tax.

Equitable, vertical In economic terms, a tax is said to be “vertically equitable” if taxpayers who generate different amounts of rent pay an amount of taxes proportional to them.

Equity *Equity* in financial terms (often called “shareholder equity”) refers to the capital in a company owned by shareholders.

Ex-mine value Value of the mineral in the form of broken ore at the point of extraction. It represents the theoretical base for mineral royalties as compensation to the owner of the minerals in the ground for the depletion of their non-renewable resources. See *mine head value* and *point of extraction*.

Extractive Industries Transparency Initiative (EITI) A global initiative promoted by a multi-stakeholder group of governments, companies, and civil society organizations to promote transparency in the revenue flows to governments arising from a country’s extractive industries. Rules and methodologies have been established by which a country can become compliant with the EITI framework.

FOB Freight on board.

Free-carried interest An allocation of shares in a company (particularly to a government) for which no payment is required.

Garnaut Clunies-Ross tax See *economic-rent-based royalty/tax*, *resource-rent tax* and *MRRT*.

High-grading The practice of maintaining profit margins in response to the imposition of economically inefficient taxes by applying a higher cut-off grade to the mining operations, and thus reducing mine reserves.

Hybrid royalty Generally a combination of a profit-based royalty and a minimum ad valorem royalty to ensure that some revenue is received in years of low project profitability.

Installments See *provisional royalty/tax payments*.

LTBR Long-term bond rate.

Mine-site value The value of a mineral product at the mine site or gate. It may be different from the ex-mine value in that some value may have been added to the crude broken ore by crushing and screening, or even by some beneficiation or processing, but not by transport. See *mine gate value*.

Mineral product Saleable mineral forms generated by progressive stages of downstream processing of the crude ore to crushed and screened ore and intermediate products such as concentrate, all the way down to refined metal.

Mineral royalty Compensation to the owner of the minerals in the ground for the depletion of their non-renewable mineral resources by mining. Under this philosophy, the value of the resource should be established as close as possible to the point of extraction. Some see royalty as just another instrument for government to appropriate a share of the economic rent generated by mining.

MRRT Mineral Resource Rent Tax. A form of economic-rent-based tax applying to iron ore and coal in Australia. See *resource rent tax*.

Net back, netting back A technique commonly used to derive the value of a mineral at various points along the downstream value-adding processing chain by deducting from the price realized in the first at-arm's-length sale of the mineral product all the cost incurred downstream of the valuation point to process it to the form in which it was sold.

Net cash flow The cash a company has available after all outflows are paid, including operating costs, debt payments, tax, capital expenditures, and dividends (if any are declared). It is also sometimes referred to as "free cash flow."

Normal profit rate A rate of profit sufficient to attract and retain funds in a project, taking into account its risk. *Normal profit* is often referred to as the opportunity cost of capital or the time- and risk-adjusted discount rate.

NSR Net smelter return. It is the value of the mineral in its refined metallic form at the mine gate, i.e., net of all smelting and refining charges and of all costs incurred to transport the mineral from the mine to the smelter.

NSV Net smelter value. It is the value of the mineral in its refined metallic form, net of all smelting and refining charges at the smelter.

OECD Organisation for Economic Co-operation and Development.

Power of determination Ministerial discretionary power embodied in legislation that empowers ministers to determine the value base for royalties and/or other imposts in the absence of a price that is determined in or derivable from a contestable market for the mineral product.

Profit-based royalty A royalty amount derived as a percentage of the profit generated by a project. This measure of profit is generally computed in a manner different from the accepted measures of financial accounting profit.

Provisional royalty/tax payments Periodic (e.g., quarterly or monthly) royalty or CIT payments are occasionally effected without the benefit of fully finalized measures of revenue and/or profit for the period covered by the payment. As a result, these payments are subject to later annual reconciliation when relevant, accurate information, including final audited accounts, becomes available.

PSC Production sharing contracts. These cover many forms of product or profit sharing practiced primarily in the petroleum industry. PSCs are rare in mining and have proven complex and ineffective in the few instances where they have been applied.

Regulations Subordinate legislation providing administrative procedures for policy implementation (e.g., royalty) that is enshrined in senior legislation. Amendments of regulations generally require less stringent and complex parliamentary processes.

Resource rent tax See *economic rent-based royalty/tax* and *MRRT*.

Ring-fencing Clear definition of a project or entity liable for the payment of royalties and/or other taxes to identify its relevant items of revenue and expenditure.

Royalty deferral Provisions in royalty regulations that allow deferral of a royalty payment that is due in the case of a project demonstrating temporary cash flow hardship.

Royalty rate The percentage of royalty to be levied on either a royalty value or profit/rent base.

Royalty return The process by which companies declare the amount or value of mineral sold over a period (e.g., quarterly or monthly) and self-assess the related royalty payable. Returns are generally accompanied by actual payment.

Royalty unit base The measure of volume or weight on which a specific amount of royalty is levied.

Royalty value base The value realized or deemed to be realized on the sale of a mineral product on which a royalty rate will be levied. The value may either be at the point of sale or may have been derived from it by a process of netting back downstream processing costs incurred between the point of valuation and the point of sale to get it closer to the point of extraction.

Royalty waiver Provisions in royalty regulations allowing for the waiving of royalty obligations, generally used in cases where a project experiences severe cash flow pressures.

Specific royalty See *unit-based royalty*.

Stability agreements Agreements between government and a company ratified by parliament setting the conditions, including royalty and other taxes, under which a project will operate over its life or over an extended period of time. An amendment to a stability agreement can be introduced only by mutual consent of the parties involved.

Super profit See *economic rent*.

Tax holiday A period of time during which a company does not have to pay tax on its profits. Governments sometimes offer tax holidays to attract new investment in the country.

Taxing point See *valuation point*.

Thin capitalization A situation in which a company or project has a very high proportion of debt to equity in its funding arrangements. Often the debt is provided by inter-related offshore companies, and interest payments can be a means of directing a high proportion of project cash flows offshore.

Transfer price The price at which a not-at-arm's-length sale to, or service from, a related company is deemed to have taken place.

Unit-based royalty A royalty that levies a specific amount per physical unit of the mineral sold, normally measured by either volume or weight. It applies primarily to low-value bulk minerals (e.g., sand, aggregate, or gravel). See *specific royalty*.

Up-lift rate In the calculation of economic rent using the Garnaut Clunies-Ross model, the normal rate of profit is achieved by up-lifting all losses carried forward by the rate of normal profit, which is generally expressed as the LTBR plus a risk premium. See *normal profit rate*.

Value-added tax (VAT) A tax levied on the supply of goods and services at each stage of the supply chain. Commonly, where the final product is exported, the amount of VAT paid in producing the product is rebated.

Valuation point The point along the value-adding downstream processing chain at which the royalty rate is to be applied. It may or may not be the point of the first at-arm's-length sale of a mineral product. If the valuation point is the point of sale, then the sale price would be the royalty value base. Alternatively, the value at the valuation point would need to be derived by netting back from the sale price all downstream processing costs incurred between it and the valuation point. The further down the value-adding chain the valuation point is placed, the more the corresponding royalty rate should be decreased so that royalties are levied consistently on the value of the mineral and not on the cost of downstream processing. See *taxing point*.

Value-based royalty The royalty amount is derived as a percentage of the royalty value base that is determined at the valuation or taxing point. See *valuation point* and *ad valorem royalty*.

WB The World Bank.

Withholding tax A tax applied to income at the source, before the income is received by the taxpayer. It typically refers to dividend, interest income, and other payments paid to non-residents.

