# Administering Fiscal Regimes for Extractive Industries

## A Handbook

Jack Calder

INTERNATIONAL MONETARY FUND

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# Foreword

Administering government revenues from extraction of nonrenewable natural resources (NR)—oil, gas, coal, and other minerals—presents special difficulties. At one level one could ask: how hard can it be to collect taxes from firms that are basically digging holes, taking material out of the ground, and transporting it to the point of export or to a domestic refinery, especially as it can be physically measured, weighed, and controlled? But this is not the whole story.

The NR industry has a number of special features that generally result in its being taxed differently from other industries, creating special challenges for administration. These features include nonrenewability; a huge variation in scale and profitability (this can reflect differences in industry size, for example, artisanal mining activity vs. that of multinational enterprises, or variations in profitability over time); exceptional rent-generating potential; high uncertainty and risk; substantial capital investment; long development and operating periods; high export and import levels; distinctive commercial risk-sharing arrangements; frequent transfers of ownership; a high level of state control and ownership. Large resource revenues frequently lead to poor governance. Many of these special features and difficulties are especially prominent in developing countries. In addition, contractual agreements (including production sharing agreements) and state participation commonly play a more important role in some of those countries than in developed economies.

The special features and perceived difficulties of NR revenue administration can all too easily mean that it gets less attention than it deserves. Administrative reform, and technical assistance to support it, may focus on general rather than NR tax administration—even where general taxation produces much less government revenue than NR taxation (for example Nigeria, where non-hydrocarbon revenues account for only around 25 percent of total government revenues), or may ignore NR revenues (from royalties, for example, or even state production shares) that are not seen or classified as normal taxes—even though they may be the most important sources of government revenue.

This Handbook, which is a joint IMF and World Bank publication, is one of the first of its kind to focus attention on effectively administering revenues from natural resources. It provides policymakers and officials in developing and emerging market countries with practical guidelines to establish a robust legal framework, organization, and procedures for administering natural resource revenue. It discusses transparency and how to promote it in the face of ever-increasing demands from both domestic and international constituencies for clarity and accountability in the administration of public revenues from natural resources. And it discusses how developing countries can strengthen their managerial and technical capacity to administer these revenues.

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# Introduction and Overview

Natural resource wealth is an opportunity for many developing economies that may never be repeated, but too often they fail to take advantage of it. Converting natural resource wealth into sustained economic development requires:

- Good management to ensure efficient and effective exploitation;
- Good tax design to ensure appropriate government revenue and adequate incentives for investors;
- Good revenue administration to ensure that revenue is collected in practice; and
- Good public expenditure management to ensure that volatile and temporary natural resource revenue translates to permanent benefits for the nation and to manage the risk resource wealth poses to the wider economy.

These requirements present major challenges to capacity and governance, which countries often fail to meet.

This handbook is concerned with natural resource revenue administration. This may not be the most important link in the value chain that transforms natural resource wealth into sustained development, but it is a vital link all the same, and one that often gets less attention than it deserves. Although, in principle, natural resource revenue administration should be relatively straightforward—the natural resource industry is not exceptionally complex—it is often a weak link in the chain.

The natural resource industry has a number of distinctive features. These include nonrenewability, a huge range of scale and profitability, exceptional rent-generating potential, high uncertainty and risk, substantial capital investment, long development and operating periods, geographic concentration, high export and import levels, distinctive commercial risk-sharing arrangements, frequent transfers of ownership, a high level of state control and ownership, and a tendency to undermine governance.

These features generally lead to natural resource taxation that differs from that of other industries, which means special administration challenges. Chapter 1 explains how the industry's features affect its taxation and ensuing unique administrative issues, which involve:

- Legal questions;
- Organization;
- Procedures;
- Transparency; and
- Capacity building.

The remaining chapters look at each of these aspects of natural resource taxation.

## POLICY AND LEGAL ISSUES

Natural resource fiscal regimes often present special legal administration problems.[1] Chapter 2 considers the relationship between natural resource tax policy and administration. This topic is often discussed simplistically in terms of a choice between output-based royalties, which are perceived as easy to administer, and profit-based taxes, which are perceived as hard to administer. There are valid policy arguments for including royalties in a natural resource fiscal regime, but these should be considered on their own merits rather than with a view that royalties are the only natural resource tax that can be administered effectively. In practice, developing economies generally impose corporate income tax as well as output-based royalties, which in combination are minimally progressive, and countries may need to impose additional taxes to obtain a greater share of upside potential. Countries that try to do so through some form of graduated royalty often end up with a fiscal regime that is far from simple to administer: they have more complex royalties, but they still have income tax. Resource rent tax, on the other hand, is sometimes considered particularly challenging to administer, but can be designed around the same (or even less) data as income tax, which avoids significantly more complicated administration.

A major challenge to administration is often the complex variety of the natural resource fiscal regime. In many developing economies one-time deals are negotiated for each project or license area, so that each has its own tax regime. Chapter 2 discusses steps that can and should be taken to minimize this complexity.

[1] For a comprehensive discussion on natural resource fiscal regimes, see IMF (2012).

In addition, there are often gaps and weaknesses in legislative provisions (for example, in relation to transfer pricing) that make them difficult to administer and may present opportunities for evasion. Appendix 1 considers many natural resource taxation technical issues and discusses approaches to achieve simpler, clearer, and stronger laws.

## ORGANIZATION

Natural resource revenue administration is often fragmented among different government agencies. This can seriously weaken administration, since it results in complexity; additional taxpayer burdens; duplication of functions; lack of clarity about responsibilities; lack of accountability; uncoordinated management, systems, and procedures; lack of an overarching compliance strategy; and thinly spread capacity. The establishment of a national resource company (NRC) is often seen as necessary to give the government an inside understanding of the industry, but its involvement in administration often causes fundamental conflicts of interest. Chapter 3 discusses the advantages of integrated function-based revenue administration in which revenue departments handle revenue administration, natural resource industry departments regulate operations, and NRCs are responsible for commercial participation.

There are often strong political and practical obstacles to integration of natural resource tax administration within tax departments. Second-best options should be considered: clarifying the fiscal roles of various agencies and improving cooperation between them and, at a minimum, centralizing accounting and reporting responsibilities within the finance ministry.

Even with integrated revenue administration, cooperation between tax administrations and natural resource regulatory agencies remains vital, but is often poor. Chapter 3 discusses how it might be improved.

Internally, administration should reflect the principles of taxpayer segmentation and sectoral specialization. The former is becoming more common, but greater specialization is often needed.

## PROCEDURES

The design of administrative procedures for natural resource revenues can be complex and incoherent. Where, as is common, a few large companies pay the vast bulk of revenues, they may comply with routine obligations to file returns and make payments, but procedural complexity often makes it difficult for developing economies to report and account for revenues. Countries may fail to apply a self-assessment regime backed up with comprehensive taxpayer services; selective, risk-based audits; and rigorous enforcement, which is recognized as the most effective and efficient model for administration. Chapter 4 discusses development of a more coherent and effective self-assessment-based procedural framework for natural resource revenue administration, although fragmented administration may make this difficult in practice. In-kind payment of petroleum revenues presents particular problems for administration, and the chapter discusses how in-kind revenues can be brought within that common framework.

At least as important as design of administrative procedures is their execution, which is often poor. Chapter 4 considers practical natural resource procedural issues, including routine registration and return and payment processing functions, as well as nonroutine risk assessment, taxpayer service, enforcement, physical audit and benchmark pricing, audits, and appeals and dispute resolution.

## TRANSPARENCY

Resource wealth has a widely recognized tendency to undermine governance; transparency of natural resource revenue administration is therefore vital, but often lacking. Chapter 5 discusses administrative transparency, drawing on the principles set out in the IMF *Guide to Resource Revenue Transparency.* One-time confidential agreements make the law opaque, and the negotiation process is open to abuse. Government accounting for natural resource revenue is often poor and unreliable. When revenue is largely collected from a few companies, as is common, accounting should be straightforward. But governments often do everything possible to make it difficult: multiple taxes; complicated, inefficient, and incoherent payment and filing procedures; responsibility for returns and payments fragmented across agencies with different banking arrangements and separate accounting and information technology (IT) systems; collection of revenues in-kind; and no single department in charge of accounting for assessment and collection. All those features, administratively undesirable in their own right, are major barriers to transparency.

The Extractive Industries Transparency Initiative (EITI) and other international initiatives have done much to improve transparency, but many countries still fail to tackle the underlying issues. The EITI has promoted, among other actions, more transparent and more rigorous information on natural resource revenues, multistakeholder supervision, and dissemination and discussion of in-country reports—which is a welcome initiative. However, in some countries, results have been mixed. For example, some publish one-off tax agreements but do not tax companies on the basis of published legislation. These countries

may publish natural resource revenues, but do not address the problems that make accounting difficult to begin with. Chapter 5 discusses ways to present a more comprehensive and informative picture.

## CAPACITY

Natural resource revenue administration does not impose greater demands on capacity than taxation of other major industries, but creating strong capacity in this area is exceptionally important for many developing economies, and they often fail to recognize and respond to this. Many countries do not take the steps needed to ensure that staff in key operational roles are of the caliber required and are adequately qualified and trained. Fragmented and incoherent administration often hinders effective capacity building and development of suitable IT support. In some cases, countries have decided to outsource administrative functions, perhaps on a temporary basis, to fill gaps in capacity (but outsourcing may come with risks). Chapter 6 discusses these and other issues relating to capacity building.

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# Abbreviations and Acronyms

| | |
|---|---|
| CF | costs and freight |
| CIF | costs, insurance, and freight |
| CIT | corporate income tax |
| EITI | Extractive Industries Transparency Initiative |
| FOB | free on board |
| GRRT | Guide to Resource Revenue Transparency |
| IMF | International Monetary Fund |
| IT | information technology |
| ITAS | integrated tax administration system |
| KPI | key performance indicator |
| LNG | liquefied natural gas |
| LTO | large taxpayer office |
| NRC | national resource company |
| NSR | net smelter return |
| OECD | Organization for Economic Cooperation and Development |
| PSA | production sharing agreement |
| RRT | resource rent tax |
| TPC | tax procedure code |
| VAT | value-added tax |
| WHT | withholding tax |

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# CHAPTER 1

# What's Special about Natural Resource Revenue Administration?

The administration of government revenues from extraction of nonrenewable natural resources[1] differs in various ways from regular tax administration and presents special difficulties. In theory, it involves the same principles and practices as administration of other taxes, but because of its particular features, tax authorities often lack the confidence and ability to handle it, and general tax administration experts may feel unqualified to advise them.

These difficulties are particularly prominent in developing economies, where contractual agreements (including production sharing agreements, PSAs) and government participation tend to be greater than in developed Western economies. These present novel issues for tax authorities, whose role is often unclear; and even mining and petroleum tax experts may find it difficult to advise on those issues if they are unfamiliar with them in their own countries.

The special features and difficulties apply mainly to taxation of exploration and extraction operations (known as *upstream* operations in the petroleum industry). They do not apply to administration of taxes on other operations, such as processing and refining, or distribution and sale of natural resources (known as *downstream* operations in the petroleum industry[2]). Every country has downstream operations of some kind, but obviously only natural resource–producing countries have upstream operations. Downstream operations are not generally:

- as economically dominant as upstream operations are in many producing countries (although they are usually significant and involve large companies);
- taxed very differently from other industries (although final products, such as gasoline, may be subject to a special excise tax regime); or
- seen as requiring more specialist expertise than other industries or as presenting special administrative problems.

This handbook is concerned mainly with administration of revenues from *upstream* operations; the taxation of downstream operations is considered only insofar as it is linked with the taxation of upstream operations.

The special features and perceived difficulties of natural resource revenue administration can mean that it gets less attention than it deserves. Administrative reform, and technical assistance to support it, may, for example, focus on general rather than natural resource tax administration—even where general taxation produces less government revenue than natural resource taxation. Or it may ignore natural resource revenues that are not normal taxes—even though they may be the most important sources of government revenue.

This introductory chapter explains what is different about natural resource revenue administration and why, and outlines a logical framework of topics to consider in any reform and improvement program. Subsequent chapters discuss each topic in turn, explaining the (often difficult) issues that typically arise and the responses that might be appropriate. It is hoped that this will be a useful framework for revenue authorities and for general and specialist revenue administration advisers, and that the handbook will not only inform them but make them more confident in facing the challenges of

[1] These include minerals and hydrocarbons (oil, gas, and coal).

[2] For simplicity, this guide uses upstream and downstream to distinguish those different types of activity generally, although these terms are normally used just for petroleum.

natural resource revenue administration and serve as a useful preliminary tool for formal training and capacity building.

Mining and petroleum extraction present many similar challenges. Taxation of these industries is often administered by the same specialist staff, but there are some significant differences. Where the handbook discusses issues relevant to one industry and not the other, those paragraphs are marked at the beginning as (Petroleum) or (Mining).

## WHAT'S SPECIAL ABOUT NATURAL RESOURCES?

### A Simple Business?

Conceptually, the upstream natural resource industry is not exceptionally complex. Essentially, people make holes in the earth, take stuff out, and move it to an export point or to a domestic refining or processing plant. The stuff they take out is a physical commodity that can be weighed and measured. Variations in its type and quality can likewise be physically defined and measured. Prices of the most common commodities are quoted on international exchanges, based on standard measures. Often, the industry is in the hands of a tiny number of players, whose operations are subject to close government regulation and who are highly dependent on government goodwill. These factors should in principle make administration of natural resource taxes *more* straightforward than administration of taxes on major businesses such as banking or telecommunications. These comments are not intended to downplay the huge technological expertise and skill, stupendous feats of engineering, and vast financial outlay and risk that finding and extracting natural resources can require. Clearly it is not a simple industry for those who carry it out and any discussion requires some understanding of technical issues and terminology.

What makes natural resource tax administration exceptional is not the complexity of the industry but its importance to many countries and the unusual ways it is taxed. In many producing countries, natural resources provide the bulk of government revenues, so poor revenue administration presents special risks. And the design and legal implementation of natural resource tax regimes often present particular administrative challenges.

Natural resource tax design and administration are influenced by the nature of the industry and its economics. These are the important features:

- Natural resources are a valuable nonrenewable national asset.
- The scale and profitability of natural resource operations vary significantly.
- High demand and limited supply may generate exceptional profits.
- Finding and extracting natural resources involve exceptional uncertainty and risk.
- Large natural resource projects require substantial capital investment and technological expertise, much of it provided by private companies.
- The development and operating periods are large, and the sunk and abandonment costs are high.
- Natural resources are often concentrated in particular areas of a country.
- In lower-income countries most of the natural resources produced are exported, and most of the high-value equipment and services used for natural resource operations are imported.
- Natural resource companies often operate under distinctive risk-sharing commercial arrangements.
- Transfer of ownership of interests in natural resource operations is common.
- There is significant government control, often associated with government equity participation.
- Natural resources present exceptional challenges to governance and transparency.

This handbook does not seek to advise on natural resource tax *policy* responses to these special features but explains how they affect natural resource tax *administration*. It offers advice on meeting those special administrative challenges. The IMF, World Bank, and other international organizations, private as well as public, actively provide policy advice to countries on the design of natural resource fiscal regimes.[3]

### Nonrenewability

Natural resources are potentially valuable but finite nonrenewable national assets, and governments generally require payment for their extraction. With few exceptions,[4] governments enact legislation to assert national ownership of those resources, and forbid exploration or extraction without a government license. The ministry in charge of mining or petroleum usually has the main responsibility for licensing, and the payments to be made for exploration and extraction rights are often set out in mining and petroleum legislation and in license agreements rather than in tax legislation.

Payments for extraction rights are often described as *royalties*.[5] In most countries these are based on output, measured by either:

- *Volume/weight* of production (for example, dollars per ton of gravel), sometimes described as specific or unit-based royalties. These generally apply only to low-value bulk commodities (for example, sand, gravel); or
- *Value* of production (for example, percent of sales—but there are various ways of measuring the value of

[3] See, for example, Daniel, Keen, and McPherson (2010).

[4] In some developed economies mineral rights belong to private landowners. In the United States, rights to minerals can be sold separately from the land they underlie.

[5] For a comprehensive discussion of mineral royalties, see Otto and others (2006).

production, some of which may not reflect actual sales value). Royalties based on value of production are sometimes described as *ad valorem* royalties.

But royalties may be profit or rent based, or based partly on production and partly on profit (hybrid royalties). These types of royalties are rare and more common in developed economies. Most countries think of royalties as taxes based on the value of production or on gross revenues, rather than on profits, and use the term in that way in policy discussion. *In this handbook, therefore, royalty is generally used to denote a tax based on the value of production.* A small number of natural resource–producing countries do not impose royalties (for example, the United Kingdom and Norway do not impose them on petroleum), but most do. Royalties provide governments with immediate revenues from extraction of natural resources and may be necessary to justify this activity to the public.

It can be argued that royalties and other types of license payments are not actually tax. The reasoning is that tax is a compulsory *unrequited* payment to the government, whereas these are payments *for* something that companies take *from* the country and do not replace.

For practical purposes of administration, it does not make a great deal of difference whether these payments are regarded as taxes or as payments for rights to exploit natural resources. They are compulsory payments to government with the same potential economic consequences as normal taxes. Like normal taxes, they have to be administered, and their administration presents the same issues as normal tax administration. In some cases the type of payment governments require for natural resource extraction rights actually takes the form of a modification of a normal tax (for example, a higher rate of corporate income tax, CIT). A normal profit tax can, moreover, be modified to achieve exactly the same economic effect as a production-based royalty by limiting deductible costs to a maximum percentage of gross revenues. Such "cost recovery limits" are a common feature of petroleum taxation, sometimes used instead of royalties, sometimes in conjunction with them. These examples show the difficulty of attempting to make practical distinctions between license payments and taxation. In this handbook, natural resource "tax" denotes all compulsory payments by natural resource companies to government, including payments for extraction rights. ("Fiscal" likewise means pertaining to public revenues generally, not just to narrowly defined taxes.)

The view that payments for nonrenewable resources are somehow different from normal taxes does, however, have important consequences.

- Special taxes: The view that these payments are different is one of the reasons natural resource companies are usually required to make payments to governments that are additional to, and different from, normal business taxes. Some of these special taxes may differ significantly from normal business taxes and present special administrative problems. In addition to substantial special taxes there are often minor "nuisance" fees and taxes (sometimes intended to recoup administration costs). Multiplicity of taxes is of course not a problem unique to natural resource taxation, but it is an important feature of some natural resource tax regimes. (On the other hand, natural resources are often exempt from a range of normal taxes, such as export and excise duties.)
- Separate administration: Administration of those payments may be (and often is) allocated to agencies other than normal tax departments, particularly to the mining or petroleum ministry (or its executive arm), operating within a separate legal and administrative framework. This raises major organizational issues and reduces the coherence of natural resource revenue administration. Such issues are not unique to natural resources, since responsibility for general taxes (for example, income tax and excise duties) is sometimes spread among various agencies applying different rules. But when it comes to natural resources, these organizational issues can be particularly acute.

Natural resource companies may be required to meet community service and infrastructure obligations, such as providing training or building public works, in return for license rights. Some such works (for example, new roads, docking facilities, worker housing) may be directly required for natural resource operations, but it is increasingly common for infrastructure development unrelated to operations to be part of the price for natural resource license rights. Such obligations are a form of in-kind public revenue (in the nature of a one-off fee rather than a royalty or profit tax), but would not generally be described as a tax. Transparent administration of such obligations—establishing their value and ensuring that this value is actually delivered on time—does not fall within the usual competency of a tax department. Compared with normal tax administration it poses significant challenges, which are generally not met well. (Still, infrastructure for extraction has been advocated for developing economies by economists who claim that those countries can't handle profit taxes.[6]) Even when natural resource companies are not specifically required to make such expenditures, they may consider it in their interest to do so to win community acceptance and support, and may argue that this wider social contribution should be recognized in some way in the design of the natural resource fiscal regime.

The exhaustibility (and price volatility) of natural resources has important consequences for public financial management, which may in turn require special tax collection and

[6] For example, see Collier in Daniel, Keen, and McPherson (2010). The argument is that if natural resource revenues are intended to finance infrastructure development, then direct "infrastructure for extraction" reduces the risk of political mismanagement/misappropriation of funds allocated through the central budget process.

accounting procedures. Public financial management of natural resource revenues may, for example, require them to be separately identified and placed in special stabilization and/or sovereign wealth funds. Special collection and accounting procedures may also be needed to improve governance and transparency of natural resource revenues, a topic discussed in more detail later.

## Varied Scale and Profitability

There is a huge range in the scale and profitability of natural resource operations.

- Scale: Particularly in mining, the scale of operations can vary significantly, from small-scale artisanal mining (for example, gold or diamonds dug up in people's backyards) to mammoth projects (for example, entire mountains dismantled). Some natural resource–rich countries have both types of operations. Artisanal mining may be profitable, but, being small scale, will not generate exceptionally large profits for particular taxpayers. To a substantial extent, furthermore, these may be domestic taxpayers, and governments may face less political pressure to impose special taxes on them than on foreign companies. Special tax regimes applying to large mining projects are often not applied to artisanal miners, or applied only in part. In that case their tax administration may be little different from that of other small businesses, involving all the compliance risks typical of that segment—that is, nonregistration, nonfiling, and nonpayment, as well as deliberate underdeclaration in tax returns. In other countries, natural resources may be concentrated in just a few major operations—possibly even just one—carried out by a small handful of companies (which in developing economies may provide the bulk of government revenues). In those cases the small number of companies involved should in principle make routine tax administration far simpler than for normal taxes, and the main compliance risks are likely to be exploitation of legal uncertainties and loopholes rather than omissions from accounting records and deliberate evasion.
- Profitability: Although natural resource operations can generate exceptional profits, the extent to which they do so in any particular case depends on a number of factors. The profitability of a mineral deposit, for example, depends on the size of the deposit, the grade of the ore (essentially the percentage of mineral content), the ease with which it can be mined, the cost of transporting it to market, and the cost of refining it. Similar factors apply in the case of petroleum. There are large variations in all those factors, resulting in a huge range of profitability. (In fact, much of the world's natural resources cannot be extracted profitably at all.)

These variations can result in significant differences in how a country taxes diverse kinds of operations and deposits. Particularly in the case of royalties and other taxes not responsive to profitability, different rates may apply, depending on the mineral or operation, which complicates administration. These variations are a factor that encourages specially negotiated tax deals, a common feature of natural resource taxation discussed in more detail later. Countries may also consider that special variations from the normal natural resource tax regime are appropriate for "strategic" minerals, or for minerals that present exceptional environmental risks.

## Rent-Generating Potential

Natural resources have exceptional rent-generating potential. *Rent* is a term used by economists to describe excess profits; that is, profits beyond the minimum return required by an investor. High rent is not unique to natural resources, nor is it always achieved. But there is a limited and diminishing supply of nonrenewable natural resources and, where demand is high, as for petroleum and many types of minerals in recent years, natural resource operations benefiting from comparatively favorable conditions are likely to generate exceptionally high rent. There are theoretical arguments for taxing rent. It is generally seen as the most economically efficient base for taxation. In theory it can all be taxed without distorting investment decisions, although in practice it is the prospect of high rent that drives high-risk natural resource investment, and countries may be unable to compete for investment if they seek to capture more rent than other countries with similar prospects. (Countries should, therefore, be aware of where their tax regimes place them compared with their peers.) National ownership of natural resource assets does, however, give governments a special motive to capture a share of rent for the nation, particularly where extraction is carried out by foreign companies (although, as discussed later, there may be competing policy objectives, and some countries' tax systems capture rent more efficiently than others').

The main practical consequences are:

- High natural resource taxes: Countries often impose higher (or potentially higher) taxes on natural resources than on other activities. They often use special taxes to do so (reinforcing the tendency toward multiple taxes). In a few cases (but the number is increasing) these are *resource rent taxes* (RRT) specifically designed to measure and tax natural resource economic rent.[7] RRT are sometimes argued to present special administrative challenges. More often, governments attempt to capture rent simply by making other taxes progressive (that is, increasing

[7] Normal profit taxes like CIT can be distinguished from RRT because they apply to the whole of an investor's profit. RRT are designed to apply only to profit exceeding an assumed minimum return required by investors.

tax rates in line with profit, or with some measure intended to serve as a proxy for profit, such as a selling price). Sometimes taxes intended to capture exceptionally high profits are called windfall taxes. In general, it appears to be more common for governments to impose high-rent taxes on petroleum than on minerals—and indeed in some countries mining even enjoys a favorable tax regime. This may be because in the past mining was less profitable than petroleum or at least had a wider range of profitability; or because mining is seen as producing greater nontax public benefits (for example, employment and infrastructure).

- Transfer pricing risks:[8] Transfer pricing and other profit-shifting risks (for example, thin capitalization) are particularly important in natural resource revenue administration. Those risks are present in regular tax administration, but high rates of natural resource taxation provide a particularly strong incentive for transfer pricing abuse. Governments sometimes provide tax holidays for mining or a favorable tax regime for domestic natural resource processing, and these may increase risks of transfer pricing abuse in a domestic context. Associated party transactions are common, providing exceptional opportunity as well as exceptional incentive for transfer pricing abuse. Against this backdrop, as in all taxpayer segments, risks vary across a wide range of compliance behaviors, from companies with good track records in terms of tax compliance to less reputable firms. Tax administrations should recognize this heterogeneity across taxpayers and use risk management to support their compliance strategy. In any case, price clarification not only prevents abuse, it also benefits taxpayers by providing investors with certainty in their tax dealings.
- Benchmark-based pricing: To minimize transfer pricing risks in relation to sales, many countries make use of internationally quoted benchmark prices to gauge the value of production for tax purposes (although there is considerable variation in how these are used). Applying benchmark prices to the volume or weight of production[9] is often seen as providing a more reliable measure of the value of production than actual sales because transfer pricing abuse may be difficult to identify and counter. Quoted benchmark prices may be more difficult to use for minerals than petroleum because they may not be available for unrefined products, and indeed in the case of rarer minerals may not be available at all. But, in general, quoted prices reduce the risks of natural resource transfer pricing abuse, and if applied reasonably are arguably consistent with Organization for Economic Cooperation and Development (OECD) guidelines. (Special measures to control cost transfer pricing risks are discussed later.) Benchmark pricing requires special technical expertise and procedures not common in normal tax administration:
  - Measuring the volume and quality of production: Measurements can be obtained from company financial records, but physical audit is also advisable. Governments may measure production directly or oversee company measurement processes. Because this is not a paper-based exercise, it has to be carried out during production and is quite different from a normal postreturn tax audit.
  - Identifying and gathering data on appropriate international benchmarks and making necessary adjustments to reflect local differences in quality and transport costs: Where prices to be used in companies' returns are determined ex ante, this requires special procedures for formal determination and publication of those prices (possibly subject to appeal).
- Even where physical audit and benchmark pricing are not used to determine the value of production, they can play a vital role in audit risk assessment. The technical difficulty of a physical audit should not be underestimated, particularly for minerals.
- Ring-fencing of natural resource costs: natural resource companies may incur genuine business costs that do not relate wholly and exclusively to their upstream operations in a particular country (for example, costs of downstream activities). These would potentially reduce the (higher) taxes intended to be collected from those operations. It is therefore common for countries to "ring-fence" upstream natural resource operations, so that only costs directly attributable to them are taken into account in taxing them. Ring-fencing is a special technical issue for natural resource tax administration.
- Area ring-fencing: In many countries, license areas or even individual projects within them are separately ring-fenced, so that if a company operates in several ring-fenced areas it has to calculate profits separately for each of them and cannot consolidate

[8] While double taxation is not desirable because it can increase the cost of investment and affect foreign direct investment flows (and may be a real dilemma for natural resource investors), some companies, through the use of transfer pricing, may also abuse transfer pricing rules and create situations of double nontaxation. Even though there are companies that operate under arm's-length prices, transfer pricing is a risk tax administrations should manage properly. This handbook aims to identify rules that make it simpler for developing country officials to control transfer pricing.

[9] There are a variety of ways of measuring the volume of production, particularly for minerals. It can be measured at different points (for example, at the mine mouth or mine gate or at the point of sale), and the measurement will normally include not just the gross volume but also the mineral content determined by sampling and assay.

them for tax purposes.[10] One reason for this is to accelerate government revenue, which would be deferred if companies could offset costs of mines or wells still under development against profits from some already in production. Another is that allowing companies to offset those costs might give an advantage to existing industry players over new entrants, discouraging potential investors. Yet another is that some countries apply different tax regimes to different areas, and companies could, without ring-fencing, allocate costs disproportionately to higher-taxed areas to reduce tax. Where countries impose progressive taxes, area ring-fencing can mean that companies pay high taxes on "excess profits" from one area, even though they have not made excess profits (or have even suffered a loss) in the country as a whole. There is considerable risk of noncompliance, and area ring-fencing rules can be complex to administer in practice.

- Exclusion of natural resource processing from higher taxes: Countries generally do not want to apply the same high taxes to natural resource processing as to natural resource extraction. Unlike extraction, some natural resource processing can be done anywhere. High tax rates might drive it abroad, whereas governments often prefer it to be done domestically. They may therefore want special taxes such as royalties and RRT to apply only to the value of unrefined natural resources at the point of extraction. Consistent valuation on this basis may also be seen by companies as necessary for equitable treatment of different operations. But establishing the value at the point of extraction can be difficult, particularly in mining, because the first sale often takes place after varying degrees of processing, and there are generally no quoted benchmark prices for unrefined minerals. This can be a source of administrative complication. (Countries sometimes provide special subsidies for domestic processing, introducing further administrative complication, discussed later.)

## Uncertainty and Risk

Natural resource operations involve considerable uncertainty and risk. Again, risk is not unique to natural resources, but the magnitude and pervasiveness of natural resource risks are exceptional. They include geological and exploration risk (exploration is expensive, particularly for petroleum, but the majority of exploration projects are unsuccessful); development risk (where natural resources are found large sums may be spent to develop them, but they may prove unexpectedly difficult to extract or be of poorer than expected quality); price risk (natural resource prices are extremely volatile and unpredictable); cost risk (costs are also unpredictable and volatile); environmental risk (environmental costs may be very substantial: onshore mining and petroleum operations present many environmental risks for which companies can be held responsible, and the Deepwater Horizon accident in the Gulf of Mexico in 2010 demonstrated that offshore operations can present huge risks too); and sovereign risk (for example, government and regulatory instability). These risks means that there may be no actual profits, and, if there are, that they may fluctuate hugely from one period to another. Perceptions of exploration and development risk, and of political risk, may change significantly over time in the light of experience.

These risks have practical consequences for tax design and administration:

- To compensate for high risk, companies seek high rewards: Governments are rarely prepared to fully share these risks, for example, by contributing to exploration costs,[11] but expect to take a share of the rent from community-owned natural resources. Companies will seek to invest in countries where they can expect to retain a large enough share of any exceptional profits or rent to justify the exceptional risks.
- Reliance on fees and royalties: The risks may lead governments to rely more on up-front fees and royalties than on taxes on profits, which are volatile and may not materialize at all. But there is tension between governments' desire to minimize risk in this way and their desire to maximize rent capture. Royalties are obviously not as responsive to profit as profit-based taxes, so when profits are high they may not capture enough of it, and when they are low they may capture too much, discouraging investment and production. (Mining companies, for example, may respond by "high grading"—mining less ore than they would otherwise have done, but at a higher grade). Royalties are therefore usually combined with profit taxes, but in some countries they play a much more important role than in others.
- Instability: The combination of simple ad valorem royalties and a nonprogressive income tax is regressive, giving the government a lower share of profit as profit increases. Because of their lack of responsiveness to unpredictable changes in profitability, natural resource tax regimes where royalties play an important role tend to be politically unstable.[12] Instability can give an impression of sovereign risk and discourage investment. It also presents administrative challenges, but may provide opportunity for necessary reforms.

[10] To provide exploration incentives, however, countries often do not apply strict ring-fencing to exploration costs.

[11] Norway provides one of the very few exceptions.

[12] Almost every resource-rich country significantly modified its natural resource tax regime in response to the commodity price boom of the 2000s; Norway and Angola are significant exceptions.

- Royalty complexity: Where royalties play an important role, countries often attempt to increase their responsiveness to profitability by gearing them, for example to sale prices, volume of production, or location of production. Governments may alternatively seek to address the lack of responsiveness to profit by allowing administrative flexibility in the application of royalties, for example, by allowing payment deferral or tax holidays in particular circumstances. (Reduced royalties may, for example, be negotiated to prevent premature cessation of operations as natural resources approach exhaustion.) The result is administrative complications (and often limited success in making royalties responsive to profit).
- Financing: Given the size and the multinational nature of most natural resource companies, it is possible for them to seek debt financing within the corporate group, through related-party sources. This is certainly a feasible alternative to external—unrelated—debt financing, for example, from a local bank. Special rules (for example, on thin capitalization) may therefore be needed to prevent companies within multinational groups from deducting more finance costs than could or would be paid by a stand-alone company borrowing on arm's-length terms.
- Hedging: Because natural resource prices are volatile, companies may hedge them.[13] In principle, the results of hedging are unpredictable, but companies may manipulate hedging instruments to generate a predictable loss, perhaps because the transaction is on non-arm's-length terms or is matched by an untaxed gain realized elsewhere, for example, in a tax haven. In any case, governments may feel that they should decide how far to hedge exposure to natural resource prices and not leave it to the whim of private companies. So there may be particular avoidance risks and a need for special tax rules to deal with them.
- Special tax deals: Changes in the perception of risk over time (for example, as a result of a successful discovery) may increase the appeal of investing in a particular country, which allows the government to increase its fiscal take without discouraging investment. Conversely, perceived risk may increase, and a more generous fiscal regime may be needed to attract investment. Changing risk perceptions may lead governments to negotiate one-time natural resource fiscal regimes with investors instead of applying tax laws uniformly. These are generally incorporated into individual investment agreements or contracts, which often include the broader regulatory regime and any arrangements for state equity participation. For petroleum, these agreements often are in the form of a PSA (sometimes called a production sharing contract), discussed in more detail later.[14] Other factors may also lead to special deals: the different scale and profitability of natural resource projects within a country, as discussed earlier, and the prevalence of royalties and other taxes that do not respond to variations in profitability. Specially negotiated tax arrangements with a particular taxpayer or group of taxpayers are not unique to natural resources, but are more common than in other industries.

Specially negotiated tax deals have major consequences for revenue administration.

- They can result in a proliferation of tax regimes customized for different projects. This presents administrative challenges, which are worse in countries that do not use standard agreements, vary them over time, or include a wide range of tax variables in negotiations (for example, royalty/cost recovery rates, production sharing rate, depreciation allowances, bonuses, state participation, even CIT rate, and so on). This variety also makes the law opaque.
- A further barrier to transparent tax administration is that agreements often contain extensive confidentiality clauses because they set out tax (and sometimes commercial) arrangements for particular taxpayers. This secrecy can also be a barrier to effective tax administration because agreements are sometimes kept secret even from the tax department.
- Up-front fees are often an important negotiation feature of one-off agreements, and in some cases are substantial. The most important type of fee is usually a signature bonus, payable on the date the agreement is signed. But further bonus payments may be payable in certain circumstances—when a commercial discovery is made, for example, or when a certain level of production is reached. Transaction taxes are not unique to natural resources, but large individually negotiated bonus payments are more common there than in other industries. Once negotiated, they are relatively simple to collect, but they are yet another type of tax to be administered, adding to the overall complexity of natural resource tax regimes, and the negotiation of such fees (for example, by means of license auctions[15]) requires specialist administrative expertise.

[13] Hedging may be a rational investor response to a resource rent tax regime. Where upside potential is limited, the investor would try to avoid full exposure to volatile project risks. For example, if a company is vulnerable to losses from a downward price movement but, because of high taxes, would not benefit greatly from an upward movement, it may be more disposed to incur the costs of hedging against a downward movement.

[14] Throughout this handbook, PSAs refer to agreements that are broader in scope than only taxes, setting out a tailored investment regime addressing all areas of operations, and performing a valuable role in enabling investment in countries that otherwise lack the necessary investment rules and regulations.

[15] License auctions are not discussed in this handbook, but see Crampton in Daniel, Keen, and McPherson (2010) for a detailed discussion.

It is something of a paradox that one-off deals complicate administration and maximize demands for technical knowledge and negotiating skills, but are most prevalent in developing economies, where capacity is most limited. Governments have to be able to assess the natural resource potential of particular license areas in order to negotiate the best deal, particularly if taxes are not responsive to profit. But companies may be far better informed (sometimes described as the asymmetry of information problem). Governments also have to be able to model the effects of the fiscal terms under negotiation, but often lack capacity to do so. Developed economies with greater capacity generally tax natural resources on the basis of uniform published legislation. It is worth noting that pressure for specially negotiated tax deals often comes from natural resource companies that could not apply such pressure on their home governments. It is often claimed that one-off deals are necessary to attract investment and maximize government revenue, but there is no clear evidence that countries that apply uniform legislation are less successful in meeting those objectives. One-off deals often appear to serve countries badly in practice, whether because of incompetence or corruption. A detailed assessment of the policy arguments for and against such deals is beyond the scope of this handbook, but their effects on administration should not be underestimated.

## Need for Substantial Capital Investment and Technological Expertise

Significant natural resource exploitation usually requires substantial capital investment and technological expertise. Although there is variation in the scale of natural resource operations, much of the world's low-hanging natural resources have been plucked, and significant natural resource exploitation usually involves operations that are both very expensive and very difficult. It can take hundreds of millions if not billions of dollars to develop a mine or an oil well, and the technological demands (for example, finding and extracting oil miles below the sea surface) can be immense. Costs of major natural resource projects have escalated hugely over the past decade and continue to do so.

Although government-owned companies may play a big role in natural resources, much of the capital investment and expertise required for natural resource operations is still provided by private companies. Most developed economies rely primarily on such companies by choice. Developing economies generally have little option but to rely to a significant extent on attracting investment from large foreign multinational companies. Sharing the benefits of a country's natural resources with foreign companies is, of course, politically highly sensitive.

Governments have to provide sufficient investment incentives. Capital to fund natural resource operations is limited. There are obviously many factors other than taxes that international companies take into account in deciding whether to invest in a country, but taxes are an important consideration. Companies must have the prospect of a reasonable after-tax return on their investment (which must also compensate for the risks of unsuccessful investment). So as well as having to balance their desire to capture rent with their desire to minimize risk, governments have to ensure that their tax regimes provide sufficient incentives to attract initial and continuing private investment, and are competitive with other countries. Governments sometimes seek to attract new natural resource investment with favorable fiscal regimes. These may be unsustainable in the longer term because the special incentives may constrain future revenue raising long after the need for them has ended, causing community dissatisfaction. Precept 3 of the *Natural Resource Charter* (n.d.) states that "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.*"[16] In the mining sector (less so in petroleum) tax holidays[17] are too often used to attract investment. Tax incentives for investment are not unique to natural resources, but are often a prominent feature of natural resource taxation.

Conflicting government objectives to provide investor incentives but receive revenue quickly can result in complex tax rules for capital expenditure. Often there are special incentives for up-front capital expenditure, such as accelerated depreciation or special investment tax allowances or credits.

The scale of capital investment and the complexity of the tax rules applying to it often present special challenges to administration. The characterization of costs (as depreciable or immediately deductible, or as qualifying or nonqualifying for investment allowances and credits) is usually a particularly important issue in natural resource tax audits. The calculation of depreciation allowances can also present challenges. Often the rules are very simple, but in some countries they are based on elaborate asset classifications, or on economic factors such as natural resources depletion rate or mine life, which means tax auditors must judge the amount of natural resources still in the ground and how long it will take to extract, both of which even natural resources experts would find difficult to quantify with certainty.

Foreign financing is generally obtained to meet high capital costs. The tax treatment of finance costs is therefore often a major issue in natural resource taxation, and, as discussed, there may be special considerations. The application of withholding taxes (WHT) to interest and dividends paid to foreign lenders and investors also tends to be of particular

[16] The *Natural Resource Charter* is a set of economic principles for governments and societies on how to best manage the opportunities presented by natural resource for development. They were formulated by a panel of economists at Oxford University.

[17] See Appendix 10 of IMF (2011) for a summary of the disadvantages of tax holidays.

importance. Double-taxation agreements may limit taxing rights, and tax avoidance through treaty shopping[18] may be a problem.

Foreign tax credit for natural resource taxes can be important for both foreign investors and the government. Taxation of natural resources in a foreign investor's home state may make it more difficult and expensive to attract investment. Some special natural resource taxes (for example, royalty and production sharing) are not usually creditable. For this reason natural resource operations are normally subject to CIT. (Another reason is simply to provide consistency of treatment with other sectors.) Usually, certain conditions are considered necessary to make CIT creditable, including interest deductibility, and CIT must be designed with those conditions in mind, even though they may present administrative challenges. The current trend for developed economies to adopt a territorial tax base, and the fact that foreign parent companies often set up tax-haven-based subsidiaries as owners of local operating subsidiaries may reduce the importance of foreign tax credit in practice, but it remains important nevertheless (since the United States, for example, has not adopted a territorial tax base, and may even remain important for investors from countries that do have a territorial tax base because CIT exemption of foreign income in those countries may depend on whether it is subject to CIT in the foreign country).

## Long Development and Operating Periods; High Sunk Costs and Abandonment Costs

High initial costs and the long time often needed to develop a mine or oil well can mean that it takes years for production to begin and even longer for operations to show a taxable profit, particularly where accelerated depreciation is allowed. Political pressure (the need for cash, public expectations of early gains) provide further incentives to impose up-front fees and royalties in preference to taxes on profits, whose administrative consequences were discussed previously. Special returns requirements and procedures may be needed to allow prompt audit of major preproduction and preprofit costs; collection-based performance targets may need revision to ensure that those costs are audited in practice; and tax-geared penalties may not be enough to deter overstatement of those costs. In addition to high up-front costs there can be significant back-loaded costs for mine or well closures and environmental restoration (in some cases as high as the cost of development). Profits need to be set aside to meet those costs; sometimes governments require abandonment reserves to be deposited in a government-managed account. The distinctive timing of expenditure can require special tax provision—for example, more generous loss carry-forward and carry-back and tax deduction for appropriate abandonment reserves. Quantifying future abandonment costs clearly presents special challenges.

Natural resource costs, once incurred, are *sunk costs*, and may be followed by long operating periods. It may take decades to exploit a mine or oil well. High sunk costs and long operating periods are not unique to natural resources, but their pervasiveness and magnitude make them key economic factors in natural resource taxation. Together with high risk, they produce what economists describe as the *obsolescing bargain* or *time consistency* problem. This means that governments may offer a tax regime that encourages investors to take substantial risk, but if operations are successful, there is an incentive, especially long into the future, to raise taxes, taking advantage of the fact that the investor is committed and cannot pick up its mine or oil well and take it somewhere else. This can sometimes become a highly charged political issue, adding to the political risk mentioned previously. Natural resource companies therefore have a special need for stability and predictability of taxation.

To mitigate fiscal risk and encourage investment, governments often seek to provide assurances of stability. A unique feature of many natural resource tax regimes is that, often as part of negotiation of exploration rights, the tax regime applied to production is specified in advance and backed up by a stability agreement between the government and investors. The agreement either guarantees that the tax regime will continue for a specified period of time or that investors will be compensated for any change. This is often incorporated into a specially negotiated contract (as discussed previously). As well as having the practical advantage of bringing all the rules together in one place, such agreements are often seen as giving investors additional protection from fiscal risk. In theory, these agreements may allow investors to invoke contract law and even sue the government if it fails to honor the agreement or a stability clause. Investors could seek international arbitration rather than rely on the national judicial system. Such agreements potentially pose administrative challenges (maintaining knowledge of the tax regime concerned, calculating and compensating for the economic impact of changes to it). They can also present a practical obstacle to administrative reform and improvement, which often require changes to legislation. (As mentioned, however, natural resource tax regimes have in practice tended to be very unstable, often despite the existence of stability agreements.) Where companies have recourse to international arbitration, this requires special dispute resolution procedures. The division of judicial responsibility between local and international institutions may also raise organizational issues.

## Geographic Concentration

Natural resources and the prospects for their discovery are usually geographically concentrated in particular areas of a

[18] "Treaty shopping" involves companies arranging their affairs to take advantage of favorable tax treaties. For example, WHT may be payable on dividends to a natural resource company's parent company. This may be avoided by setting up an intermediate holding company in a country with a double-taxation agreement under which no tax is withheld from dividends.

country. This is another factor that may encourage negotiation of special tax arrangements, as discussed. In some countries mineral rights belong to regional governments rather than the central government. In countries with a federal structure it is particularly common for states within the federation to impose and administer royalties and other special natural resource taxes. (In some countries the position is further complicated by land rights of indigenous peoples.) Geographic concentration can create tension between the central government and local communities where natural resources are located, leading to further pressure for local natural resource taxing rights. This fiscal decentralization is more common in developed than developing economies and adds organizational complexity.[19]

## High Level of Exports and Imports

In lower-income countries, most natural resource production is exported, and the highest-value goods, services, and finance used by the natural resources sector are imported. The international nature of the industry contributes to transfer pricing risks (although, as explained, natural resource transfer pricing risks can apply even to domestic transactions), and presents other special issues for tax administration.

- Exports of natural resources are exempt from excise taxes and are zero rated for value-added tax (VAT) in most but not all countries. This exemption may give rise to huge VAT repayment claims, with all the accompanying administrative problems, and in many countries imports of equipment for natural resource operations are exempt for this reason. Investors consider the inability to recover input VAT one of their major tax challenges, and hence they generally support exemption systems. Implementing a deferred payment plan is also an option. But the exemption rules can present administrative challenges of their own.
- Developing economies often attach particular importance to the idea that they should not just export raw materials but should participate in what they see as the higher-value activity of processing them.[20] They sometimes, therefore, build special incentives for this into their natural resource tax regimes, which can greatly complicate administration.
- Governments are often under pressure to subsidize domestic consumption of natural resources to provide a direct benefit to the community, either by controlling prices or reducing taxes on natural resources intended for domestic use. This is often criticized on policy grounds as tending to favor wealthier consumers. From an administrative viewpoint, there is a risk of such subsidies being exploited in ways not consistent with government policy objectives.
- A portion of the cost of natural resource operations generally relates to the importation of services, often available from a limited number of foreign specialized providers. As well as presenting transfer pricing risks, use of foreign service contractors makes administration of WHT very important. WHT provisions are a common source of dispute, and tax avoidance through treaty shopping may also be a problem. There are often special provisions on the application of WHT to natural resource service providers in legislation and tax treaties.
- Because natural resources are internationally traded commodities, companies generally find it useful for prices to be quoted in a standard currency, and in practice that currency is usually the U.S. dollar (although occasional attempts have been made to move toward pricing in other widely used international currencies, such as the euro). International natural resource companies generally use the U.S. dollar as their functional currency (for record keeping and accounting). Many countries allow natural resource countries to prepare accounts and returns for tax purposes in U.S. dollars, and it is also fairly common to allow tax payment in U.S. dollars. This is administratively more convenient for natural resource companies, and may be seen as having advantages for the country concerned—for example, if it has a weak currency and there is a concern that it will lose out from depreciation against the dollar, or if the intention is to hold natural resource revenues in a dollar-denominated fund. Acceptance of payment in dollars may also simplify reconciliation of company payments and government receipts under the Extractive Industries Transparency Initiative (EITI; discussed more fully in Chapter 5). Special administrative provisions may be needed to allow dollar accounting and/or payment. Special rules for interest on late payment of tax may also be necessary, perhaps based on an international interest rate benchmark such as the London interbank offered rate, because the interest rate appropriate for dollar-denominated debt is likely to be different from that appropriate for local currency debt. Governments normally prepare their national accounts in their local currency, and will need to ensure that exchange gains and losses on dollar-denominated receipts and assets are properly and clearly accounted for.

## Distinctive Commercial Risk-Sharing Arrangements

Private companies often spread their risks by carrying out large natural resource operations jointly, and in the case of petroleum, this usually involves a distinctive type of arrangement:

[19] In some countries natural resource taxes are charged not just by central and provincial governments but also by regions within provinces.

[20] Petroleum refining was in fact much less profitable than upstream production for many years.

the unincorporated joint venture. A joint venture does not create a separately incorporated company or a partnership, but is an agreement by a consortium of companies to contribute agreed shares of the costs of an operation and take similar shares of production. Consortium arrangements are not unique to petroleum, but are more common there than in other industries, and the special characteristics of joint ventures have practical relevance to tax administration. One of the parties (usually but not always the majority private investor) is appointed operator. It incurs costs on behalf of the consortium and bills each party for its share (this is known as a cash call). Each party lifts and disposes of its own share of petroleum.[21] The rules are set out in a joint operating agreement. Joint operating agreements are generally similar the world over, with similar definitions of costs, similar rules for accounting for those costs, and similar rules for oversight of operations by joint venture partners. These agreements give strong rights to nonoperating and minority participants, who, with the operator, have an interest in maximizing total profits, but not in the shared costs. Thus joint operating agreements contain detailed procedures for approval of shared costs by the parties. Significantly they also incorporate tight restrictions on costs charged by associated companies. These restrictions are not based on vague principles but are usually specific and fact based (for example, services are charged at original cost to the associate).

In relation to costs, the interests of the operator's joint venture partners are similar to those of the government, although not identical.[22] They have a similar interest in minimizing costs and maximizing profits. Cost restrictions built into joint operating agreements provide the government with significant protection, particularly from cost transfer pricing risks. Joint operating agreements also provide a useful common accounting framework for the industry. As well as relying on such joint operating agreement provisions, governments can, and often do, build similar provisions into petroleum agreements such as PSAs (which are closely modeled on joint operating agreements). Similar rules can also be built into petroleum tax legislation.[23] Restrictions on associated company costs in petroleum agreements are akin to a unilateral advance pricing agreement, but require less negotiating skill if built on well-established joint operating agreement terms. (Collusion by joint venture parties to circumvent such transfer pricing controls is theoretically possible but probably unlikely in practice.) Joint ventures are not the normal arrangement for mining, but in principle it is possible to build some of the same features into mining investment agreements and tax legislation.

Special tax return and audit procedures are often adopted for joint ventures. Because costs are incurred centrally by the operator, which also maintains the records related to those costs, it can be more efficient, and also ensure consistent treatment of the joint venture participants, to require the operator to file a return on behalf of the joint venture, including the allocation of costs and production among the participants. This is similar in principle to a partnership return. It can then be audited centrally, and the audit of individual participants' returns can be limited to ensuring consistency with the operator's return (including any audit adjustments) and checking "sole" costs or income, which are generally relatively minor.[24]

## Transfers of Natural Resource License Interests

Transfers (or partial transfers) of natural resource license interests are common. There are many possible commercial reasons for such transfers. For example, a small company specializing in exploration may make a large discovery and need to bring in a larger company to provide capital and expertise for development. Transfers may be indirect (that is, a transfer of shares in the company holding a license rather than a direct license transfer). Taxation of business interest transfers is not unique to natural resources, but countries often have special rules for natural resource license transfers. The amounts involved can be exceptionally large, in some cases billions of dollars, and natural resource license transfers often involve distinctive features—for example, various kinds of noncash consideration (which might require auditors to set a value for mines or oil fields for tax purposes). Companies may seek to avoid tax on gains, and this may present special challenges to tax administration.

## State Control and Ownership

Governments generally see natural resources as having exceptional strategic importance, requiring strong state control. They have a strong interest in ensuring achievement of their commercial potential, while also managing major safety and environmental risks. In developing economies, they may be particularly concerned to show that it is the nation that is exploiting its natural resources and capturing their benefits and not the nation being exploited for its natural resources by foreign companies. They may be responding to strong public feeling, perhaps influenced by the country's colonial past. They may see natural resources as a platform for wider industrial development, and want to maximize local involvement in production and processing. These political objectives can arguably be achieved through regulatory oversight, industrial policy, and taxes designed to capture the appropriate share of natural resource economic benefits for the state.

[21] The fact that a joint venture does not make joint sales is one of the main features that legally distinguish it from a partnership.

[22] Companies may, for example, have a different interest in how costs are classified. Governments also have noncommercial concerns (for example, environmental protection).

[23] For example the United Kingdom's petroleum revenue tax effectively limits costs charged by associates to the original cost to the company group.

[24] This approach is more common where there is ring-fencing by license or project area, but could have advantages in other cases.

In practice, however, governments often take the view that such political objectives are best achieved through state ownership.[25] It is common for governments to assert national ownership of natural resources in the ground, but here state ownership is used to mean nationalization of production. The popularity of state ownership has waxed and waned over the past half century but it still remains substantial, particularly in petroleum. National oil companies control 90 percent of the world's oil reserves and account for more than 70 percent of production. State ownership is not unique to natural resources, but is far more common than with other industries.

The extent of state ownership varies considerably between countries. In some there is none at all. Natural resource operations are entirely carried out by privately owned companies operating under government oversight—this is common among OECD countries. At the other extreme are a small number of countries where natural resource operations are fully nationalized, usually through a government-owned. Even in those countries there may be private participation through service contracts, which is discussed later. But most countries are somewhere in between, with NRCs sharing ownership with private investors under rights granted by the government.

With natural resources, the boundaries between government commercial participation, industrial regulation, and business taxation are often blurred. Normally these might be seen as quite distinct. Commercial participation might typically be characterized as government investment of capital and government decision making (with coinvestors) on how to spend it, in order to make a profit, which is shared according to the capital invested and measured by commercial accounting standards.

In practice, natural resource commercial participation takes different forms, some of which do not exhibit all the above features.

- With *full equity participation* the state or NRC invests risk capital in exactly the same way as a private company and shares commercial profits in proportion to its investment. Investment may take the form of participation in an unincorporated joint venture (discussed earlier) or partial ownership of the shares of an incorporated company. A private participant (the operator) often actually carries out operations. The NRC has the same rights of oversight as any private nonoperating participant, although it may not exercise them in practice.
- With *carried equity participation* the state/NRC's share of investment costs is wholly or partly met by the private participant(s) and then reimbursed (usually with interest) from its share of production revenue. If no production occurs, costs are not normally reimbursed, so the arrangement is essentially like a nonrecourse loan. Many variations of this approach are possible.
- With *free equity participation* the state/NRC takes an equity interest with no compensation to the private investor. The state/NRC may then contribute to subsequent costs, or these may be carried.
- With *production sharing* the state/NRC takes no equity share, but participates in commercial decisions and regulates the business; it takes a progressive share of profit not based on any equity investment.

The economic effects of carried or free equity participation are fiscally equivalent to taxation of private investors.

- Regulation can typically be characterized as government control of industrial activity to meet noncommercial government objectives, but in practice natural resource regulation may involve participation by the regulator in commercial decision making (for example, approval of contracts) and (as discussed earlier) in administration of some revenues payable by NRCs.
- Business taxation can typically be characterized as government appropriation of a share of sales/profit measured by its own (tax) rules but without capital investment or spending decisions. But in practice natural resource taxation rules sometimes reinforce regulatory requirements, determine prices at which natural resources should be sold, and allow tax auditors to challenge costs on commercial grounds.

Equity participation often contributes marginally to government revenues, but in many countries has presented significant risks.

- Erosion of governance through capture of NRCs by self-serving elites;
- Macroeconomic mismanagement through allocation of opaquely defined and managed quasifiscal responsibilities to NRCs;
- Problems of funding government investment, resulting in costly operational delays;
- Commercial inefficiency;
- Conflicts of interest where an NRC combines fiscal and industrial regulation with its commercial role; and
- Hollowing out of institutional capacity in government supervisory departments.

Some countries' experience of state participation has, however, been successful, and its political and emotional appeal in developing economies remains high. Many countries have taken steps to address the risks mentioned. There has been a general trend, with some exceptions, toward lower levels of equity participation, clearer definition and separation of roles and responsibilities, and greater accountability.

Revenues from state ownership, such as NRC dividends, are public revenues to be administered. Procedures and allocation of responsibilities for administration of those revenues, and particularly the relationship of the finance ministry and

[25] See Chapter 9 in Daniel, Keen, and McPherson (2010) for a fuller discussion.

tax department to the NRC, vary significantly from one country to another. State ownership of natural resources therefore presents special challenges to revenue administration.

Different approaches to political control and ownership can result in different legal and contractual frameworks for taxation. These different frameworks are generally characterized as:

- Concessionary regimes;
- Production sharing; or
- Service contracts.

Under a traditional concessionary regime,[26] the government concedes ownership and freedom to companies to dispose of the natural resources they extract; companies also own the assets and installations created to extract them. They are then subject to a range of taxes on their operations. The government may combine this with equity participation. This is the standard legal framework for mining.

For petroleum, developing economies came to see concessionary regimes as incompatible with national sovereignty, and over the past 50 years have generally adopted *production sharing*. PSAs are not found in OECD countries. For mining they are very rare,[27] and discussion of PSAs in this handbook is therefore identified as relevant only to petroleum.

(Petroleum) Production sharing is often regarded as a form of state participation, even though it does not give the state/NRC an equity share. (PSAs do, however, commonly provide for this as a separate matter.) Under a PSA an investor company (or companies) meets all the costs of petroleum operations. The PSA usually specifies a maximum portion of annual production that the company can retain to recover those costs. Oil retained to recover costs is termed *cost oil*. The remaining oil (*profit oil*) is physically shared between the state/NRC and the investor on the basis of a formula set out in the PSA, with the state/NRC share normally increasing progressively (for example, on the basis of cumulative production or rate of return). The company generally also has to pay CIT and royalties,[28] sometimes in kind. Production sharing may be regarded as a form of state participation because under a PSA the ownership of petroleum to be extracted remains with the state/NRC, which usually also assumes ownership of any assets or installations created. Private investors are regarded not as owners but as mere contractors, working for the state/national resource company, meeting costs on its behalf, and allowed by it to retain a share of state-owned petroleum to recover those costs and give them some return on their expenditure. The state/NRC assumes rights of control and oversight over its contractor equivalent to those that might normally be exercised by a majority equity investor.

(Petroleum) In substance all the essential characteristics of a PSA can be replicated in a concessionary regime. Taxes can be designed to achieve exactly the same fiscal revenue. They can even be payable in kind—tax legislation often allows governments to opt for this (although they rarely do in practice). PSAs generally set out extensive industrial and fiscal regulatory requirements, as well as requirements for control and oversight, but the same rights of control and oversight can be, indeed often are, exercised by state regulatory agencies in concessionary regimes. Because the government makes no investment, its production share can be regarded as in substance a progressive profit tax rather than as a profit from state ownership. Its base (gross revenues and deductible costs) is usually similar, indeed sometimes identical, to the CIT tax base.

(Petroleum) There are, however, key practical differences between production sharing and normal taxation. These are:

(1) Administration by the NRC (or natural resource ministry): This raises organizational issues. It takes revenue administration outside the control of the finance ministry. If the tax department administers CIT, there is major functional overlap.[29]
(2) Payment in kind: Under PSAs the government's production share (and sometimes royalties and CIT too) is payable in kind. (PSAs often provide an option to require payment in cash but NRCs rarely exercise it.) In-kind revenues often constitute the majority of government petroleum revenues. Collection and disposal of in-kind revenues present particular problems and require special skills and procedures.
(3) Combination of fiscal administration and industrial regulation and commercial roles: This raises various issues: possible conflict of interest between commercial and fiscal roles and capacity concerns because skills required to tax a business may differ from those required to regulate and run it.

(Petroleum) Production sharing therefore presents significant challenges to administration. Its attraction to developing economies should, however, not be underestimated.

Under a service contract regime, the state pays an NRC a fee for carrying out a defined operation. Service contracts are used by only a few countries, mainly where natural resource production is largely nationalized. They can be legally and theoretically distinguished from joint investment under a production sharing or concessionary regime.[30] The fee will

[26] Sometimes called a tax and royalty regime, but this is confusing because tax and royalty may also be payable under production sharing.

[27] Mongolia is, however, considering a combination of a PSA and a service contract for a major coal mining project.

[28] Limiting costs to a maximum percentage of gross production is fiscally equivalent to a royalty. Sometimes such cost recovery limits are imposed instead of, or in conjunction with, explicit royalties.

[29] Sometimes CIT is payable out of government production share. Total liability is therefore wholly determined by the production sharing rules. Essentially CIT becomes a notional calculation, and there is no functional overlap because determination of total liability is in the hands of the NRC/petroleum ministry.

[30] The distinction between the different types of regime is reflected in the accounting treatment of petroleum reserves. With a concessionary regime, companies book all the reserves in their accounts; with a PSA regime, only a share of the reserves; and with a service contract regime, none of the reserves (one reason service contracts are unpopular with petroleum companies).

normally be subject to CIT, and in theory its taxation should be straightforward. But where the government transfers investment risk to the company and links the service fee to natural resource production or profit, there may be little real difference in substance from the other types of regime, and administration will involve similar challenges.

## Poor Governance

The tendency of resource wealth to undermine or exacerbate existing weaknesses in governance is well documented and has been widely discussed.[31] As well as the risk of the nation being exploited for its natural resources by foreign companies, there is a risk of its being exploited for its natural resources by a domestic political elite using government's involvement in the industry to further its own private interests. All areas of government involvement—policy design, licensing, regulation, commercial participation, tax administration, and, of course, management and spending of revenues—present major corruption risks. Tax administration may in fact be one of the least important. Poor governance and corruption are by no means unique to natural resources. But the risks in relation to natural resources are particularly large, and the challenges that natural resources present to governance are seen as particularly severe. Poor governance is considered a, perhaps *the*, major contributor to the "resource curse"—the relatively poor economic performance of many resource-rich countries. Poor governance and transparency are also major disincentives to investment by responsible and well-managed NRCs.

Combating corruption in natural resource revenue administration essentially requires the same measures as for general tax administration. There may, however, be special difficulties, for example stronger resistance to those measures from vested interests; the wider diffusion of revenue administration roles; and a greater difficulty in competing with private sector salaries (often higher in the natural resources sector).

Transparent accounting for resource revenues should be a regular part of accounting for tax revenues, but there are often special challenges and risks. Some of the features already mentioned tend to make efficient and accurate reporting difficult (for example, multiple taxes; dispersal of collection responsibilities across different agencies, often with different collection and banking procedures and separate accounting and IT systems; payment of revenues in kind; and secrecy of natural resources agreements).

There are various international initiatives to strengthen transparency in natural resource–rich countries. The IMF published a *Guide to Resource Revenue Transparency* (revised in 2007),[32] which covers the topic comprehensively, and not just in relation to revenue administration. Another important initiative, which was before more narrowly focused on transparency of natural resource revenues but has been expanded to address various issues along the decision chain, is the EITI, to which many resource-rich countries have signed up. The basic idea is that NRCs should publish what they pay, and governments what they receive, and the amounts should be audited and reconciled, leading to greater public understanding, greater government accountability, and greater engagement of civil society in monitoring collection and spending of natural resource revenues. Agreement by companies to waive confidentiality, or even legislation to nullify confidentiality clauses in legislation and agreements, may be needed as a preliminary to EITI implementation. A multi-stakeholder group defines the scope of the report to be prepared by the countries, based on the international standard, including natural resource revenues, and the administration will be required to record and account separately for them and put the necessary reconciliation and reporting procedures in place.

## Consequences for Natural Resource Revenue Administration

Natural resource revenue administration presents all the normal challenges of business taxation, but in addition may present a wide variety of special issues, and the scale of the risks involved may be exceptionally large. The previous discussion explains how the features of the natural resources industry prompt a wide range of particular tax policy responses—despite its conceptual simplicity—and how those policy responses in turn generate administrative issues. This section summarizes and draws together the special administrative issues already identified.

The legal and policy framework for natural resource taxation may present special legal issues:

- There may be special taxes and nontax revenues (for example, royalties, progressive or rent-based taxes, bonuses, and minor nuisance taxes), some of which may be very different from typical business taxes; community service (training and infrastructure) obligations are a common feature.
- There may be specially negotiated contract-based fiscal regimes; fiscal terms may vary from one project to another, and/or from one type of natural resources to another.
- Government equity participation is common, but varies in nature and extent. The lines between equity participation and taxation are sometimes blurred.
- There are different kinds of legal frameworks (concessionary, production sharing, service contracts). Countries often use different frameworks for different projects.
- There are major transfer pricing risks, and there may be special countermeasures.
- The natural resource fiscal regime may be stabilized.
- There may be a range of special tax provisions, including, for example:

[31] See, for example, Humphreys and others (2007) and Ross (2013).

[32] This is discussed in more detail in Chapter 5.

- Benchmark-based pricing;
- Ring-fencing;
- Special cost categorization and depreciation rules;
- Cost recovery limits;
- Deduction of abandonment reserves;
- Loss relief;
- Thin capitalization rules;
- Hedging rules;
- Rules for taxing gains on natural resource license transfers;
- WHT rules;
- VAT and customs import and export exemptions;
- Domestic processing and consumption incentives; and
- Tax holidays and deferral and other special investment incentives.

There may be special organizational issues, for example:

- Fragmented administration of natural resource taxes is common.
- Taxation, industry regulation, and commercial roles are often confused.
- NRC involvement may complicate tax administration and create conflict of interest.
- There may be fiscal decentralization.
- Political economy considerations may have a strong influence on organization.

There may be special procedural issues:

- Some natural resource taxes (for example, royalty, production sharing) may have an administrative framework very different from that of typical taxes (for example, no self-assessment framework).
- Multiple taxes and fragmented administration may add to procedural incoherence.
- Awarding of license contracts and organization of bids and auctions may require special procedures.
- In many cases only a small number of taxpayers are involved in the industry, which should simplify routine tax administration procedures.
- Natural resource tax administration may involve special procedures, for example:
  - Physical audit plus publication of benchmark-based prices (and possibly related appeal procedures);
  - Payment in kind (in the case of petroleum);
  - Special procedures for joint venture returns and audits;
  - International arbitration (where contract law requires it);
  - Special confidentiality rules and accounting procedures (to allow EITI reporting); and
  - U.S. dollar accounting and payment.

There may be special transparency issues and particular governance challenges. Revenue administration often suffers from weaknesses in transparency, and addressing those weaknesses is an important requirement for strengthening governance generally.

- Factors such as complex legislation, individually negotiated agreements, and secrecy can result in *nontransparent law* call for measures to increase transparency (for example, consolidation of legislation, publication of guidance).
- Factors such as multiple types of natural resource revenue, fragmented administration, complex and inconsistent payment and accounting rules, government equity participation, and (where relevant) in-kind payment can result in *nontransparent revenues*, which calls for measures to make revenue more transparent (for example, EITI, special natural resource accounting and reporting, confidentiality waivers).
- Fragmented administration and confusion of roles (policy and administration; fiscal, regulatory, and commercial) can result in *conflict of interest* and may complicate development of common standards of integrity.

There may be special capacity issues. In addition to the skills needed for any large business tax administration, natural resource tax administrators must:

- Be familiar with natural resource legal issues and risks;
- Understand natural resource industry processes, accounting, and technical jargon;
- Know foreign languages used by multinational enterprises—for example, so they can access information on company websites, such as group accounts and international accounting standards. (English is the language most commonly used the industry, although information may be published in other commonly used international languages too);
- Understand benchmark pricing; and
- Develop natural resource technological expertise. This may be required for physical audits and even for standard tax audits if tax provisions require such expertise (for example, to quantify natural resource depletion).

## Logical Framework for Evaluating and Strengthening Natural Resource Revenue Administration

This introductory chapter introduced the wide range of tax policy responses to natural resource endowments and the administrative challenges they may present, but does not attempt an evaluation. It merely sets the scene by explaining what may happen in practice and why. Not all special natural resource tax policies are judicious, and some administrative responses are far from ideal. Indeed, many of the features that distinguish natural resource revenue administration (for example, fragmented organization, confusion of roles, payment of tax in kind) would in any other context simply be considered bad practice. Countries need to assess

their current performance in administering natural resource revenues and strengthen administration by identifying and implementing best practices.

This handbook proposes a structured approach to evaluating and strengthening natural resource tax administration, based on the following five topics, each discussed in detail in later chapters:

- Policy and legal framework: The aim is not to evaluate or make recommendations on the economic objectives of natural resource tax policy, but to assess the administrative challenges typically presented by natural resource fiscal regimes, and recommend approaches to the design of natural resource fiscal regimes that might allow more effective administration without disturbing underlying economic objectives.
- Organization: The aim is to evaluate and make recommendations on the organization of natural resource revenue administration between different agencies; organization within agencies, particularly the tax department; and arrangements for cooperation and exchange of information.
- Procedures: The aim is to evaluate and make recommendations on the legal framework for natural resource revenue administration and the execution of procedures and functions (core processing, enforcement, and taxpayer service).
- Governance and transparency: The aim is to review and make recommendations on governance and transparency in the context of the IMF's *Guide to Resource Revenue Transparency*. The focus is particularly on transparent accounting for and reporting of natural resource revenues, including participation in EITI.
- Capacity-strengthening requirements: The aim is to assess and make recommendations on natural resource revenue administration needs (staffing, salaries, recruitment, training, IT, funding) and capacity building. The option of outsourcing to fill gaps in capacity is also discussed.

In discussing these topics the focus is very much on special natural resource tax administration issues.

To strengthen natural resource tax administration it may be necessary to address general administrative issues not discussed in detail in this handbook. The general requirements for good natural resource revenue administration are largely the same as for any other revenue administration and are often more important than the special requirements discussed in this handbook. For example, development of specialized skills for auditing natural resource revenues will not be particularly useful without a good foundation in general tax auditing skills. A project to reform natural resource revenue administration is likely to have little effect unless it is part of a wider tax administration reform program. At various points the handbook provides references to further reading on general administrative issues.

A recurring theme in considering these topics is that what is desirable in theory may not be achievable in practice. Powerful political considerations often dictate the way things are done, as well as legal constraints and well-established traditions. The view of best practices set out in the following chapters may not be shared by governments, or they may consider them impractical. Tax authorities may want to make limited improvements (for example, in auditing capacity) within their current administrative framework, but be unable or unwilling to undertake wholesale legislative, organizational, or procedural reform. A reform program should be guided by a vision of best practices, but may have to reflect political and practical realities.

Efforts to strengthen revenue administration are often focused on the needs of traditional tax and customs departments reporting to the finance minister. Some of the special administrative issues discussed in this introduction may, however, fall outside their purview, because they involve nontax revenues for which responsibility is allocated to other agencies. In some countries the tax department administers only traditional business taxes, whereas other agencies administer royalties, fees, state dividends, production sharing, social expenditure obligations, and other special charges on the natural resource industry. But these are public revenues and should be covered by programs that strengthen revenue administration. This revenue should perhaps be brought within the purview of traditional tax-collection agencies, but this would require implementation by institutions other than the finance ministry, such as the natural resources ministry, NRC, or provincial governments, which would require their acceptance.

If nontax agencies do retain responsibility for natural resource revenue administration, their performance may also need strengthening, but this may be challenging in practice. A simultaneous reform program across several, separately managed organizations can be difficult to implement. Technical assistance providers may not have such a close working relationship with other agencies (which may not have been party to the request for technical assistance in the first place), and those agencies may feel threatened by possible reorganization of functions and mistrustful of any reform program. Ideally, natural resource revenue administration reform should encompass all agencies involved, but if this is not practical, a reform program limited to a particular department may have to be adopted as a second best solution, and, even though limited, may achieve worthwhile improvements.

# CHAPTER 2

# Policy and Legal Framework

The first step in assessing natural resource revenue tax administration in any country must be a review of its legal and policy framework: the rules that determine the tax payable by natural resource businesses (not the administrative rules, discussed separately in Chapter 4). For large natural resource companies those rules mostly define the nature of the administrative task. For those companies the main challenge is generally not—as it often is with smaller businesses—business account accuracy and filing and payment compliance. Instead the main task is to ensure that the taxes they pay are calculated in accordance with policy intentions underlying natural resource revenue legislation and agreements. This is, therefore, the main focus of natural resource revenue administrative efforts and the basis for assessment of capacity-building needs.

The objectives are to identify and address issues that may make the law nontransparent, unpredictable, or difficult to apply, causing administration and compliance problems that may result in loss of government revenue or discourage investment. Tax administrators and administration experts are not normally qualified to advise governments on broad tax policy (that is, the design of tax instruments to meet government economic policy objectives), although they should have a reasonable grasp of what those objectives are. But, as discussed further later, they are qualified to advise on the administrability of tax law, and should do so.

What is required is an overall assessment of the legal framework, detailed explanations of the administrative issues it presents, and of the steps required to address them, and an assessment of capacity needs for implementing any changes necessary. This requires detailed study of legal texts. Drafting amended legal provisions to implement policy changes will require specialized legal expertise.

The outcomes to be achieved are the production of better natural resource tax rules and/or a better strategy for managing issues presented by existing rules. The aim should be to make the application of the law simpler, clearer, more accessible and transparent, more harmonized and coherent, and more robust against tax planning and avoidance, taking account of international best practices and administrative capacity constraints. This may require amendment of tax regulations and personnel and procedures for ongoing assessment and management of risks presented by the legal framework.

## ACCESSIBILITY OF NATURAL RESOURCE TAXATION LAW

The legal framework must give unambiguous taxation authority and be fully documented and accessible to tax administrators, taxpayers, and the public. In some countries natural resource revenue rules span many different laws, including mining and petroleum as well as tax legislation.

Fiscal provisions in negotiated contracts should also be accessible. Ideally these should be published (see Chapter 5 for further discussion). Even where publication is prohibited, steps can be taken to minimize secrecy—for example, by use of standard published agreements, with only the negotiable fiscal parameters kept secret. Sometimes contracts are held by natural resource ministries or national resource companies (NRCs), and not only are they not published, they are not even made available to the tax authority—despite the fact that they set out the fiscal regime and accounting requirements applying to NRCs. This is not acceptable. The finance ministry is normally at least partly responsible for negotiation of these

contracts (and if not, it should be), and they should be accessible to departments reporting to the finance ministry.

The legal status of special tax agreements with NRCs must be clear. The government cannot enter into agreements that override laws unless it has statutory authority to do so. Sometimes that authority is lacking or is not extensive enough to cover all the elements of the agreements negotiated. Even where the authority to negotiate special agreements is adequate, their internal wording may leave their status unclear. For example, they may say that companies entering the agreements are subject to normal taxes, but then set out special provisions inconsistent with normal tax rules or purporting to override them. Governments need to avoid such uncertainties both to protect their own position and to provide clarity to tax authorities, and where necessary steps should be taken to eliminate them.

Access to regulations, rulings, and official guidance may be needed for full understanding of the relevant natural resource tax legislation. The power and scope to make administrative regulations must be clearly defined by law. On rulings, there is sometimes a lack of clarity as to whether these are binding on taxpayers or merely reflect the tax authority's view and are binding only on the authority. The exact legal status of rulings must be clear, bearing in mind that the meaning of terms such as "rulings" can vary from country to country. Court judgments may also be necessary for the interpretation of particular provisions.

Where stability clauses are in place, these sometimes "freeze" the tax law applying in particular cases. The law in effect on the date of an agreement must therefore remain available, along with any explanatory documents, in addition to current legislation.

There should be limits on the legislative discretion of ministers or departments on application of particular provisions. Such discretion is often an indication of weak and unclear policy, and administrators may have no clear idea of how it should be exercised. This makes the law fundamentally nontransparent, and is incompatible with the principle of self-assessment that should underlie tax administration. (One of the main benefits of self-assessment is that it requires the law to be transparent.) Legislation should either be amended to eliminate such discretion or policy should be clarified and guidance published explaining how it will be exercised in practice, so that taxpayers can self-assess on that basis without having to apply for ministerial or departmental consent.

Ready accessibility to relevant legislation, contractual agreements, and legal interpretation is essential for transparency and effective tax administration. Where accessibility is inadequate, steps should be taken to improve it—for example, consolidation of legislation,[1] harmonization of agreements, or publication of manuals or guidance bringing together all the relevant sources of information. Government websites can and should be used to bring all the required information together in one place. The importance of consolidating and updating all relevant laws and associated regulations should not be underestimated. For example, the publication of an annually updated set of consolidated laws enhances transparency not only for investors but for civil society overall. Simply enacting amendments that refer to a previously existing law increases the risk of inconsistency and misinterpretation.

## TAX ADMINISTRATION AND TAX POLICY

Tax departments have an important tax policy advisory role. Tax policy is the responsibility mainly of the finance ministry, but tax authorities should be consulted on the design and practical implementation of proposed legislation before it is presented to the legislature. When it is first drawn up the tax authorities should fully assess its administrative implications and plan for training and implementation. These tax experts should also alert policymakers to implementation problems of existing legislation, present evidence of their nature and extent, and propose corrective legislative changes that do not conflict with the government's underlying policy intentions. Policy design therefore must coordinate input from those who are skilled in administration as well as policy and legal experts. It is usually very difficult to secure changes to existing tax legislation because legislators have many competing priorities, and administrative issues may be of little concern. (And the outcome can be unpredictable and make things worse rather than better.) But tax authorities need to be ready to make the case for sensible change if the opportunity arises.

Consultation between the natural resources industry and government, at both the ministerial and tax authority level, should take place on proposed changes to legislation and accompanying guidance. Fiscal policy is of course a matter for governments to determine. They sometimes prefer to introduce changes without prior notice so that companies cannot take action to forestall their intended effects, and there may be exceptional cases where this is justified. But in general a policy of "no surprises," with clear explanation of proposed changes and their underlying policy intention, is more likely to foster cooperation and voluntary compliance, and may actually result in more effective legislation, because NRCs may identify practical problems with proposals (and possibly suggest solutions). To this effect, it is important that tax administrations allow NRCs sufficient time to review, provide feedback, and discuss with the authorities the proposed changes. (In general, given the complexity of the topic, a few weeks of consultation may not be sufficient for high-quality feedback and discussion.) When new legislation is enacted, the tax authority should have a strategy for publicizing it and providing guidance and responses to questions arising on it.

[1] There are generally two options for consolidating special natural resource legislation: consolidation in a special natural resource taxation act or consolidation in a special section of existing tax legislation. The choice will usually depend on a number of factors, such as how many special natural resource taxes there are and how many special provisions apply or are required.

Often the policy role of tax departments is not properly developed or recognized. Internal capacity and procedures for policy review may be lacking or require development. Or tax departments may have insufficient access to finance ministry policymakers to allow them to perform this role in practice. In some countries, the finance ministry itself may not have an effective tax policy unit. Where the natural resource ministry plays a major role in natural resource fiscal policy, it may be even more difficult to establish appropriate contact between policymakers and revenue administrators. It may therefore be necessary to strengthen policy advisory capacity and procedures, for example, by establishing new interdepartmental communication channels for policy discussion and consultation.[2]

## IMPLEMENTATION AND DESIGN OF NATURAL RESOURCE TAXES

### Royalties Versus Profit and Rent Taxes

The broad choice of natural resource tax bases and rates should be regarded as primarily a policy, not an administrative, issue. The bases for natural resource government revenues most commonly chosen are:

- Volume or weight of production (specific royalties);
- Value of sales or production (ad valorem royalties, export duties);
- Supply of goods and services (value-added tax, VAT);
- Profits or gains (corporate income tax, CIT, capital gains tax);
- Excess profits (resource rent taxes or progressive royalty or profit tax rates intended to capture rent);
- Area rentals;[3]
- Transactions (license fees, signature bonuses, discovery or production bonuses); and
- Payments (withholding tax, WHT, import duties, and so on).

Governments must choose the most suitable mix of tax bases and tax rates to meet their particular economic tax policy objectives in terms of revenue, risk, competitiveness, investment incentive, and so on. Ease of administration must be secondary to those broad economic objectives. But the aim should be to meet those objectives without imposing unnecessary administrative complexity, and ease of administration should be an important consideration in the detailed design of the taxes chosen. It is often unnecessary complexity and weaknesses of detailed design of natural resource taxes that present the most serious challenges to administration.

The difficulty of administering profit-based natural resource taxes is sometimes argued to be so great as to make it essential for developing economies to rely mainly on output-based royalties that can be administered more simply and more effectively. This would severely constrain government policy because the economic effects of royalty- and profit-based taxes are very different (since the former do not respond to profitability). No doubt there are extreme situations in which profit-based natural resource taxes would generally be impracticable—for example, during a civil conflict when competing warlords seek to exploit natural resources under their (possibly temporary) control. But for reasonably stable developing economies, the argument is much less clear cut. In developing economies without natural resources a few large companies, often in much more complex industries (for example, banking, telecommunications, pharmaceuticals), usually generate most government revenue, but few would argue that administrative difficulty calls for wholesale replacement of taxes like CIT and VAT with simple sales taxes. It is not clear why this argument should apply uniquely where NRCs dominate.

This argument exaggerates the *simplicity* of royalty-dominated tax regimes. Natural resource valuation is not simple. (See Appendix 1 for further discussion.) Furthermore, the practical reality is that countries generally do impose some profit taxes on NRCs—they are, for example, generally subject to CIT.[4] In practical terms, therefore, the issue is usually whether royalties should form a minor or a major element of the special taxes imposed on NRCs. Where they form a major element, they tend to be more complex because more variations and refinements are needed to make them responsive to underlying profitability (through use of proxy measures like price, location, or production level), whereas it is easier for countries with minor royalties to keep them simple (because profitability is more adequately captured by their profit-based taxes). So royalty-dominated regimes are usually more complicated to administer because of more complex royalties in addition to profit taxes—the worst of both worlds.

The *effectiveness* of royalty-based taxation is also exaggerated. The ease of monitoring sales compared with monitoring costs is overrated. Although benchmark-based pricing may reduce transfer pricing sales risks, it is technically demanding, particularly for mining. In theory, simple royalty valuation rules can be designed that do not require use of realistic sales values, but these nearly always cause problems, requiring further refinement of the rules. The resulting instability and complexity are underrated barriers to effective administration. The assumption that transfer pricing sales risks are much

[2] The Australian Tax Office formalized best practices on strengthening links between policy development and implementation in its Integrated Tax Design Project; see http://www.ato.gov.au/Media-centre/Speeches/Designing-the-delivery-of-legislative-measures.

[3] License area rentals are common. They often increase if a commercial discovery is made. The main policy reason is to discourage companies from holding on to areas not being actively explored or developed. In practice they are often too insignificant to affect company behavior—specific requirements to relinquish unused acreage may have more effect.

[4] A creditable CIT may be essential to ensure natural resource operations are not taxable in natural resource companies' home states, which may be an important policy objective.

**TABLE 2.1**

Example of a Simple 20 Percent Resource Rent Tax When Internal Rate of Return Exceeds 15 Percent

| | Year | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| | Gross natural resource revenues, as for corporate income tax (CIT) | – | 100 | 200 | 300 | 300 | 300 |
| | Costs, as for CIT but not depreciated, and excluding finance costs | −100 | −150 | −150 | −100 | −100 | −100 |
| A | Net cash flow for year | −100 | −50 | 50 | 200 | 200 | 200 |
| B | Opening acc. net cash flow with uplift | – | −100 | −165 | −139.7 | + | + |
| C | Uplift 15 percent on opening acc. net cash flow | – | −15 | −24.7 | −21 | – | – |
| | Resource rent tax profit (A+B+C) | −100 | −165 | −139.7 | 39.3 | 200 | 200 |
| | Resource rent tax @ 20 percent | – | – | – | 7.9 | 40 | 40 |

Source: Author's elaboration.

easier to manage than transfer pricing cost risks is therefore questionable, and an administration unable to manage the latter is equally unlikely to be able to manage the former.

There are political and policy arguments for royalties as part of a natural resource tax regime. The choice of a tax regime should be based on those arguments instead of the supposed administrative advantages of royalties. Even if governments do suffer more leakage from profit-based than royalty-based taxation, the difference may well be marginal, and the fiscal cost outweighed by the fiscal policy advantages. Against this backdrop, the tax administration should invest in building its capacity to audit natural resource companies' profits to minimize leakage. This process of strengthening in-house audit capacity could involve hiring specialized auditors from private firms. This strategy would offer a better way of meeting government policy objectives than forgoing profit-based taxes altogether. (The role of the private sector in natural resource revenue administration is discussed in more detail in Chapter 6.)

Administrative difficulty is often put forward as an objection to resource rent tax (RRT) but the difficulty may be exaggerated. RRT is specifically designed to tax rent or excess profits. It generally calculates a standard rate of return or uplift on a company's net expenditure and then apples the RRT, sometimes at progressive rates, to profits above that level. RRT can add complexity if costs and revenues are calculated very differently from other natural resource taxes, such as with special ring-fencing provisions.[5] Objections may be based on the assumption that this is necessary and will impose significant additional demands on administration. But RRT can, and should, be kept simple.[6] It can be designed to require the same data as CIT, but apply much simpler rules (for example, excluding depreciation, finance costs, license transfers, and so on). Its administration can easily be consolidated with CIT administration (for example, with a common tax return). RRT can be relatively simple tounderstand and explain, especially if instead of in algebra it is explained with simple examples. Calculations can in any case be easily automated. Angola faces capacity constraints as severe as can be found anywhere, but still manages to successfully apply progressive tax rates based on internal rate of return. (RRT can, however, be designed to apply a single rate of tax to excess profits rather than a series of progressively increasing rates, which is not only simpler but less open to avoidance.) Beyond a rate-of-return RRT, there are alternative rent-based taxes, such as the tax surcharge on cash flow and the "R-Factor."[7]

## Unnecessary Complexity of Natural Resource Taxation

Problems arising from *complex implementation* of natural resource tax regimes are often underrated. In principle, natural resource production can and should be subject to a small number of coherently designed and administered taxes, largely consistent with general tax law but with limited modifications to reflect its distinctive characteristics and tax policy objectives. This is the approach generally recommended by IMF and World Bank tax policy experts. Norway provides a notably successful example. Instead there is often:

- A complex legal framework*:* multiple taxes with unnecessary minor variations in the tax base; a range of different types of legal framework that blur the boundaries between government taxation, regulation, and commercial participation; and a multitude of individually negotiated tax agreements that vary not only in broad fiscal terms but in design and wording. This legal tangle, furthermore, is often formalized in various laws, decrees, or other legal documents, which prevents sensible simplification and consolidation.

[5] In Australia, CIT applies to companies' total Australian mining profits, but RRT is calculated by reference to individual mining projects, introducing significant complication. By contrast, both Norway's CIT and supplementary petroleum tax apply to total Norwegian petroleum profits.

[6] In practice, investors have experienced significant administrative difficulty regarding lack of capacity of tax authorities in administering RRTs. Therefore, the need for simplicity should be a key objective in any legal reform. If countries implement an RRT that does add major new complexities, administrative capacity may be a material issue and create concerns from the investors' standpoint.

[7] For further details, see IMF (2012), Box 2.

- Fragmented administration of these taxes across various agencies with confused and conflicting roles (discussed in more detail in Chapter 3).
- Incoherent procedures (discussed in more detail in Chapter 4).

These are major administrative challenges. Administrative weakness is often to blame for a failure to meet challenges that would vex even the most competent administrators.

It is important to identify administrative difficulties resulting from unnecessary complexity of the natural resource tax regime. There may be reasons why some projects or locations are taxed differently from others, particularly where taxes are not responsive to profit. For example, some locations will be more attractive to investors than others, or their attractiveness may alter with time. As far as possible, however, policy should apply consistently to natural resource companies in similar circumstances. Often natural resource tax regimes are far more complex than they need to be, and the complexity serves no useful policy objective:

- Natural resource companies are often subject to assorted minor special taxes, each with its own special tax base (for example, education taxes, regional levies, administrative levies, special bonus payments based on cumulative production, and so on). Sometimes these nuisance taxes are earmarked for particular purposes. A minor adjustment to the rate of one of the main natural resource taxes would often collect a larger amount than all of them put together. From an administrative viewpoint it is legitimate to question the need for such nuisance taxes, which place an undue compliance burden on investors and complicate administration for no good reason. It should be borne in mind, however, that these taxes often serve a political rather than a genuine tax policy function, so there may be political resistance to their removal.
- Another common source of complexity is unnecessary variation in the base for different taxes. For example, costs may be calculated differently for the purpose of different profit taxes. Or gross revenues may be calculated on a completely different basis for royalty and profit taxes. There may be policy reasons for such differences, but often there are no clear reasons, and the differences are mere accidents of history—for example, a government may have taken cost provisions from a model contract agreement that does not match its own income tax law. Differences in revenue and cost bases should have a clear policy justification, and be clearly and explicitly defined, so that different taxes can be easily reconciled without the need for entirely separate accounts and returns. It is clearly inefficient and cumbersome if issues that are a common cause of dispute (for example, natural resource valuation, classification of costs as capital or operating, transfer pricing) have to be resolved separately under differing legal provisions.
- Legislation may achieve policy objectives in unnecessarily complex ways. For example, "cost recovery limits" (which limit costs to a maximum percentage of revenues) are common for petroleum and have the same economic effect as a royalty,[8] yet often for no obvious reason tax rules impose both cost recovery limits and royalties. Investment allowances on depreciable capital expenditure are common, but a faster depreciation rate might be a simpler way of achieving the same economic effect.
- Natural resource regimes frequently differ from regular accounting standards in ways that are not helpful. Tax depreciation rules do generally need to be more precise than accounting rules, for the sake of clarity and certainty, but where possible they should build on normal accounting practice. For example, if petroleum intangible drilling costs are normally categorized as capital expenditure for accounting purposes, then categorizing them differently for tax purposes is an unnecessary complication.

Governments can take various steps to minimize complexity.

- Base natural resource taxes mainly on general tax law with limited modifications to meet specific natural resource policy objectives.
- Where the fiscal regime is set out in agreements, ensure they have a consistent standard format and refer to relevant tax laws.
- Minimize the number of negotiable fiscal parameters.
- Minimize the number of different revenues.
- Use common building blocks (that is, revenue and cost definitions) across government revenues.
- Harmonize tax rules with established industry accounting concepts and standards.
- Limit the scope of stability agreements (discussed in more detail later).
- Where possible, update previous natural resource fiscal regimes to make them consistent with new ones.

## Badly Designed Natural Resource Fiscal Provisions

Good *fiscal design* is vital. Problems caused by poorly formulated legal provisions are often attributed to weak administration, and the potential for overcoming them by improved legislation underestimated. Weak administration is, for example, sometimes regarded as preventing developing economies, through abusive transfer pricing, from converting profits to costs at will, when what's really at fault is inadequate transfer pricing and penalty legislation.

[8] For example, say that costs deductible are limited to 85 percent of gross revenues and a profit tax of 50 percent applies. For every $100 of production, $15 is taxed at 50 percent with no deduction of costs, equivalent to a 75 percent royalty on gross revenues.

It is important to identify administrative difficulties resulting from poorly designed legislative provisions. These can make the law unclear because of gaps or ambiguities, unworkable in practice, or open to avoidance and abuse. (Sometimes it is companies that lose out because of poorly designed legislation, when it leads tax authorities to impose tax in a way not intended by policymakers.) Badly designed legislation may frustrate important government policy objectives. There is huge variation in the clarity and effectiveness of countries' legal provisions for common issues such as transfer pricing, thin capitalization, tax depreciation, transfers of license interests, hedging, and so on.

Effective administration of revenue legislation requires a proper understanding of its weaknesses, and a strategy for managing them. This is a key element of risk assessment. It is always sensible to discuss with auditors and taxpayer service staff what issues they see as problematic (and just as important, identify any problem areas—for example, opportunities for tax avoidance—they are unaware of). The aim should be to assess how well they understand legislative weaknesses and the risks they present, how well they manage those risks, and whether better ways of managing them are available. For example, does the tax authority have power to issue administrative regulations to resolve uncertainties? If not, would issuance of an official interpretation or guidance be a satisfactory alternative? Has adequate guidance been given to staff to ensure their approach is at least consistent? (Sometimes tax authorities leave it to individual auditors to decide how to apply unclear legislation, but this can result in inconsistency, causing taxpayers to lose confidence in the tax administration and discouraging voluntary compliance and respect for the law.) Would better training help staff apply the law more effectively? Could better use of information or audit powers help to minimize the impact of legislative weakness? Are there alternative legal arguments that could be mounted to strengthen the tax authority's case? Has the time come to try to clarify the issue through formal dispute resolution? Where none of these measures is adequate, legislation may need to be changed, and the problem should be brought to the attention of policymakers, as discussed.

Appendix 1 presents some of the special legal issues that typically arise in natural resource taxation and the varied approaches countries take to them. Bear in mind, however, that natural resource companies are usually subject to general tax legislation, such as CIT, and only a limited number of special natural resource provisions may apply. General tax provisions may be just as important as special natural resource tax provisions, and need to be considered in assessing the challenges presented by the legal framework and the responses to those challenges. But these provisions are not considered here because they are not unique to natural resources and do not impose special capacity-building needs. Some countries, for example, have wide-ranging anti-avoidance provisions, but their usefulness and design are not discussed here, because they are generally not specific to natural resource taxation.

The discussion of special natural resource issues in Appendix 1 cannot be comprehensive. Many countries have unusual natural resource provisions that reflect their own approaches. These are worth looking at in detail in case there is a breakthrough approach other countries could usefully adopt, but more often they present problems that make it obvious why other countries have not adopted them. Nor is it possible to describe exhaustively how countries deal with the issues discussed (for example, mineral valuation), because practices vary so widely.

## Stability Clauses

Stability clauses may cause problems for administration. Their scope, including conditions for review, is sometimes unclear. They may present an obstacle to much needed legislative reform to simplify and consolidate rules applying to different companies or to strengthen weak legislative provisions. The scope of existing stability clauses must therefore be carefully considered. Governments can, of course, legislate to override such clauses, but this may be inadvisable, because the long-term damage to the government's reputation and the investment climate might well outweigh any immediate benefit. And, in general, investors will keep requiring stability clauses until an extended record of certainty and fair dealing is established. Governments must make such decisions, and it is not up to administrators or administrative experts to advise them on it. Administrators should, however, alert policymakers to unnecessary legislative complexity and weakness, even if stability clauses prevent immediate remedy, since it may be possible to renegotiate stabilized agreements later. It is also important to eliminate weaknesses from legislation before new stabilized agreements are signed. There may also be a case for revising and limiting stability clauses in future agreements,[9] although this is more of a policy than an administrative issue.[10]

It may be possible to strengthen legislation in ways that are compatible with the *spirit* of the established law. Stability clauses should not extend to reasonable changes to laws, regulations, and rulings on administrative or compliance matters intended to improve the tax system or prevent abuse. For example, the prevailing law may have weak transfer pricing rules that make the tax authority responsible for detection and correction of non-arm's-length prices. If those rules are strengthened to make the arm's-length basis obligatory for tax purposes and require disclosure of non-arm's-length transactions, companies would not necessarily (in practice) argue that the new requirement violates a stability clause. The amended legislation could therefore strengthen the government's ability to control transfer pricing abuse in practice, even though it could not be invoked against companies in formal legal proceedings.

[9] See chapter 14 of Daniel, Keen, and McPherson (2010) for discussion and policy recommendations on design of stability clauses.

[10] For a further discussion on assurances of fiscal stability, see Daniel, Keen, and McPherson (2010).

## NONTAX REVENUES

Nontax revenue should be included in any assessment of administrative challenges posed by the legal framework. The characterization of natural resource revenue as nontax revenue varies from country to country, but all payments for extractive rights, including royalties, are revenues requiring administration, and they generally present the same sort of legal issues as normal taxes. In this handbook the term "tax" generally includes these so-called nontax revenues. (Minor nondiscriminatory charges for services such as vehicle licensing fees, harbor dues, and so on should be excluded from consideration.)

Production sharing should be considered as essentially tax revenue, whether or not it is classified as such. It is not a form of equity participation because the government invests no equity (though production sharing agreements, PSAs, do often provide for equity participation as a separate matter) and the production share taken by the government is not based on any investment. It is essentially in the nature of a profit-based tax collected in kind. Its tax base is often closely aligned with that for CIT. Production sharing will give rise to similar legal issues as any other profit-based tax. (Production sharing does give rise to distinctive procedural issues, as discussed in Chapter 4.)

Two kinds of nontax revenue—from government equity participation and nonpecuniary obligations—are generally seen as distinct from normal taxation. Each is considered in more detail in the following text.

### Government Equity Participation

Government revenue from equity participation is public revenue that must be collected and accounted for. Economists normally regard carried or free equity participation as fiscally equivalent to taxation of private investors (and can identify specific forms of taxation that are fiscally equivalent). But there is often no legal definition of revenues payable to the government from equity participation and no administrative framework for their collection as for normal tax.

Government equity may be held directly by a government department or agency, or indirectly through a government-owned NRC. There is not always a clear distinction between the practical consequences of these two approaches. A departmental agency holding government equity may sometimes have considerable autonomy and involvement in commercial decision making. It may be entitled to retain dividends and use them for investment and other purposes and even borrow independently. A state-controlled NRC, on the other hand, may be under tight departmental control. It may play a limited role in commercial decision making, be required to pay all dividends over to the government and obtain funding through the same budgetary procedures as government agencies, and have no independent borrowing powers. (In some cases, a national oil company might hold no government equity at all, but merely be responsible for administering production sharing.) In short, some departmental agencies operate like state-owned commercial companies, and some NRCs operate like government agencies.

Under best practices NRCs pay taxes according to their equity participation in the same way as private companies and are subject to the same administrative rules. This may seem like taking money from one government pocket and placing it in another, but it matters which pocket a government's money is in—in particular, whether it is in the spending pocket and subject to public expend iture discipline. Imposing normal taxation is one way to ensure budget discipline and guarantee that NRCs do not have an unfair commercial advantage over their competitors. (NRC compliance with tax obligations also needs to be enforced, and this is often poorly done in practice.)

That still leaves the question of the underlying profits themselves, and there is considerable variety in different countries' approaches to defining the amounts payable to the government. To some extent this will depend on whether government investment is in an unincorporated joint venture or in part ownership of a joint stock company, and whether it invests directly or through an NRC.

- Where the government invests directly in an unincorporated joint venture, it will be entitled to receive its share of gross revenues and contribute to costs under the terms of the agreement. It is important that it have the usual protections granted to minority investors in joint ventures, including limits on what the operator can pay associates. If it invests through an NRC, it has the option to require the NRC to pay to the budget its share of gross revenues and apply for funds to meet its share of costs, to be allocated through normal budget processes. Nigeria provides a notable example of this approach. In principle these are transparent arrangements (as long as gross revenues and costs are clearly defined), but they create their own problems.[11] Countries therefore more commonly allow NRCs to retain gross revenues to meet costs, in which case the government will be entitled only to its share of net profits. Governments may also permit NRCs to retain funds for other purposes, for example to fund further investment. The rules must be clear, and NRCs should clearly account for their investment and expenditure of retained profits. In some countries, NRCs have been allowed to retain huge sums that have not been clearly accounted for.
- Where the government invests in a mainly privately owned company, its revenues will normally take the form of dividends paid out of profits. For this purpose, profits may be defined under general accounting principles, and specific tax rules may not apply, but it is again clearly important that the shareholding

[11] In Nigeria, government delays in providing funds to meet cash calls severely delayed investment. Eventually arrangements had to be made for the government's contribution to be "carried."

agreement prevent majority shareholders from reducing profits by transferring value to associates. Usually the company's board determines how much profit is distributed as a dividend, and how much is retained for future use, which could leave a government that is a minority shareholder with no clear entitlement to revenue and no control over the timing of its payment. One option is for the government to hold preference shares requiring a fixed payment at defined dates. Another is for the shareholders' agreement to stipulate payment to the government on specified dates of a share of net profit or net cash flow proportionate to its shareholding. Whatever the rules, they should be clear, compliance should be monitored and enforced, and amounts due and paid recorded, as with any other government revenue. Where dividends are paid to an NRC or semiautonomous government agency rather than directly to the government, there must again be clear rules on what, if anything, it is entitled to retain for its own use, and clear accounting for investment and expenditure of retained funds.

## Community Service and Infrastructure Obligations

Where mining and petroleum agreements impose community service obligations on natural resource companies, they must be clearly defined. Examples are obligations to build infrastructure or provide education and training. Responsibility for monitoring performance of those obligations normally rests with the natural resource ministry or NRC. It is hard to frame such obligations as precisely as tax obligations, and governments must understand the risk that such obligations are difficult to administer and nontransparent. If a government nevertheless chooses to impose such obligations, they should be as clear and specific as possible (including specification of the time frame for meeting them and the rules and responsibilities for monitoring performance), so that they can be evaluated and enforced. Negotiation and performance of such obligations should be subject to the same public financial management disciplines as would be appropriate if the government had contracted to pay for the work out of its central budget.

# CHAPTER 3

# Organization and Cooperation

Natural resource revenue administration takes place within a wider government policy and regulatory framework. This covers not just fiscal policy and regulation, but also natural resources management and industry policy and regulation, and (where relevant) commercial participation. In any particular country it is important to understand the nature of this wider framework.

Where the finance ministry is wholly responsible for determining and implementing natural resource fiscal policy (as the IMF typically recommends), Table 3.1 sets out the likely framework. The fiscal regime for natural resource companies is generally set out in tax legislation, and tax departments are be responsible for its administration, although there may be exceptions for minor nontax revenues. The table assumes government equity participation, generally a feature in developing economies—in this framework, the finance ministry decides the level of state participation and oversees the national resource company's (NRC's) tax, financial management, and accounting. The natural resource ministry determines its natural resources exploitation policy and oversees operations.

The division of *administrative* responsibilities within this institutional framework can be simply summarized as follows:

- The tax department is responsible for revenue administration.
- The natural resource department is responsible for natural resource production.
- The NRC is responsible for profit production from the government's equity participation.

In some countries, however, the natural resource ministry plays a major role in making natural resource fiscal policy. One of its functions is to attract investment, for which purpose it must influence natural resource fiscal policy. But, in some countries, it takes the lead in designing the overall natural resource fiscal regime, determining the level of state participation, and negotiating contractual agreements with natural resource companies. In these countries it is likely that important elements of the fiscal regime will be included in mining or petroleum legislation rather than tax legislation, and that contractual agreements will set out the fiscal as well as the industry regulation regime. Fragmentation of responsibility for fiscal policy is undesirable, but is the reality in many natural resource–rich countries. It often contributes to the development of uncoordinated and incoherent rules for different natural resource revenues, as discussed in the previ-

**TABLE 3.1**

Standard Framework for Natural Resource Policy and Administration

| | **Policy** | **Administration/Execution** |
|---|---|---|
| **Fiscal** | Finance ministry | Tax/customs departments |
| **Natural resources management/operations** | Natural resource ministry | Natural resource inspectorate |
| **Commercial** | Natural resource/finance ministry | National resource company |

Source: Author's elaboration.

ous chapter, and has wider disadvantages that are beyond the scope of this handbook to discuss. Its relevance for present purposes is that where the natural resource ministry has a fiscal as well as industrial policy role, it also tends to participate to a substantial extent (through its executive agency) in fiscal as well as industrial administration.

In some countries, particularly those with production sharing regimes, the NRC plays a major (sometimes dominant) role in both resource management and natural resource fiscal policy, typically along with a major, sometimes dominant, role in regulation (fiscal and industrial). Combining policy, regulatory, and commercial roles is generally considered undesirable, and separation of those roles should be a primary objective of reform programs.

In many countries, regional and/or local governments play a major role in the regulation and taxation of industry, and this may apply likewise to the natural resource industry. There may be particularly strong pressure for this in the case of natural resources because they are often geographically concentrated in particular areas, but the country's political structure will normally be the key factor. Significant natural resource fiscal decentralization is more common in developed economies with a strong and stable federal structure (for example, Australia, Canada, the United States) than in developing economies. Where there is significant decentralization, the institutional framework will differ from those discussed above.

## ORGANIZATION OF NATURAL RESOURCE REVENUE ADMINISTRATION BETWEEN AGENCIES

Against this backdrop, there are major variations in the way countries organize natural resource revenue administration between agencies. From the viewpoint of administrative efficiency some of them are far from ideal. It is essential to form a clear understanding of current organization in assessing natural resource revenue administration in any country.

The different approaches to organization between agencies are:

- Administration of all, or substantially all, natural resource revenues by the tax department (or departments): In developing economies this is less common for petroleum than mining (because of the prevalence of production sharing regimes). It is more common in developed economies, except those with significant fiscal decentralization.
- Fragmentation of natural resource revenue administration among different agencies: This is common, particularly for petroleum.
- Administration of all, or substantially all, natural resource revenues by the natural resource department or NRC: This is comparatively rare, but may apply in production sharing regimes.

## INTEGRATED ADMINISTRATION BY TAX DEPARTMENT

For *general* tax administration, integrated, functionally based tax administration is normally seen as an essential element of any reform program. This view is well summed up in Kidd (2010): "An effective organization is the basic platform from which all other procedural reforms are launched and maintained. Without the right organizational structure in place, revenue administrations cannot operate effectively and their revenue efforts will be suboptimal. Where function-based organizations have not been implemented, the extensive procedural and operational reforms needed to support modernization would likely be ineffective." A legally constituted tax administration responsible for collecting all national taxes, based on the principles of integration of direct and indirect taxes, functional organization, and taxpayer segmentation—and with a headquarters to manage field operations—is usually strongly recommended.

Integrated functionally based administration of government revenues has many important advantages.

- It reduces burdens on taxpayers, promoting voluntary compliance.
- It facilitates the development of more coherent and simple legislation.
- It removes duplication and overlap of functions.
- It makes it clearer who is responsible and accountable for performance of functions.
- It allows the development of more integrated and coordinated self-assessment-based procedures and systems.
- It allows development of a centrally managed and coherent risk-based compliance strategy focused on the taxpayer, not on particular taxes.
- It increases specialization in revenue administration and allows capacity building focused on a single department.
- It provides a focal point for strengthening revenue administration integrity and standards.
- It allows development of a simpler, more comprehensive accounting system, which, along with common banking procedures, facilitates transparent accounting for government revenues.

Integrated, functionally based administration is equally appropriate for natural resource revenue administration. There are no special features of natural resource taxation that make the above advantages unimportant; on the contrary, many of them, such as transparent accounting, are especially vital for natural resource taxation. There is nothing about natural resource taxation that makes fragmented administration more efficient and effective; on the contrary, fragmentation is one of the main reasons natural resource revenue administration is often weak and ineffective. When assessing organization of natural resource revenue administration first requires determination of whether and to what extent this

kind of integrated administration has been achieved. If it has, it provides a firm foundation for strengthening administrative procedures and capacity.

To achieve the full benefits of integrated administration, the tax department's responsibility for natural resource revenues must be comprehensive. It should be responsible for all administrative functions for all government natural resource revenues: receiving company returns and accounts, auditing them and determining liability, ensuring payment, and accounting for payments to the government. This is necessary for a coherent risk-based compliance and taxpayer service strategy. Its responsibilities should not be limited to collecting and accounting for liabilities established by other departments, as is the case in some countries for particular types of natural resource revenue.

There is still the question of how natural resource revenue administration should be organized within the tax department (or departments), which calls for cooperation and the exchange of information with other agencies. Those issues are discussed later, but in general they can be more satisfactorily resolved where the tax department has overall responsibility for natural resource revenue administration.

## FRAGMENTED ADMINISTRATION

For natural resources, tax-type organization remains common. For general taxation there has been a worldwide trend for tax authorities to replace tax-type with function-based organization, in view of the advantages listed previously. There has been some movement in this direction for natural resource revenues, but in many countries they are still administered by different government agencies (sometimes including the NRC), even where close alignment of their bases makes them obvious candidates for an integrated function-based approach.

There is no uniform approach to allocation of responsibility for natural resource revenues in such countries, but certain approaches are typical. Often corporate income tax (CIT) and value-added tax (VAT) and capital gains tax (if there is one) are administered by tax departments; royalties, production sharing, and bonuses by NRCs and/or natural resource departments; export taxes by customs; surface taxes by natural resource departments or property agencies; and dividends on equity participation by property agencies or NRCs. Allocation of responsibility for minor nuisance taxes (for example, education tax) varies. These are often theoretically earmarked for a particular purpose, which may determine who collects them. Responsibility for administration of community service obligations (for example, to develop infrastructure or provide education and training) usually lies with the natural resource department or NRC (but, in practice, there often appears to be little oversight). As well as revenues administered by central government, a range of taxes on natural resource companies may be administered by regional or local government institutions.

Sometimes specific *functions* are divided among different agencies. For example, the natural resource department may be responsible for setting a value on production for royalty purposes, but the tax department for collecting it.[1] Or responsibility for measuring volume and quality of natural resource (physical audit) may be allocated to one agency, responsibility for determination of benchmark prices to another, and responsibility for audit and collection to a third.[2]

Fragmented tax-type organization has no obvious advantages and has many disadvantages (mirroring the advantages of integrated administration listed previously):

- Complexity;
- Additional burdens on taxpayers;
- Duplication of work;
- Lack of clarity about responsibilities;
- Lack of accountability;
- Uncoordinated management, systems, and procedures;
- Lack of an overarching compliance strategy; and
- Weak capacity, because tax administration capacity requirements are multiplied and capacity-building efforts unfocused.

These disadvantages apply to any fragmented tax administration, and are not peculiar to natural resources. They are stated generally, but in evaluating any tax-type organization it will normally be possible to find practical examples. Complexity often begets further complexity: new coordinating agencies may be set up to oversee existing institutions, and nontax agencies (for example, central banks and auditors general) may be drawn into inappropriate tax administration functions.[3]

The case for fragmented administration is often supported by vague claims that it provides checks and balances, but in practice it is very doubtful whether it makes administration more secure. On the contrary, the uncoordinated accounting, indiscernible big picture (for individual taxpayers and the system as a whole), and problematic institutional auditing and oversight are more likely to reduce administrative integrity. Little weight is given to this argument in the case of general revenue administration reform, and there is no reason it should carry more weight in the case of natural resource revenue administration. It is essential that responsibility for revenue administration that is centralized include strong controls on integrity. (Integrity is discussed in more detail in Chapter 5.)

[1] Sierra Leone, for example, divides responsibilities for mineral royalties in this way.

[2] In Mongolia, for example, these roles are performed by customs, the mining authority, and the tax department, respectively.

[3] In Nigeria, for example, reconciliation committees are set up, the auditor general meets with natural resource companies to monitor tax payments, and the central bank maintains systems to enable it to analyze natural resource revenues.

In theory it is possible to overcome the disadvantages of fragmented administration by improving cooperation, but this is unlikely to be wholly successful in practice. It could be argued that with a high enough level of cooperation fragmented administration is actually advantageous because it makes use of different agencies' varied skills. But governments rarely have the level of administrative sophistication required to manage the increased demands on cooperation that fragmented administration imposes. On the contrary, interagency cooperation is often poor. Even if agencies are willing to cooperate, it can be difficult to identify a satisfactory alternative to integrated administration where the basic problem is duplication of functions (for example, where different agencies are responsible for gathering and auditing broadly the same information). Cooperation and exchange of information are very important, and, as discussed further later, often require improvement, but it is highly optimistic to assume that they can be improved to the extent needed to make a success of fragmented administration.

All else equal, therefore, governments should adopt a more integrated approach to natural resource revenue administration. This will require a number of practical steps (discussed in more detail later).

## INTEGRATED ADMINISTRATION BY NATURAL RESOURCE DEPARTMENT OR NATIONAL RESOURCE COMPANY

In a few countries natural resource revenue administration may be largely integrated within the NRC or natural resource department rather than the tax department. This is more likely with some kinds of production sharing regimes. In most such regimes, CIT is calculated and administered separately by the tax department, and there is significant overlap of function between it and the agency responsible for production sharing, with all the usual disadvantages of fragmented administration. But in some countries, CIT is payable out of the government's production share collected by the NRC or natural resource department, which also collects royalties and other fees (sometimes in kind). Where CIT is paid out of government's production share, it is essentially a notional figure: it has no effect on companies' total tax liability, which is wholly determined by the production sharing rules. The tax department therefore has at most a minor accounting function—for example, issuing receipts for this notional CIT to companies to support their foreign tax credit claims—and all the key natural resource revenue administrative functions are effectively integrated within the NRC or natural resource department. This approach could in principle also be adopted for non–production sharing contract regimes too.

Conflict of interest should rule out integration of natural resource revenue administration within a commercially active NRC, but respectable arguments may be mounted in favor of integration within the natural resource department (or a commercially inactive NRC):

- It avoids most of the problems of fragmented administration listed previously.
- It enables a more integrated approach to natural resource management and natural resource fiscal policy.
- It gives companies a "one-stop shop" for both fiscal and industry regulation.
- Natural resource expertise can be concentrated in a single agency.
- That agency's specialized expertise and its responsibility for overseeing industry operations may be advantageous for effective auditing of company tax returns—for example, if lengthy value chains precede the first arm's-length sale, knowledge of mineral processing technology and or logistics may be required. Specialized knowledge of global industry trends and performance and cost data may help with assessing whether production costs are reasonable.

There are also arguments against integration:

- Specialized legal, auditing, accounting, and financial reporting skills are more important for natural resource revenue administration than technical natural resource industry skills. (For example, qualified auditors and tax specialists—albeit with some specialized industry knowledge—are almost universally used by both the private and public sector for fiscal and financial audits of natural resource companies.)
- Specialized skills are developed for general tax administration within tax departments, and those specialists can then apply them to natural resource revenue administration. For natural resource departments or NRCs to develop those skills is wasteful duplication. In practice they often do not do so, and outsource their fiscal audit functions to private accounting firms. There may be a case for governments to outsource natural resource fiscal auditing, but not solely because this function is allocated to an agency that lacks the necessary skilled staff members.
- Allocation of fiscal administration responsibilities to natural resource departments increases capacity demands on them and weakens their main focus.
- Regulation of natural resource operations requires real-time intervention. If an oil spill destroys a country's wildlife, or available funds are misspent, it cannot be put right later. A tax error, by contrast, can be put right later, restoring the position in real terms to exactly what it should have been (assuming interest is charged). This is why self-assessment is possible, and a key advantage is that it minimizes government intervention, reducing opportunities for corruption and collusion. Regulation should therefore not be mixed with fiscal administration.

- To preserve integrity, fiscal administration within the natural resource department should therefore be clearly separated from real-time operational supervision. But that can be difficult, and administration by the tax department is a more obvious and straightforward way of achieving it.
- Fiscal regulation is arguably inconsistent with the natural resource department's role of promoting and supporting the industry (although conflict of interest is perhaps less self-evident than in the case of commercially active NRCs).
- Natural resource companies will be subject to non–natural resource taxes (for example, WHT, pay-as-you-earn tax, VAT, CIT on non–natural resource income[4]), which can be significant. The natural resource department may not be qualified to administer these, and there would be obvious disadvantages in its doing so. But separate administration of natural resource and non–natural resource taxes has all the disadvantages of fragmented administration listed earlier.

On balance, integration within the tax department appears the better option and is recommended by the IMF. The tax authority should, however, obtain input and assistance from the natural resource department when specialized knowledge is needed.

Practical considerations should, however, be borne in mind. Integration within the natural resource department may be preferable in some countries to fragmented administration, particularly where natural resource departments have made an effort to develop the required financial auditing skills. In this particular case, if it is working reasonably satisfactorily, moving toward integration within the tax department should be carefully weighed, planned, and executed to avoid disruption. These are discussed in more detail later.

## TRANSFER OF RESPONSIBILITIES TO TAX DEPARTMENT

Implementation of transfer of responsibilities to the tax department may be complicated. Often, legislation will be required and amendment of the terms of contractual agreements. The new responsibilities of the agencies concerned will have to be defined and explained to taxpayers and other stakeholders. Their internal structure may have to be reorganized. Budgets will have to be revised. Personnel changes will have to be made, including staff redeployment or recruitment. New accommodation may need to be arranged. New procedures will be needed to manage new responsibilities and must be integrated with existing procedures (one of the main objectives of the exercise). Training, as well as advice and technical assistance on planning and implementing those steps, may be required. These are not specifically natural resource issues, and are not discussed in this handbook, but some broad issues are discussed here.

### Natural Resource Department Responsibilities

The difficulty of transferring the natural resource department's fiscal responsibilities (and the degree of reluctance to transfer them) will vary. Such factors as the extent of the natural resource department's fiscal policy role and current revenue administration responsibilities and the extent to which these are prescribed in mining or petroleum legislation and agreements play a role. In some countries, transfer of responsibility may be relatively straightforward.

If the natural resource department is responsible for physical auditing, that role can arguably be retained. Measuring natural resources' quality requires specialized technical (for example, mineralogical) skills. Natural resource department staff members are likely to use such skills in their day-to-day work, whereas a tax department would have to take steps to develop them. Physical auditing is distinct from everyday tax administration. Unlike normal tax administration but like industry regulation, it requires real-time engagement in mining and petroleum operations. Monitoring, recording, and forecasting physical production and verifying product quality are normal responsibilities of natural resource departments even where they have no fiscal responsibilities. These considerations support the case for leaving that function with the natural resource department. It would then be necessary for it to pass information on volume and quality regularly to the tax department, but this is a limited and specific requirement that can be clearly defined with specific procedures (unlike the nebulous requirements of managing overlapping administration of different types of revenue). In some countries responsibility for physical auditing rests with the customs department. This makes sense if natural resources are mostly exported, but cooperation with the natural resource department may be required to take advantage of its specialized skills. Even if the natural resource (or customs) department is responsible for physical auditing, the tax department must still ensure that the reported volume is included in taxpayers' returns and compare that volume with accounting and financial records.

A further issue is which department should be responsible for benchmark-based pricing. This also requires some specialized technical understanding, as well as monitoring of financial data and comparison or reconciliation with accounting data. This function would probably be more appropriate for the tax department. It may be difficult to draw hard and fast rules, however. The valuation of gemstones, for example, cannot sensibly be separated from their physical inspection. The main thing will be to ensure that responsibilities are clearly defined and necessary exchange of information procedures put in place.

[4] Capital gains on license transfers are normally taxed as non–natural resource income.

## National Resource Company Responsibilities

The involvement of commercially active NRCs in policymaking and regulation raises special transparency and conflict of interest issues, which, in addition to the general criticism of fragmentation listed earlier, argue against NRC involvement in fiscal administration. (Where the government has no equity participation but there is an NRC with a role limited to administering production sharing or other taxes, this special argument does not apply, but that situation would be unusual.) A growing number of governments (but by no means all) now accept that commercially active NRCs should not be responsible for industry and fiscal policy or regulation but should focus exclusively on their commercial role. Recommendations to that effect may therefore be pushing on an open door in some countries. The fiscal responsibility of a commercially active NRC should then be the same as that of any other commercial company—no more and no less (that is, to self-assess correctly and pay taxes when due, with the tax department overseeing compliance and ultimately responsible for determining its tax liability).

Stripping commercially active NRCs of their fiscal administration role may, however, be challenging. It may well require legislation and the overriding of the terms of negotiated contracts, as well as fundamental redesign of procedures. Governments may need legal assistance on those issues. NRCs are often seen as national champions, and governments will usually want to ensure that they maintain an important role. Even if they accept in principle that commercially operating NRCs should lose their fiscal administration responsibilities, they may not take steps toward full implementation, particularly in the case of production sharing. Production sharing is often seen as a form of commercial participation, and the NRC may therefore be left to supervise it, especially since disentangling the NRC from its supervisory role may be a major legal challenge. Production sharing is, however, in the nature of a tax, and if the NRC is to focus exclusively on its commercial role, it is all the more vital that its administrative responsibility be curtailed. This means that private companies should account for the government's production share not to the NRC but to the tax department, which should have the right to audit and finally determine the amount due (subject, of course, to appeal). And if the NRC continues to be responsible for marketing the government share of petroleum, it should account to the tax department for the proceeds. (Payment in kind is discussed in more detail in Chapter 4.) Any situation where a commercially operating NRC has final responsibility for determining amounts due to the government, or is otherwise treated differently from other commercial companies, will usually provide an indication that it has not fully surrendered its regulatory functions.

Another issue that may arise is that the government may reallocate the NRC's fiscal responsibilities to the natural resource department and not to the tax department. This eliminates the conflict of interest arising from the combination of commercial and regulatory roles, but leaves the other problems of fragmented administration, and is less likely to be a satisfactory solution.

Oversight of the NRC's conduct of its operations will normally rest with the natural resource department, but the finance ministry should assume responsibility for overseeing its financial obligations. The tax department reporting to the finance ministry should be responsible for administering the NRC's taxation obligations, and it may be appropriate for it also to monitor the NRC's compliance with requirements to pay dividends, and to account for those revenues along with other natural resource revenues.

## Provincial and Local Government Responsibilities

The question of whether provincial or local governments should have natural resource taxing rights—*fiscal decentralization*—involves legal, political, and constitutional issues. In most developing economies, even with a federal structure, there is no significant fiscal decentralization. All natural resource taxes are imposed by central government, and any allocation of natural resource revenues (for example, royalties) to provinces goes through the central budget. This allows for integrated natural resource tax administration,[5] and from a purely administrative viewpoint is the best solution, absent overriding policy or legal constraints. (There may in fact be policy arguments in favor of this but these are not considered here.) In other countries, however, the constitution will for the most part determine the level of government that administers particular natural resource taxes, and may, for example, assign responsibility for corporate taxation to the federal government and to states responsibility tor taxes regarded as land based, such as royalties.

Where fiscal decentralization is required, it should balance funding and spending mandates, and preserve the ability of central government to conduct macroeconomic policy. These are policy rather than administrative objectives. The implication of the second of these objectives is that central government must be able to design a national natural resource tax policy, with which any decentralized taxes must be reasonably consistent.

Assuming that broad macroeconomic natural resource tax policy is centrally determined, there are three main options for provincial natural resource taxes:

(1) Provincial and central government natural resource taxes are imposed and administered separately within that broad policy framework. Provincial taxes might be deductible in calculating central government taxes, but are not credited against them. Companies do not want to pay more than the amounts due in each case, which central governments rely on to ensure that

[5] The geographic source of natural resource revenues may determine allocation to regions. If so, the tax department would need to account for them on a regional basis.

provincial governments collect no more than they should, and must rely on provincial administrative capacity to ensure that they collect no less than they should. This option is essentially fragmented administration, with all its usual disadvantages (which will increase with the number of provinces).

(2) Provincial taxes are administered locally, but are credited against central government taxes. In this scenario, companies' total natural resource tax liability is determined by central government taxation. Administration of provincial taxes is essentially just a mechanism for allocating a share of central government taxation to provinces. Companies suffer some of the disadvantages of fragmented administration, but on the other hand are largely indifferent to how provincial taxes are imposed in practice. The central government generally has the information needed to calculate provincial taxes independently, and has to do so to ensure that provinces do not collect more than they should. For central government this would be an additional complication, but apart from that, this approach achieves most of the benefits of integrated administration.

(3) Companies' total natural resource tax is determined wholly by central government taxation, but provincial taxes (for example, royalties) are calculated by the central government, which distributes them to provinces and accounts for those amounts. Here there is essentially no separate administration of provincial taxes, but merely a notional calculation of the provincial taxes that could have been collected, essentially just as a mechanism for determining the allocation of central government revenues to provinces. Apart from that complication, this option has all the advantages of integrated administration for both the central government and companies. Provinces, however, would not have the information needed to check the government calculations independently and might be reluctant to rely on those calculations.

All three options have drawbacks, but some less so than others. From a purely administrative viewpoint (3) is better than (2), and both (2) and (3)—although there is undeniably an air of artificiality about them—are better than (1).

### Nuisance Tax Responsibilities

Integrated administration should ideally extend to minor nuisance taxes (surface rentals, education taxes, and the like).[6] Their administration and expenditure are often particularly opaque, and the same general arguments in favor of integration apply. Reassigning them should not be a complicated task. The amounts involved are minor, however, and there may be tactical advantages in leaving them with their existing agencies. They often serve a political rather than a genuine tax policy function—for example, they sometimes actually fund the agencies that collect them. This is not desirable in theory, but in practical terms if fragmented administration of minor natural resource revenues is the political price to pay for integrated administration of major natural resource revenues, it may be worth it.

[6] Standard nondiscriminatory payments for services—harbor fees, road tolls, vehicle licensing fees, and so on—should not be centralized.

## ORGANIZATION OF NATURAL RESOURCE REVENUE ADMINISTRATION WITHIN THE TAX DEPARTMENT

For general tax administration, best practices typically call for a functionally organized headquarters that manages segment-based, functionally organized field operations. There is particular emphasis on the large taxpayer office (LTO), which produces the lion's share of government revenue. This model is broadly suitable for natural resource revenue administration, but a number of special considerations apply.

Segmentation is as important for natural resource revenue administration as for general tax administration. Care needs to be taken to ensure that the definition of large taxpayers is appropriate to the industry. A definition based exclusively on profits or turnover, for example, will be inappropriate because large natural resource companies may incur substantial costs for years before generating revenue or becoming profitable. The LTO needs to establish its presence with those companies from the outset. Natural resource companies should not, however, automatically be characterized as large taxpayers. Some countries set up specialized natural resource units within their LTOs (discussed later) and then assign all natural resource producers to it, including small-scale artisanal miners. Where there is a significant artisanal mining sector, the principle of segmentation should broadly be preserved. If necessary, a separate unit can be set up within a medium taxpayer office.

Specialization is important where there is a significant natural resource industry. Specialized knowledge of the industry and of the particular fiscal rules that usually apply to it must be developed and can take place within a predominantly function-based organization. For example, a specialized natural resource unit or jobs can be established within functional divisions for auditing, taxpayer services, risk assessment, legal and policy matters, and so on, at the LTO, and possibly at the headquarters. Specialized units or staff for natural resource returns and payment processing may be needed (although this should not usually be the case). In some cases specialists will handle only certain natural resource revenues. If these staffers deal directly with taxpayers (for example, auditing and taxpayer services) they should usually handle all tax liabilities of natural resource companies to achieve a coordinated and holistic risk-based approach.

In some countries the natural resource industry may not be large enough to justify a special unit or to allow adequate auditor rotation within such a unit. Countries with both mining and petroleum may combine those functions in a single unit to achieve critical mass. (Such consolidation may be justified by the similarity of the industries' tax issues.) And assigning responsibility large resource industry contractors to special units may be helpful and justifiable. Other pragmatic solutions may be required (for example, units or particular staff combining different specializations). It may be necessary to modify the definition of "large taxpayer" somewhat in order to keep a specialized unit busy, although, as discussed previously, it is important to preserve the broad principle of segmentation.

Particularly if natural resources dominate the economy there may be pressure to merge functions within a specialized unit, which could involve, perhaps, combining, natural resource risk assessment, auditing, taxpayer services, and legal support in a special mining and/or petroleum unit, ideally within the LTO. (Although this is often described as a mining or petroleum tax division, it is not a tax-type organization, because the division typically handles all natural resource company taxation.) There may also be some vertical integration of headquarters and operational functions within the division—for example, it may be responsible for policy advisory functions typically handled at the headquarters. This approach has been successfully adopted by some tax authorities.[7] The arguments in favor of this approach are:

- The special features of natural resource taxation make it necessary for different functional specialists (audit, risk assessment, legal, and so on) to work very closely together, and the necessary coordination cannot easily be achieved across separate functionally organized divisions.
- It raises the profile of natural resource taxation in the department and makes it easier to develop a salary structure reflecting its key importance.
- It gives natural resource companies a more comprehensive one-stop shop.
- With functional organization there is no senior specialist in natural resources above the level of audit manager to interact with the industry.

Specializing the tax administration's research or tax studies unit on natural resource issues is also a key step. Many tax administrations have a specific unit dealing with monitoring, forecasting, and analyzing revenue trends; quantification of tax evasion, tax gaps, and tax expenditures; and specialized tax research. These units can play an important role in supporting other core areas in the tax administration that work on natural resource revenues—such as the LTO. A group of researchers and analysts specialized in the natural resource sector can help the tax administration gain a better understanding of the business sector, monitor changes in prices and estimate their revenue impact, deal with economic modeling (see Appendix 3), and prepare specific analytical studies on the sector. In resource-rich countries, the research or tax studies unit should develop specific expertise, assigning staff to focus on the natural resource sector.

## COOPERATION AND EXCHANGE OF INFORMATION

Cooperation and exchange of information between departments often needs improvement. Even if natural resource revenue administration is integrated within one department, exchange of information with other departments remains important, and poor cooperation, in particular between the tax authority and the natural resource ministry, can be a big problem (and, indeed, investors usually highlight this area as needing material improvement in some developing economies). Where natural resource revenue administration is fragmented, poor cooperation is an even more serious issue—good examples of cooperation between departments with overlapping functions are rare. Agencies often develop a silo culture, treating their role as critical in isolation from other agencies. They may hoard information or refuse to give it to other agencies. Sometimes they are prepared in principle to exchange information and cooperate, but not do so because the information to be exchanged is not specified or there are no clear exchange procedures, allocation of responsibility, or formal arrangements for cooperation. If agencies do not cooperate, it may be necessary to go to a senior, possibly even ministerial, level to ensure action.

An essential first step is to clarify and document each agency's responsibilities. Sometimes a document that purports to do this will exist, but the terms may be ambiguous and allow duplicated and overlapping functions in reality. These should be identified, and the scope for eliminating them examined. There will often be resistance to this, which may be justified by the claim that duplication is a good thing—two tax audits are more likely to uncover errors than one, and three are even better! (The real reason usually has more to do with office politics.) But this creates administrative inefficiency and unnecessary burdens on taxpayers, and the fundamental problem that if everyone is responsible, no one is responsible. The division of responsibility and accountability between agencies must therefore be clearly established and accepted. A one-stop shop solution would represent a significant improvement in many jurisdictions.

Once responsibilities are clearly established, effective exchange of information procedures should be put in place. Agencies gathering information potentially useful for tax administration should be identified. Interagency work groups should review the information gathered, eliminate unnecessary duplication, and agree on the information to be exchanged, as well as when and by whom. It is important not to exchange information that will not be used. In any

[7] For example, Norway found that bringing legal specialists within its petroleum tax division made it more effective.

particular case the agreement will depend on the division of responsibilities and the nature of the data collected, but examples of information provided by natural resource departments to tax departments might include, for example:

- Exploration licenses awarded and percentage interests (plus copies of the relevant agreements);
- The contract area and any subsequent changes (relevant if the tax authority collects surface rentals);
- Transfers or other changes of license interests;
- Elections for government participation;
- Production licenses awarded;
- Production volumes and forecasts;
- Annual exploration plans and reports;
- Annual operational plans and reports;
- Expenditure reports;
- Mining asset registers; and
- Agreed abandonment/reclamation provisions.

The use of information technology (IT) to facilitate information exchange should be examined. The ultimate goal is a culture of habitual cooperation, but until that is achieved formal documented exchange procedures are necessary and must be included in staff job descriptions. These procedures may need to be set out in legislation, unless they fall within general information gathering powers, particularly if there are confidentiality issues. (Some countries even include penalties for failure by government departments to provide information required by the tax department—a last resort perhaps in the absence of voluntary cooperation.)

Other ways of improving cooperation should also be considered—for example, colocation of staff of different agencies with related functions, exchange of personnel or temporary reassignment, joint work groups, and joint seminars. Consultation arrangements are needed and contacts must be established if technological (for example, geological or mineralogical) expertise affects tax auditing.

Good practice calls for an interdepartmental committee to meet regularly and discuss natural resource issues. Such a committee should include senior policy and administration managers from both finance/tax and natural resource departments (and occasionally perhaps other departments as well, such as the central bank, accountant general, or justice department). The committee should lead efforts to encourage cross-departmental cooperation and skills development, as described above—for example, appointing interdepartmental task forces to work and report on common concerns. The committee would need strong leadership, probably from the finance ministry, to set the agenda and develop a program of continuous review and improvement to help managers to meet their priorities rather than distracting from them.

Cooperation between the tax department and the NRC needs careful handling. Although there is a potential conflict of interest between an NRC's commercial role and its participation in fiscal regulation, it has the same interest as the government in controlling operator costs. (The same applies to other nonoperator participants.) The work it does to monitor costs (for example, participation in joint venture audits) may produce information useful for tax auditors. So it is important for the tax authority to maintain a collaborative working relationship with the NRC, while always remembering that it is a commercial taxpayer, and maintaining an appropriate supervisory and arm's-length relationship. Cooperation between tax agencies and NRCs is often poor in practice.

Cooperation and exchange of information among different jurisdictions are also crucial for supporting natural resource revenue administration. It may be useful to exchange information, for example, on specific operations of a multinational group in different jurisdictions, which could be relevant for transfer pricing audits. In order to reach an effective level of exchange of information, tax administrations should operate under legal competent authority and establish international units (or similar organizational arrangements) with a clear responsibility for exchanging information with international counterparts.

## OBSTACLES TO INTEGRATED ADMINISTRATION AND SECOND BEST OPTIONS

The risks and obstacles to achievement of integrated natural resource revenue administration are likely to be greater than for normal tax administration.

- It requires cooperation from agencies outside the finance minister's control, and this may not be forthcoming. Integration then needs political commitment at a very high level, when political opposition at a high level may in fact be more likely.
- Governments may have developed much greater natural resource expertise and administrative capacity in NRCs and natural resource ministries than in the tax department. They may object to the disruptive (and possibly costly) effect of moving responsibilities to tax departments seen as unqualified.
- Organizational responsibilities may be built not just into legislation but into (possibly stabilized) contractual agreements, which governments may be reluctant to override.
- For operations spanning borders responsibilities may be built into international agreements.
- Integrated natural resource revenue administration may even be built into federal constitutions; strong governments in provinces with abundant natural resources may deeply mistrust central government and refuse to surrender their power to impose provincial taxes on natural resource companies.
- Companies may resist integrated administration—in theory it is less burdensome, but they may prefer to have at least some taxes administered by a commercial partner they feel understands the industry.

- Some donors and technical assistance providers may not attach importance to integrated administration, and may actively support development of fiscal administrative capacity in other agencies. Fiscal decentralization may be strongly supported by nongovernmental organizations keen to ensure that local communities benefit from their natural resources.

Political and practical considerations need to be taken into account when recommending reorganization of natural resource tax administration. The division of administrative responsibilities often owes more to politics than to any consideration of its advantages and disadvantages. Politics has been defined as "the art of the possible," and it has to be recognized that some types of organizational reform may in political terms not be possible. The disruptive impact of reorganization, and the often substantial diversion of managerial effort it entails, must also be weighed against its theoretical benefits.

In some cases, these considerations may make it impractical to pursue integration of natural resource tax administration within the tax department as a near-term objective. The arguments against doing so should, however, be carefully analyzed and evaluated. Even if a decision to implement integrated administration is made in principle, it may be beyond the finance ministry's power to implement it in practice. This may suggest that the government is putting narrow political interests above the needs of effective administration and is not seriously committed to reform, but the scope for strengthening natural resource administration within the prevailing organizational framework still needs to be explored.

Second best approaches must therefore be considered and evaluated and improvements recommended within that context. Objectives may have to be limited to more efficient collection of natural resource revenues under the existing fragmented administrative regime. The priorities are then to define and explain the fiscal roles of various agencies and NRCs; improve cooperation and information sharing; and centralize accounting and reporting responsibilities for natural resource revenues within the finance ministry. Achievement of those aims would be a major and worthwhile improvement in many countries and should not face all the obstacles described—still, it would fall far short of the full benefits of integrated administration.

A particularly difficult issue will be the action to take where there is clear duplication of function. In some cases there may be a legal basis for resolving the duplication—the law will indicate which department has primary responsibility, and if it is a nontax department, the tax department may reluctantly have to accept this, even though it is undesirable on general grounds. In many cases there will be no clear legal basis for resolving the issue. For example, legislation may give two departments power to audit essentially the same data for the purpose of two different taxes. In that case, the tax department will naturally be reluctant to give up its audit function in favor of another agency, nor should it do so. But options for joint or collaborative audits, or some sort of rational division of audit responsibility, should be explored. For example, the NR department's responsibilities could be classified as monitoring of in-year royalty installments, but the final responsibility for determining the annual liability and reconciling it with commercial accounts and CIT returns could rest with the tax department.

# CHAPTER 4

# Procedures

The design and implementation of procedures for natural resource revenue administration should agree with best practices in general tax administration, whose main elements can be summarized as:

- Harmonized and streamlined legislation in a tax procedure code (TPC) covering registration, filing of returns, payment, arrears enforcement, interest, penalties, auditing, and dispute resolution;
- Separation of functions where necessary to safeguard integrity;
- Efficient and effective routine processing of registration, filing, and payment—with filing based on self-assessment;
- Taxpayer services, auditing, and enforcement based on risk assessment and management;
- Functions organized and planned on the basis of taxpayer segmentation;
- Comprehensive and targeted taxpayer service programs to foster voluntary compliance;
- Active enforcement of registration, filing, payment, and arrears recovery;
- Selective, risk-based, and effective auditing;
- Effective, fair, and accessible dispute resolution; and
- Timely and accurate revenue reporting at the individual and aggregate level.

This chapter discusses the procedures required for simple, fair, and effective natural resource revenue administration. These include some special procedures, but the main procedural requirements are the same as for any other revenue administration, and should include the elements listed here.

In assessing natural resource revenue administration procedures it is necessary to consider both the legal procedural frameworks, and how functions and procedures are carried out in practice. Procedural rules may look good on paper, but not reflect what happens on the ground. For example, many tax authorities continue with cumbersome administrative assessment procedures even though their legislation provides for self-assessment. Available enforcement procedures are often not applied in practice, or not applied effectively. The law sometimes provides for service to taxpayers, but none is actually given. Therefore, beyond ensuring that the legal framework is streamlined, clear, and appropriate, countries should also pay close attention to the implementation aspect, securing that procedures effectively reflect what is set out in the law.

A key issue is whether the tax authority accurately reports and accounts for government natural resource revenues. Procedural weaknesses often cause major weaknesses in reporting and accounting. Transparency of natural resource revenues should be a government priority, and proper accounting for them an essential administrative requirement. This may be one of the main arguments for procedural reform. Transparency is discussed in more detail in Chapter 5.

Fragmentation of natural resource administrative responsibilities, discussed in the previous chapter, is often one of the main reasons why procedures are complex and ineffective. Integrated natural resource tax administration offers significant opportunities for harmonizing, streamlining, and consolidating procedures (although governments often fail to make the most of those opportunities) and for developing a coherent risk-based approach to compliance. By contrast, fragmented natural resource tax administration inevitably creates procedural complexity and inefficiency no matter how much effort each department puts into simplifying, harmonizing, and strengthening its own procedures.

## TAX PROCEDURE CODES

A major aim of many general administrative reform programs is to standardize, harmonize, and streamline administrative rules across different revenues. This is necessary to realize the full benefits of integrated, function-based administration.

There is a strong case for putting such harmonized administrative rules into a separate TPC. Administrative rules are concerned with practicalities. With limited exceptions they are not likely to be as controversial or politically sensitive as substantive rules affecting the tax base and rates. The disadvantage of combining administrative and substantive tax rules in the same legislation is that changing the administrative rules then requires that legislation to be amended, almost inevitably inviting political pressure to amend substantive rules. Furthermore, if administrative rules are harmonized for all revenues, then unless they are included in a separate TPC, implementation (or subsequent reform) of those rules requires every piece of substantive tax legislation to be reopened. The political difficulty of doing this can prevent administrative reform from going ahead, even though it is uncontroversial and in the interests of government and taxpayers alike. These arguments are particularly relevant to natural resource revenues because of the wide range of legislation and contractual agreements in which they are set out, and the politically sensitive nature of substantive natural resource tax rules.

Many natural resource revenue administration procedures are in particular need of streamlining and harmonization. They can be complex, inefficient, and archaic, and rules are often incoherent. Royalty procedures in mining or petroleum legislation can be poorly specified, and there is often no effort to coordinate them with procedures for other taxes. Likewise there are frequently major differences between administrative rules in negotiated agreements, such as production sharing agreement (PSAs), and those in general tax legislation. Common examples are different return rules: agreements often only require accounts to be prepared rather than formal tax returns; different payment rules, including payment in kind in the case of PSAs; different auditing rules—for example, different deadlines and requirements for formal audit reports; different rules for interest on late payment; different rules for penalties[1] (agreements often contain no penalty provisions); and different rules for dispute resolution (often disputes require international commercial arbitration, with no clear burden of proof on the taxpayer). Frequently there is no clear self-assessment principle underlying administration of royalties or other special taxes included in nontax legislation or investment agreements.

If a general TPC is being planned or revamped, it should include natural resource revenue administration procedures so as to achieve greater consistency between various natural resource taxes and between those taxes and general taxes. A general TPC may be planned or enhanced as part of a wider administrative reform project. It may be linked to automation of procedures, which typically includes a preliminary business process review—it is unwise to attempt automation of inefficient and incoherent procedures.

It is usually possible to incorporate natural resource revenue administration into a general TPC with only a limited number of special provisions. Examples of special provisions that might be necessary include:

- U.S. dollar accounting and payment (in countries where dollars are accepted for the purpose of declaring and paying natural resource taxes);
- Payment of tax in kind (where relevant);
- Physical audit and valuation procedures (where natural resource valuation is based on special valuation rules);
- International arbitration (where agreements provide for this);
- Joint venture returns and audits (where joint venture operating companies keep central joint venture accounting records);
- Confidentiality waivers (where necessary for Extractive Industries Transparency Initiative [EITI] participation—discussed in Chapter 5).

There may be practical and political obstacles to inclusion of all natural resource revenues within a general TPC. Where they are imposed, a TPC may need to override procedures set out in numerous laws (mining and/or petroleum as well as tax laws) and also in negotiated contractual agreements. It might need approval and agreement from the natural resource ministry and national resource company, or NRC (as well as other government agencies, such as the central bank and auditor general). These agencies may not agree, particularly if they oppose integration of natural resource revenue administration (without which the full benefits of harmonized procedures will not be realized). There is no particular reason for natural resource companies to oppose procedural harmonization in principle, and it should be possible to demonstrate positive benefits, but they may be unenthusiastic—for example, because they have more urgent priorities, resent having to amend their own procedures and reporting systems, benefit from weakness in some existing procedures, or worry about losing international arbitration rights, which they may argue are protected by stabilization agreements (but existing rights to international arbitration can be preserved in the TPC). Stabilization agreements do not typically prevent purely procedural reforms because they

[1] Otto and others (2006, p. 76) argue that different penalties for nonpayment of royalties are appropriate: "In some jurisdictions . . . where provisions for royalty administration and collection are contained in their internal revenue codes, penalty provisions for late or nonpayment of royalty are generally in common with those relating to default on all other forms of fiscal imposts, such as income tax. This is a rather undesirable state of affairs, as the royalty-collecting authority . . . has little knowledge of and empathy for the unique characteristics and needs of the mining industry, particularly of its capital-intensiveness and volatility due to high cash flows." This guide takes a very different view.

do not affect companies' economic position. (New interest and penalty procedures could affect them, but usually only in cases of noncompliance, which violates the terms of an agreement.)

Given the above-mentioned difficulties, a TPC is sometimes applied only to taxes administered by the tax department. In that case there may be a conflict between harmonizing the rules for the natural resource revenues administered by the tax department with those for non–natural resource taxes, and harmonizing them with the rules for natural resource revenues administered by other departments. It may be necessary to resolve this difficulty by incorporating additional special natural resource procedures in the TPC.

If a general TPC is not implemented, there are still options for efficient natural resource revenue administration procedures. Countries may pursue a limited reform to deal with particular natural resource problems, streamlining only natural resource revenue procedures. This could present an opportunity to make natural resource revenue procedures better than general tax procedures, providing a model for future reform of the latter. (General tax procedures often have basic flaws and, even within functionally organized tax departments, can be incoherent and tax based.) This could be done as part of a wider natural resource tax policy reform or consolidation program or as preparation for a project for separate automation of natural resource revenue administration.

## ROUTINE FUNCTIONS

Routine functions can be considered separately from nonroutine functions. Routine (or clerical) functions—registration, returns and payments processing, and assessment (where required)—are about the mechanics of gathering tax from taxpayers. Nonroutine (or technical) functions—taxpayer service, enforcement (against taxpayers who fail to register, file, or pay), physical audits, benchmark pricing, auditing of returns, dispute resolution, policy advice—are about ensuring that tax is quantified correctly and dealing with noncompliant taxpayers if necessary. (Nonroutine functions are discussed later, apart from the policy advice in Chapter 2.)

### Registration

Registration of natural resource taxpayers should not present greater difficulty than for other taxpayers, but may require some special procedures. In countries where only a few large natural resource companies operate, they should not be hard to register, even if general registration procedures are poor. Where there is significant artisanal mining, nonregistration will present the same problems as generally occur with small businesses. There is often a need to cleanse registers and strengthen registration procedures generally—up-to-date records of taxpayers are an essential foundation for improving and monitoring administrative performance. A key issue for natural resources is whether arrangements for cooperation and exchange of information between the tax department and natural resource regulatory and licensing agencies are satisfactory, allowing coordination of business registration procedures and reducing or eliminating unnecessary duplication—in the interests of efficiency and taxpayer service. This may require coordinated use of taxpayer identification numbers. Similar cooperation and exchange of information should continue thereafter so that registration details (for example, changes of license interests) are kept up to date. Special registration data may be required for natural resource taxpayers to identify the areas in which they are operating if these are ring-fenced and/or subject to the terms of special agreements, and separate identification numbers and accounts may be needed for these areas within the IT system, so that records can be maintained for each area and any special tax rules or procedures applied. Again coordination of the tax and natural resource departments' identification systems will be useful.

### Returns, Assessments, Payments: Importance of Self-Assessment

Self-assessment is a basic principle of effective tax administration. The key elements of a full self-assessment regime are that taxpayers bear the burden of accurately calculating and paying their tax liabilities and submitting tax returns on time, and that tax returns are accepted by the tax office as filed (subject to a few simple checks to ensure the taxpayer has actually completed the form). Self-assessment demands that tax authorities adopt a service-oriented attitude toward taxpayers. They must ensure that filing and payment procedures are simple and easy to comply with and that taxpayers have the information and support needed to self-assess correctly. But returns must be submitted, and tax paid, by the due date, with immediate and automatic penalties for any failure, and nonfilers must also be subject to prompt administrative assessments wherever necessary. So that companies can never benefit from late payment, interest must also be charged on all tax paid after the normal due date for whatever reason. Self-assessment also requires and relies on postfiling controls such as effective risk-based audits, penalties for neglect or fraud, and vigorous enforcement of collection.

The benefits of self-assessment are equally if not even more important for natural resource taxation:

- It reduces the burden of routine administration, allowing for improved efficiency in processing returns and payments and improved monitoring of taxes due and paid—vital for transparency and EITI participation.
- It allows the tax department to concentrate fully on those taxpayers (among larger natural resource taxpayers usually a minority) who are noncompliant with routine obligations.
- It provides a catalyst for increasing the transparency and comprehensibility of natural resource tax law.

- It promotes compliance by reducing taxpayers' compliance costs.
- It puts the onus on natural resource companies to apply the law accurately, for which they have both resources and capacity, with the threat of penalties if they fail to do so.
- It frees up government resources for more difficult but essential nonroutine tasks such as audit and taxpayer assistance, and allows adoption of risk-focused strategies in each case.
- The clear separation of assessment and audit functions and the reduced contact between companies and tax officials minimize opportunities for collusion and corruption—again, important for EITI participation.

In practice, however, tax authorities in some countries rely heavily on a resource-intensive, interventionist, and largely ineffective administrative assessment system. Self-assessment often applies to natural resource tax returns in theory, but is rarely applied in practice. All returns may be subject to a detailed desk examination before acceptance. Furthermore, as discussed later, this same kind of ineffective and resource-intensive approach may be applied not just to annual returns, but to monthly and quarterly returns and (even more unproductively) to estimated returns and installments.

The argument that self-assessment is unnecessary where there are only a small number of large natural resource companies should be resisted. Self-assessment is not a second-best compromise for the taxation of large companies, it is the most effective approach, and is applied by large taxpayer offices in all modern and efficient tax administrations.

Governments may worry that self-assessment is "unregulated"—detailed preassessment verification can respond to that concern. And self-assessment does not mean abandoning verification. Errors in simple arithmetic, incomplete returns, and internal inconsistency should be corrected as part of return processing. Electronic filing should be encouraged and even required for large taxpayers and should be designed to prevent such errors. But other verification mechanisms should be built in to prompt and effective risk assessment and audit programs carried out after routine processing of tax returns.

## Simplifying Routine Procedures

There is often considerable scope for making natural resource routine procedures simpler, more coherent, and more efficient, especially where administration is integrated in the tax department. The following common weaknesses (not confined to natural resources) should be considered:

- Different accounting periods for different revenues;
- Separate returns for different revenues where consolidation and reconciliation would be advantageous (for example, for corporate income tax, CIT, resource rent tax, RRT, and royalties);
- Complex and ineffective installment regimes for annual revenues, requiring detailed monitoring of company estimates, sometimes combined with inconsistent installment regimes for different revenues;
- Failure to charge penalties automatically for nonfiling or late filing of returns;
- Failure to charge interest automatically on tax paid late (in some countries interest is chargeable at a penalty rate, and only in cases of fault or negligence, and as a result is charged rarely if ever;
- Complex procedures for allocating payments against different revenues;
- Poor management of repayments, particularly value-added tax (VAT);
- A mixture of U.S. dollar and local currency accounting and payment;
- (Petroleum) Failure to integrate payment in kind within normal administrative rules; and
- Manual filing and payment.

These are each considered in detail in the following text.

Simplification does not necessarily mean shorter tax returns. Returns should strike a balance between simplification (reducing compliance costs) and the gathering of essential data to support an effective tax administration. Requiring the data needed to calculate tax correctly does not impose an undue burden and can be regarded as a taxpayer service, and requiring data to facilitate risk assessment reduces unnecessary audit inquiries. Returns should therefore be designed to assist in correct tax calculation and facilitate risk assessment. The temptation to reduce the number of returns by consolidating them into a single form, without streamlining the information requested, should be avoided. Demanding one tax return with the same number of data fields and a similar design does not necessarily result in simplification.

### *Different Accounting Periods*

Some taxes may be charged on natural resource companies annually and some on the basis of a shorter period. Profit taxes are usually annual. Revenue-based taxes (for example, royalties) and WHTs are usually calculated monthly or quarterly.[2] The sales-based VAT is usually calculated monthly for large taxpayers, even though quarterly regimes are common for small taxpayers. Individual transaction-based taxes (for example, signature bonuses) may be payable at the time of the transaction. For natural resource companies the usual (and recommended) practice is to require calculation of annual taxes in reference to a standard accounting year, usually the calendar year, and periodic taxes for calendar months or

[2] Assessing royalty income by reference to short periods can be problematic for mining, where valuation is based on net smelter return, because the final sales price may not be determined until several months after the mineral is sold (see Appendix 1 for further discussion). A system of provisional and final assessments may be developed in response to this problem, resulting in considerable complexity and duplication of effort.

quarters. (Natural resource companies should be required to submit CIT returns for all years in which they operate, regardless of whether they are profitable, to allow timely auditing of preproduction costs.)

There is scope in many countries to simplify administration through the greater use of annual profits and/or corporate income tax returns with simple rules for installment payments. For example, in the cases of taxes with an annual basis, it is simpler to calculate the tax on annual audited accounts instead of periodic management accounts, which may be more provisional and unreliable, requiring frequent adjustment.

A final calculation of tax cannot, however, be made until the end of the year, and to avoid delay in payment compared with periodic taxes, installment payments are required. A consistent annual basis for different taxes, with consistent and effective rules for installment payments, allows for more coherent administration.

### *Separate Returns for Different Taxes*

Tax authorities normally require separate returns for different taxes. In some cases the same elements feature in different taxes. For example, income for royalties is often calculated on the same basis as gross natural resource revenue for profit taxes such as CIT (and, where relevant, production sharing and RRT). One tax is often deducted or credited against another (for example, royalties are usually deductible in calculating profit taxes). It clearly makes sense for those linked calculations to be consolidated. Even if revenues or costs are calculated differently for different taxes, it is sensible to require taxpayers to reconcile them (and in turn reconcile their calculation of taxable profit to their accounting profit), a further reason for consolidated returns. Often similar supporting information is required for different taxes. For example, it is good practice to require companies to provide details of significant non-arm's-length transactions for risk assessment purposes, but these may be relevant to several taxes, again an argument for consolidation.

Well-designed consolidated returns can have important advantages. They simplify procedures for tax authorities and taxpayers, reduce information requirements, simplify accounting, allow for more sophisticated risk assessment, and support integration of tax functions such as audits and dispute resolution. Tax administrations should assess the appropriate design for specific cases, such as taxes for which an annual consolidated return makes sense. (For example, it may be reasonable to consolidate the information on the CIT, RRT, and royalties on one return but submit returns for WHT and pay-as-you-earn taxes separately.)[3]

[3] If companies must submit returns electronically (as is recommended) it may not be sensible to think of this as a requirement to submit a consolidated form. It is simply a requirement to submit all their return data by a prescribed date, with a penalty if they fail to do so.

### *Varied and Complex Installment Regimes*

There is considerable variation in the timing and frequency of installments of annual natural resource taxes. The choice is usually between monthly and quarterly installments, with payment required two or three weeks after the end of the period. Monthly installments obviously multiply administrative tasks, and make calculations of interest on underpayments more complex. However, they have a clear cash flow advantage for the government. There are obvious administrative advantages in having the same timing and frequency of payment—whether monthly or quarterly—for different taxes (that is, for in-year installments of annual taxes and payment of periodic taxes).

There are also varied bases for calculating in-year installments. They can be based on either:

- Time apportionment of the estimated full-year tax liability; or
- A provisional calculation of tax attributable to the installment period.

For installments based on *estimates*, there are a variety of approaches, but some are simpler and more effective than others. The estimate can be based on the previous year's tax, but it may be much less than current year tax, particularly in the early years when natural resource production is coming onstream, and can be unrealistic because of the high volatility of natural resource prices and costs. A current year estimate is therefore more commonly required. But for natural resources, estimation may be particularly difficult because prices, costs, and production levels are impossible to predict with certainty. There is a risk of companies using this uncertainty to defer tax payment, causing financial loss to the government. Many countries have complicated rules that in theory deal with this risk, requiring detailed checking of company estimates against various sources of information, regular updating of estimates, and frequent revision of installments. As well as being complicated, estimates tend to be resource intensive and fail to ensure adequate installment payments, and rarely allow for imposition of interest when they do not. Alternatively (or as well), penalties are sometimes charged if in-year installments fall short of actual liabilities by more than a specified proportion. Under a much simpler and fairer approach (not generally applied in developing economies) once the final tax for the year is established, the installments that should have been paid are calculated and interest is charged (at a commercial, not a penalty rate) only on the difference between the correct amounts and the installments actually paid. (It is common under this approach also to credit interest on any overpaid installments.) This makes audits of estimates unnecessary. It is normally enough to discourage companies from deliberately understating installments and to compensate the government if they do, but if deliberate understatement is considered a risk, additional penalties can be charged for negligent underestimation of installments by a material amount.

Installments based on provisional results of a period are more difficult to administer than the *simpler* estimate-based approach described above, but are more straightforward than auditing estimates. (Results must be provisional because they are not based on audited company accounts, and it may not be possible to establish some costs until the end of the year—for example, annual depreciation allowances.) Companies have an incentive to defer tax, so this risk must be managed. Interest can and should be charged on underdeclared installments, but to test the adequacy of a company's installments, and charge interest on any underpayment, calculation of actual results must be reviewed. These calculations should not be subject to the same information requirements, audits, adjustments, and penalties as the final annual return, because periodic calculations are generally provisional; it multiplies administrative tasks and duplicates effort (audit of both periodic and annual returns); and the risk from incorrect installment calculations (late payment of tax) is less serious than the risk of incorrect annual returns (permanent loss of tax). It hugely increases burdens on taxpayers and tax administration, and is a serious waste of scarce resources. The answer is to:

- Require very simple calculations in support of installments;
- Not subject them to detailed audit but at most to a broad credibility check;
- As part of the annual audit, review the company's attribution of profit to particular periods, if (and only if) audit risk analysis suggests a material risk of error, and make any necessary adjustments then; and
- In that case, charge interest on underpayment of installments and impose a penalty only where the understatement was material and attributable to negligence. (The threat of interest and penalties will in most cases be enough to reduce the risk of deliberate understatement.)

A further complication with installments based on actual results is that if additional tax is declared in the annual self-assessment return or arises from audit adjustments, it must be attributed to the correct installment period in order to calculate interest from the appropriate date—but a simplified rule may be possible for such circumstances (for example, additional tax deemed payable on June 30 of the year of assessment).

Basing installments on provisional results of a period does have some advantages. It does not require companies to estimate tax on the basis of unpredictable future costs and prices; it is the only basis possible for payment in kind (in a particular period there may be no lifting of petroleum from which a proportion of estimated annual tax could be paid); and, if periodic taxes are converted to annual taxes, as suggested earlier, it requires less of a radical change (because periodic taxes are based on the results for the period). Whichever basis is used for calculating installments—whether time apportionment of estimated profits or actual results—there are again obvious administrative advantages in using the same basis for different taxes.

### *Failure to Charge Penalties Automatically for Nonfiling*

Penalties muar be charged promptly and automatically for failure to file on time, and followed by prompt issuance of administrative assessments. A fixed penalty is usually chargeable for nonfiling, but more substantial tax-geared penalties may be appropriate if delay persists.

### *Failure to Charge Interest Automatically on Late Payments*

Interest should be automatically charged on all payments made late. It should be charged from the date the tax would have been payable had it been self-assessed by the taxpayer. It should be charged at a rate reflecting the time value of money (not a penalty rate), whether or not there is fault or negligence. The rate charged should be higher than the government's borrowing rate (and interest credited on overpayments should be set less than the government's deposit rate). It should be charged routinely by collection staff without the need for elaborate procedures or authorization. The calculation should, if possible, be automated. If the tax is paid in U.S. dollars (which sometimes is permitted for natural resource companies), this may make it easier to identify a standard reference rate (for example, London interbank offered rate [LIBOR]) for interest calculation. (Provision should be made for the tax authorities to amend the rate periodically by regulation to reflect changes in market interest rates.)

### *Complex Procedures for Allocating Payments against Various Taxes*

Tax authorities often have complex procedures for allocating payments among various taxes, which leads to unnecessary record keeping and complicated tax accounting. This complicated system frequently stems from fragmented administration among various agencies. Even if that is not the case, taxes are often administered in an uncoordinated way, with different returns, accounting periods, payment rules, and interest and penalties for nonpayment. As a result, there may be no consolidated taxpayer account. Even if there is, payments must still be allocated against particular taxes to ensure that different departments or offices can account for them and different rules applied (for example, different interest and penalty rules for late payment). This generally requires elaborate receipts and records among taxpayers, banks, and tax authorities. Automation may make the process more manageable, but may merely set these inefficient tax-based procedures in concrete, preventing development of a genuinely integrated and streamlined approach.

Integrated administration using consistent procedures—in particular common payment rules for different revenues—

can make such elaboration and record keeping unnecessary. Tax administrations must establish simple but effective taxpayer current accounts, recording taxes due as a debit and crediting the account when payments are made. A simple and user-friendly tax payment coding system is necessary. If there is institutional fragmentation, the system can be integrated and shared across agencies.

### *Refund Procedures*

Large VAT refunds are common for natural resource companies, because exports tend to be zero-rated but badly managed in developing economies. Sometimes imported equipment for natural resource operations is exempt from VAT to avoid those problems, although, as discussed in Chapter 2, administering this exemption has its own administrative headaches. For necessary refunds, countries should have adequate procedures, including risk-based audit procedures, and ensure that VAT refund requests correspond to actual payments. Moreover, there should be a modern and effective cash management system in the treasury to ensure sufficient funds in the single treasury account to pay refunds in a timely manner. Integrated procedures that allow overpayment of one type of tax to offset other taxes due may reduce problems associated with refunds, but may not eliminate them entirely. (Refund procedures are not discussed further because the issues that arise with natural resource tax repayments are broadly the same as arise with general taxes.)

### *Dollar Accounting and Payment*

Approaches to foreign currency accounting and tax payment vary. The U.S. dollar is almost universally used as the currency of the natural resource industry. Some countries adapt to this by allowing companies to calculate and pay natural resource taxes in dollars. Those countries also amend their usual procedures for interest on unpaid tax so that the rate charged is appropriate for dollar liabilities. Other countries require payment in local currency (although they may allow dollar accounting). Nontax considerations may be factor. To simplify administration and accounting for EITI purposes, it is best if payment of all natural resource taxes is required in the same currency. On the other hand, many countries require accounting and payment to be made in local currency given that natural resource companies deal with the local economy anyway, paying bills and contracts in local currency (for example, rent, wages, utilities). Furthermore, in some countries transactions in foreign currency are illegal.

Some countries require or allow accounting and payment of *special* natural resource taxes in U.S. dollars, but *normal* business taxes (or normal business taxes other than CIT) in local currency. There are arguments for calculating some taxes in local currency—for example, if payments to local suppliers are typically in local currency, requiring WHT on those payments to be paid in that currency makes it easier to reconcile tax deductions and tax credits. But for natural resource companies whose accounts are in U.S. dollars, this has no advantage because they already account for the payments in dollars. Even if governments do decide to require natural resource companies to pay some taxes in U.S. dollars and some in local currency, there may still be room for simplification through parallel consolidated, streamlined regimes for U.S. dollar and local currency taxes.

### *Payment in Kind*[4]

Payment of petroleum revenues in kind presents its own administrative challenges. Payment in kind usually is found only in production sharing regimes (in concessionary regimes, CIT and royalty legislation often gives the government the option of payment in kind, but it is rarely exercised). Unsurprisingly, given money's many conveniences, payment of tax in kind is rare in general taxation, and indeed would usually be regarded as bizarre. It produces no fiscal benefit because companies can typically be required to pay the government production share in cash at world market prices. On the contrary, it entails costs and risks because storage and marketing require special competencies—the NRC or other marketing agency may fail to obtain the true market price for government petroleum because of incompetence or corruption. Like any other physical process, it requires the kind of real-time intervention self-assessment aims to avoid. In-kind revenues obviously cannot be paid directly into the banking system, which is usually considered a basic requirement for integrity of tax administration. They seriously complicate tax accounting. In some countries, PSAs set out clearly how companies should share production with NRCs, but there are no clear rules on payment of the sale proceeds by the NRC to the government. The production sharing may be treated as equivalent to a commercial venture and the NRC entitled to retain the proceeds for its own commercial purposes. There should always be clear rules governing payment of the sale proceeds by the NRC to the government, and any right to retain proceeds must be clearly specified and accounted for.

In view of those issues, it may be worth questioning the benefit of payment in kind, but in practice many countries will want to persevere with it. NRCs generally do not exercise the option to require payment in cash, and may have a vested interest in continuing to carry out their marketing function. Payment in kind is also politically attractive—when an NRC sells a country's petroleum rather than letting it be taken by an international oil company, it may be seen as

[4] This section refers only to the petroleum industry.

indicating greater national involvement in and control over the industry.

In that case, administration of in-kind revenue procedures should be made more transparent and brought within a sound organizational and procedural framework. Companies should account *to the tax authority* at the end of the year for the value of revenues paid in kind to the NRC or other agency, in returns subject to the same administrative procedures and sanctions as other tax returns. Those returns should be subject to auditing by the tax authority in the same way as CIT returns. (There will generally be a close relationship between the production sharing and CIT tax base, making consolidated returns appropriate.) Audit and appeal adjustments should be settled in cash—it is not practicable to settle them in kind. The NRC should be required to account to the tax authority for in-kind revenues received, and for the proceeds realized. In-kind revenues should be valued at market prices, and the NRC should account for any loss (or, more improbably, profit) on sales by reference to those prices. (The NRC should not be responsible for final determination of the market price.) Procedures for NRC payment and banking of proceeds should be similar to those for other taxes, and again subject to the same sanctions. To avoid conflict of interest, the government, not the NRC, should decide whether companies should pay revenues in kind or in cash, and its decisions should take account of the marketing costs and losses monitored under the above rules.

Bringing taxes paid in kind into the standard administrative framework and subjecting the NRC to customary fiscal oversight have major benefits. It increases transparency and removes an obstacle to consolidation and simplification of tax accounting, with benefit to EITI participation. Revision of production sharing administration along these lines usually requires amendment of legislation (which could be incorporated in a TPC if there was one). There are few, if any, good examples of this in practice, however. Fiscal evaluation of in-kind revenues, and ensuring that what is due is collected, is generally left to the NRC or other marketing agency, which merely reports the proceeds received, and does not account for marketing costs and losses.

### *Electronic Filing and Payment*

Electronic filing and payment have major advantages. For large companies consideration should be given to making them compulsory (legislation and IT support may be required). They make compliance easier for taxpayers, streamline and simplify administration, allow automated screening of returns for completeness and internal consistency, eliminate opportunities for collusion and corruption, and facilitate automation of functions such as accounting and risk assessment. These advantages are not unique to natural resource revenue administration, but the need for transparency makes them particularly important.

### *Illustrative Administrative Regime for Natural Resource Taxation*

To bring together the themes discussed, Appendix 2 sets out an illustrative harmonized, simplified, self-assessment-based administrative framework for natural resource taxation, which includes:

- One consolidated annual self-assessment return, electronically filed, of taxes payable by natural resource companies;
- Monthly or quarterly installment payments based on provisional results for the period, supported by simple summary statements;
- Payment of all taxes into a single nominated government bank account to be made without government demand (that is, on self-assessment principles);
- Automatic penalties (plus administrative assessment) in case of noncompliance with filing rules and automatic interest on all late payment of tax;
- Consolidated enforcement, audit, and dispute resolution procedures for all taxes; and
- Inclusion of in-kind payments within this common framework.

The objective is to illustrate the extent to which simplification is *possible*. Tax authorities should develop their own vision of what a coordinated, coherent, and simplified system of natural resource revenue administration would look like, so that their strategic planning can be informed by that long-term vision. Ultimately, tax administrations should realize that it is possible to simplify filing, payment, and other administrative procedures without compromising the quality of information received. Indeed, the goal should be to reduce compliance and administrative costs while securing a stable and timely flow of tax revenues as well as high-quality information to support a risk-based monitoring and audit approach.

## NONROUTINE FUNCTIONS

Nonroutine functions are about managing compliance risks and ensuring that tax is quantified correctly. They are described as nonroutine because they require the development of a risk management strategy, and the exercise of professional skill and judgment (but they are of course regular functions of tax administration).

### Risk Assessment and Management

Risk assessment and management are key principles of effective tax administration. Tax authorities have finite re-

sources and must plan their use to achieve the optimum compliance outcome. This requires a systematic process to identify, analyze, and prioritize the major compliance risks; the taxpayers to whom they relate; and the most effective actions to manage them, with coordinated input from staff responsible for different functions. Identification of risk requires analysis of data from both internal sources (for example, returns data, data on compliance levels, audit results, taxpayer enquiries) and external sources (for example, other government departments involved in natural resource administration, particularly the natural resource department, company websites and published accounts, media reports, and subscription to commercial sources of price data). Risks should be analyzed at the taxpayer level and also at the category level. At the taxpayer level, profiling should be carried out to place taxpayers in different risk categories, reflecting both the perceived likelihood of noncompliance and the amount of revenue at risk. Category risks relate to specific tax issues—that is, the tax system rather than particular taxpayers. The strategy for managing risks should reflect an analysis of the causes of the risk, and aim to address causes and not just outcomes. It may contain various components, including marketing and education and development of explanatory products (for example, fact sheets or guides), and will usually contain an audit component. In some cases the strategy will be to inform the government and propose changes to laws. The impact of the strategy should be monitored and used to further refine and improve risk management.

## Segmentation and Compliance Strategy

Compliance risks vary in nature and size between taxpayer segments as well as between taxpayers within a particular segment. Compliance and taxpayer service strategies therefore need to be varied for different segments to manage those different risks.

Noncompliance with routine requirements, and omissions from returns caused by inadequate or inaccurate records, are more common with small-scale artisanal miners. In some countries these represent a significant part of the mining industry. (Small-scale artisanal petroleum operations are much less common.) This kind of tax evasion may be a major problem, with artisanal miners operating largely in the black market, and taking advantage of the ease of smuggling precious minerals over porous borders. Managing such compliance risks presents significant challenges.

Measures outside the purview of tax departments may be necessary to bring artisanal mining activity into the formal economy. In many developing economies nontax reform of cumbersome and expensive business regulations is urgently needed to encourage small business participation in the formal economy. Some nontax reforms could be specifically aimed at mining. For example, the government could set up an official minerals export agency to market precious minerals on miners' behalf.[5] The exports would be not be subject to VAT and would be marketed at world prices. The agency could charge at most a small commission—the main benefit to the government would come from bringing miners into the formal economy (miners selling through the agency would be required to provide their taxpayer identification number). The main benefit to the miners would be better prices than they could get from small-scale black market sales. In the case of countries that have some control over payments to artisanal miners (for example, through export agencies or the central bank), tax compliance could be facilitated by applying a small withholding tax in lieu of other taxes at the time of payment for the minerals. Of course the success of such a reform would depend on the agency's establishing a reputation for efficiency and integrity, a challenge in some countries.[6]

Tax authorities may also need to take measures to manage the mining shadow economy. The problems of managing the mining shadow economy are not essentially different from the problems of managing the shadow economy generally. But, if evasion is particularly high in this sector, it may be appropriate to set up special shadow economy units and special programs to tackle the sector.[7]

For large natural resource companies, noncompliance with routine requirements is generally less of a problem, as long as there is an effective self-assessment system backed by clear guidance and rigorous enforcement, including automatic interest and penalties, against the noncompliant minority. Problems of nonfiling and nonpayment do sometimes occur, however. For large natural resource companies, the main compliance risk is generally that the tax they declare does not accord with the law or its underlying policy intention. These risks are likely to be more concentrated in underreporting, for example through the use of techniques such as transfer pricing operations, transactions with tax havens, and thin capitalization (as mentioned in Chapter 2). The relative size of these companies often means that this is the main compliance risk the tax authority has to manage. These risks are more difficult to identify, and treatment strategies are more costly (and sometimes very demanding for lower-capacity tax administrations). Tax administrations should be aware that risks may vary even within a relatively well-defined segment such as the natural resource sector.

[5] For example, Ghana set up a Precious Metals Marketing Corporation to perform this function, thought to have had some limited success in reducing smuggling. In Colombia, the central bank acts as a central buyer for precious minerals.

[6] Participation in the Kimberley process (http://www.kimberleyprocess.com/), designed to stem the flow of conflict diamonds, may also help reduce smuggling.

[7] See Russell (2010).

## Enforcement

Best practice for general tax arrears management is equally relevant for natural resource companies, but is not discussed in this handbook. Some special considerations may apply to natural resource companies:

- Natural resource license agreements often contain sanctions for noncompliance with license obligations (including fiscal obligations), one of which may be termination of the license. In general, it is best if sanctions for fiscal noncompliance are coherent and consistent with those set out in normal tax legislation (ideally in a TPC). But tax legislation would not normally allow license termination, and in some cases that option may need to be considered. Because it would represent a "nuclear option" it should be considered only as a last resort, but in extreme cases tax authorities should be ready to discuss it with natural resource departments. Making the risk of termination clear to taxpayers might be enough to achieve results.
- Because royalties do not bear a certain relationship to income and therefore ability to pay, there may be times when natural resource companies do not have income to pay them. This is inherent to royalties, so governments typically seek to enforce payment anyway, and, if the problem is just one of timing of profit, companies will usually obtain the finance necessary to make payment. This may sometimes be impossible, however, such as when prices are so low that royalty payments make operations uneconomic over any realistic financing time frame. In some countries governments allow royalty deferral or holidays in such circumstances to avoid premature termination of operations. Clear and objective criteria and procedures are important, in the interests of equity, transparency, and integrity, including clear rules about interest on deferred payment.
- NRC compliance with tax obligations is sometimes poorly enforced, but should be enforced as rigorously as for any other company.
- Enforcement of compliance with social and infrastructure obligations generally receives very little attention. Not only are such obligations often poorly specified, but usually no procedures or mechanisms are in place to monitor and enforce compliance or penalize noncompliance.

## Taxpayer Services

Tax authorities should develop a comprehensive taxpayer service program for the natural resource industry. This program should identify opportunities for simplifying tax laws and making them clearer and more accessible (as discussed in Chapter 2); simplifying administrative processes to reduce the compliance burden and providing easy access to tax forms (as discussed earlier in this chapter); and providing information through several channels, including the Internet, counter services, telephone, and correspondence, to enable taxpayers to self-assess accurately. Taxpayers should be required by law to keep the records necessary to calculate their taxes correctly, but as far as possible these should be limited to those required for usual business purposes, and detailed guidance should be issued on special record-keeping requirements. There should be channels for regular discussion and exchange of views with natural resource industry representative bodies. Appointment of key client managers for large taxpayers can be an effective way to provide ongoing and proactive taxpayer services and education and develop more constructive and cooperative relations with the industry. There should be operational targets to measure taxpayer education and service performance, including results of taxpayer satisfaction surveys.

For large natural resource companies, advice and consultation on legal and technical issues is particularly important. The extent to which this is necessary depends on the complexity and obscurity of the legislation, but even if legislation is well drafted, some issues may require clarification. There should be a clear policy and clear procedures on the provision of guidance and rulings. In some countries, tax authorities can issue guidance and rulings that are binding on both taxpayers and the tax authority, but this is comparatively rare. Where such powers do not exist, tax authorities should still be able to provide guidance on how they will apply the law to a particular transaction (a private ruling) or to transactions of a particular type in general (a general ruling), if there is reasonable doubt about how the law should apply. Such guidance is binding on the tax authority (as long as the transaction is carried out as described and the facts were fully and accurately reported, and subject to later legislative amendments or clarification of the law by the courts).

Tax authorities should not be merely reactive in providing guidance, but should be proactive in setting out their view of the law. Such guidance provided to staff (for example, natural resource tax audit manuals) should be published, including practical examples, so that it is also available to the industry (with very limited exceptions, such as where it might facilitate tax avoidance), and industry input and comments should be sought. Some countries (for example, Australia and New Zealand) also publish audit strategies and plans (again possibly with limited omissions). Many countries struggle with this kind of openness, but it can contribute to voluntary compliance and avoidance of disputes. Companies may not agree with departmental interpretations, but will often accept them if they are properly explained and do not come as a nasty surprise.

Relations between tax authorities and the natural resource industry often need to be improved and strengthened. In the worst cases they may be characterized by mutual distrust and unwillingness to communicate. This is likely to be the case where taxpayers consider that the tax authority is

applying the natural resource fiscal regime in an arbitrary or inconsistent manner (or where the law is itself arbitrary and inconsistent). To assess relations it is generally best for an independent party to talk to natural resource companies about their views and experiences of the tax authority, without the tax authority present and with assurances that comments will be reported back to the tax authority anonymously. (There is, however, considerable variation in how ready natural resource companies are to share their concerns.)

## Physical Audit

Effective physical audits are an important element of natural resource tax administration. Physical auditing describes the procedures by which the government oversees physical measurement of the volume and quality of production. This is often the responsibility of a department other than the tax department—for example, the natural resource department or, in the case of exports, the customs department. When natural resource valuation for tax purposes is based on a special valuation rule such as use of a benchmark price, accurate measurement of the volume and quality of natural resource production is an integral part of tax calculations. (It is also an integral part of tax calculations when tax rates depend on production level.) Even if valuation is based on actual sales prices, production data and price data should be used for assessing the risk of sales understatement, including transfer pricing manipulation. (This sort of risk assessment is not practicable for most non–natural resource industries, but since it is practicable for natural resources it would be wrong not to make use of it.) There is, however, considerable variation in countries' approaches to physical auditing. Some exercise little oversight and rely on the accuracy of company volume and quality measurements. At the other extreme, others require direct government measurement of all production.

Natural resource companies should be subject to clearly defined obligations to measure and record physical production, with risk-based monitoring of their compliance. The point of measurement for sales valuation should be clearly defined. Companies should be required to implement controls to ensure that all production reaches that point (and to control and measure unsold stock). At the valuation point they should be required to put in place equipment and procedures to accurately measure volume and quality and systems for recording those measurements, which should be reported to the responsible agency under specified rules. The responsible agency should not necessarily have responsibility for all the obligations of measuring volume and quality, particularly in the case of large multinational natural resource companies; instead, it should oversee companies' performance of those obligations, and monitor measured output against other data, such as production plans. Large natural resource companies, which are not locally owner managed, are at constant risk of misappropriation of natural resources by their employees, particularly in the case of precious minerals, and usually have sophisticated systems and controls in place to prevent this and to ensure proper valuation of sales. The responsible agency should review the adequacy of those systems and controls and build on them instead of seeking to replace them wholesale with its own. It should have unfettered rights to physically inspect the movement of natural resources up to the point of measurement, and to physically monitor and test company measuring equipment and procedures, but should adopt a selective risk-based approach, reflecting both the amount at risk and the probability of error (taking account of company characteristics and past performance as well as difficulty of measurement). The responsible agency should attempt to identify points at which the company, but not employees, could benefit from inaccurate measurement, which is where risk is greatest. It should carry out tests at unpredictable intervals (requiring competence in mineralogical analysis and sampling techniques). It should have a clearly formulated strategy and plan for physical auditing, and should keep records of its physical checks and their outcomes. When inaccurate measurements or recording is discovered, there should be procedures for correction, including reasonable extrapolation to other periods. There should be penalties for such failures, and arbitration rights when there is disagreement over volume and quality. Procedures should be established for production data to be passed to the department responsible for tax auditing.

## Benchmark Pricing

If the law requires production valuation based on benchmark prices (or on average prices of actual transactions), there must be clear procedures for establishing and publishing those prices. (These pricing rules may apply to all sales or just to non-arm's-length sales, as discussed in Chapter 2.) In some countries the tax department is responsible for determining prices; in others it is the natural resource department or NRC or various agencies may have joint responsibility. Sometimes the responsible department takes the lead in identifying suitable benchmarks and calculating the prices to be used; in others, natural resource companies make proposals along with supporting evidence, which the department can accept or amend. The latter approach may foster better relations with the industry and enhance voluntary compliance. Either way, the responsible department must have procedures (and funding) for identifying, accessing, and recording relevant price data. Companies may typically appeal assessments, but when values for tax purposes are determined ex ante, there may also be special arbitration procedures, usually involving international experts rather than local courts, for valuation disputes. In other cases, valuation prices are imposed by the government. If valuation rules are clear, objective, and predictable, arbitration rights may not be necessary, but often the choice of benchmark and its adjustments, the pricing of actual transactions (where these feature in the calculation),

the weighting of different elements of the calculation (where combinations of methods and benchmarks are used), and the calculation of weighted averages are open to dispute, in which case an arbitration mechanism is appropriate.

In theory, if pricing rules are clear and simple, companies can be left alone to apply them; in practice, it is usually best if valuation prices are published by the responsible agency. Pricing can be quite complex, as previously explained. The data required to perform the necessary calculations may not be readily available to companies and tax auditors (and it should be remembered that other parties, such as auditors of tax departments and civil society organizations, may also have an interest). Even if the calculation is simple (for example, a simple unweighted average mineral price quoted on a particular exchange) it is still best, in the interest of transparency and certainty, if the actual figures to be used are published, for example on the official website of the responsible agency. When annual tax returns are received, the correct application of benchmark prices should be checked as part of the audit or audit risk assessment process. Publication of the figures should leave no room for dispute between companies and tax auditors.

Governments may need advice on suitable sources of price data for benchmark-based pricing or risk assessment. New sources of these data are constantly emerging, and a handbook such as this cannot provide a comprehensive list.

## Audit

Audits of natural resource tax returns are generally considered the most important but also one of the most challenging functions. The natural resource industry is not exceptionally complex, and if natural resource taxes are clear and well designed, there should not be too much room for error. But even in the best-designed regimes there can be different interpretations and unacceptable tax manipulation at the margin—and with natural resources even marginal errors can involve very large amounts of money. In many countries major weaknesses in natural resource tax design magnify the risk of serious tax loss. Tax auditors must control and manage that risk, but, as discussed in Chapter 2, sometimes amendment of legislation may be required.

Tax auditing may suffer from other failings. It may be weak and ineffective or aggressive and unfair, or a combination of the two. The first failing is probably the most common. Natural resource companies may not be inherently more likely than others to understate tax, but if an ineffective audit leaves an open door, some companies will walk through it, and serious tax loss can result. Sometimes aggressive and unfair tax auditing is the main problem. It may produce short-term gains for the government, but discourage investment, encourage noncompliance and tax avoidance, and foster corruption—all of which may cost the government much more in the long run. Easy gains from arbitrary and unfair audit adjustments often mask ineffective and corrupt management of more substantial revenue risks.

The adequacy of tax audits and information access powers should be considered. These should be clearly set out in tax legislation and/or agreements. Normally they are extensive, and backed by appropriate penalties for noncooperation, but sometimes there are restrictions that hinder effective auditing (for example, impracticably short time limits or inadequate authority to obtain vital third party information), and legislative change may be necessary. There should be reasonable safeguards for taxpayers. The key safeguard is effective rights of appeal against audit adjustments and penalties (discussed in more detail later), but audit powers should themselves be reasonable and subject to limits, with rights of appeal against unreasonable demands. It is good practice to explain in published guidance or codes how audit powers will be exercised and what safeguards are available to taxpayers.

Audits of various natural resource revenues should ideally be integrated within the tax department as part of wider administrative integration, but if administration is fragmented the audit activity of various agencies should be coordinated.

- Gross petroleum income value is usually obtained on the same basis for royalty and CIT (and, where relevant, production sharing), as is gross mining income. Company returns are based on similar if not identical accounting records. Returns and accounting periods for royalty and CIT are, however, often different and audited separately. This leads to clear duplication of function and uncertainty regarding final responsibility for determination of gross income. Sometimes departments fail to communicate returned figures and audit adjustments to each other and may end up assessing inconsistent amounts. When gross income is calculated on the same basis for royalty and CIT, responsibility for final auditing and determination should be clearly assigned to one department, which should report its final determination to the other department for use in its final determination. It is generally better for the tax department to have this final responsibility because it generally has stronger auditing capacity and can reconcile annual returns with annual audited commercial accounts. Royalty returns, however, are generally submitted monthly or quarterly and neither based on, nor reconciled with, audited accounts. Alternatively, the two departments should carry out a final annual audit jointly. Even if gross income is calculated on a different basis for royalty and CIT purposes, separate audits generally mean significant duplication, and often unreconciled differences. Again the tax department should take responsibility for final auditing, determination, and reconciliation of the figures, or both departments should carry out a final joint annual audit.
- Costs are often identical or at least closely aligned for various natural resource taxes, such as CIT, production sharing, and RRT, and are likely based on the same or similar accounting records. Auditing of production sharing (often described as the "cost

recovery" audit) will inevitably overlap with CIT auditing, again resulting in duplication of effort and lack of clarity about the ultimate responsibility for determining costs. Frequently there is failure to reconcile the figures for each tax. A commercially active NRC should not be responsible for determining government revenue, because of conflict of interest. Between the natural resource and tax departments, one should assume responsibility for final auditing, determination, and reconciliation of costs for the purposes of all taxes, and the other should use its figures; the balance of argument favors assignment of this role to the tax department. Alternatively, if this cannot be agreed, both departments should audit and finally determine annual costs jointly. Auditors from the different departments could focus on different risks; for example, the natural resource department could consider whether expenditures were properly approved and authorized under the terms of the agreement, whereas the tax department could zero in on accounting issues.

Clear strategic, operational, and case audit plans should be developed for the natural resource sector, based on risk assessment and reflecting the special characteristics of the industry and of different taxpayer segments. The general principles set out by Edmund Biber (2010) are equally relevant to natural resource tax audits. Repetition of those principles in this specialist handbook would be pointless, but their importance for natural resource tax auditing cannot be overestimated. Resource constraints usually mean that audits must be selective and risk based, but the high profile of natural resources, often combined with considerable public mistrust, can lead to political pressure for a comprehensive yearly audit of every natural resource company, which can result in a superficial, box-checking audit.

Natural resource tax returns should be designed to support audit risk assessment. A well-designed return is a key element of effective risk assessment, and requirements for return data and supporting documents should be prescribed primarily with that in mind. Legislation should give the tax authority broad power to specify return requirements. Returns should be in a standard published format, so that companies do not need government-issued forms. Information required (for example, cost analyses) must to some extent depend on tax rules (for example, rules for particular cost categories), but as far as possible should be information that companies already keep for their own management and accounting purposes. It is good practice to consult fully with natural resource companies on return design, which should be reviewed in light of audit results (to help companies avoid past errors or make their detection more likely). When contract areas are ring-fenced, results must be shown separately for each, but even if they are not ring-fenced, analysis of results by contract area can be useful. Whenever possible, various natural resource taxes should be consolidated on a single return and the calculations reconciled. Electronic filing is advisable to assist with routine processing. It can also ensure that complex calculations (such as rate of return) are correct and provide data for automated risk assessment—for example, by facilitating key ratio analysis, comparison across companies and contract areas, and reconciliation of global and individual company results for contract areas.

Risk assessment and audit can often be strengthened by development of a natural resource IT database. This would for example bring together return, company, license area, and pricing data from the department's own sources, from other departments, and from sources such as natural resource company websites. IT support is discussed further in Chapter 6.

Contract-based economic models may be useful for risk assessment. They can increase the effectiveness and transparency of natural resource tax administration. Their importance will depend on their relative sophistication compared with other available IT-supported risk analysis tools. A more detailed discussion of the role of economic modeling can be found in Appendix 3.

Nontax audits have a role to play in risk assessment. Natural resource companies may be subject to various types of audit:

- Typical annual commercial audit: This is not conclusive for tax purposes because tax rules may differ from accounting rules, and significant errors may be regarded as immaterial for commercial audit purposes. But commercial auditing does provide some assurance. Tax returns should therefore be accompanied by commercial audited accounts, which should be reconciled with tax calculations. Some differences (for example, in depreciation rates) will reflect differences between tax and accounting rules, but others (for example, in sales valuation or cost capitalization) may be indicators of risk. If natural resource companies have a publicly listed parent, its accounts (usually accessible on its website) should be reviewed. Listed companies are subject to extensive disclosure requirements—such as disclosure of associated company transactions—which may prove useful. Comparison of figures for the group and local company may indicate risk areas (for example, if the local company has a disproportionate share of finance costs).
- Natural resource companies may be audited by joint venture partners, including possibly the NRC. Joint venture audits also provide some assurance because one of the main concerns of joint venture partners will be to ensure that costs charged by associates of the operator are not excessive. Joint venture audits may be argued to be confidential, but the possibility of accessing them should be explored, particularly when the NRC is one of the joint venture partners.

Different types of tax audits may be appropriate for different companies, and this variation should be built into audit strategy and planning. For the largest and most significant taxpayers, and when risk assessment or previous history

suggests exceptional risk, comprehensive audit is appropriate. For others, limited issue audits (possibly focused on category risks identified by risk analysis, including analysis of potential weaknesses in legislation, discussed in Chapter 2) may be more productive. Even if an audit is comprehensive, auditors should focus on particular risks and identify the accounting systems and detailed records they need to audit to test them. Natural resource tax audits do not require special techniques, but they do call for detailed understanding of technical risks specific to natural resource taxation (failure to ring-fence costs, for example) and an understanding of natural resource company accounting and of the records and systems (for example, time writing[8] and other methods of cost allocation) that must be audited to control those risks. Auditors must keep an open mind and be ready to modify their audit plans if other risks emerge. For large companies, examination of records is inevitably selective even in a comprehensive audit; if errors are found (for example, miscategorized expenditure), it is important to establish their full extent, by expanding the audit to other records and years as necessary or by reasonable extrapolation from audit samples.

It is difficult to generalize on the types of underreporting most common in the natural resource industry because it depends to a great extent on the design of the law, but risks are fairly common in some areas. For example:

- Valuation of sales, especially where valuation rules are complex or unclear;
- Transfer pricing, although this risk may be lower where there are clear and well-designed transfer pricing rules backed by strong penalties;
- Finance costs and thin capitalization, although again risk may depend on how clearly restrictions on deductibility are expressed;
- Categorization of costs as capital expenditure or operating expenditure, but risk is lower where there are clear and simple classifications aligned to standard accounting treatment, with depreciation over a relatively short period;
- Classification of exploration expenditure—for example, if companies claim as exploration the cost of assets acquired or constructed in the exploration phase but intended for use in development;
- Capital gains on license transfers, although risk will obviously depend to some extent on how (and even whether) these are taxed, and on the nature and effectiveness of any antiavoidance provisions;
- Allocation of costs, particularly foreign costs, to ring-fenced areas, but again risks may depend to some extent on the clarity of the rules;
- Tax holiday arrangements, particularly if the rules and boundaries are poorly defined; and
- WHT, where the risks of underreporting may reflect complexity in the law or simply the fact that natural resource companies seek to avoid the additional costs imposed by WHT (service providers often require payments to be "grossed up" for WHT, which in effect means that natural resource companies pay tax on the service provider's income).

This list is by no means comprehensive. On any topic disputes and audit adjustments can arise over the wording of specific provisions in a country's legislation that would not arise elsewhere.

Audit adjustments, and the reasons for them, should be closely monitored and clearly explained to taxpayers. Analyses of audit adjustments by type of error and by their technical nature should be maintained to inform risk-based audit and taxpayer service strategies. The reasons for errors should be analyzed, and measures to prevent repetition planned. Was there a lack of understanding of the law that further guidance or better return design might prevent? Might it be appropriate to recommend improvements in company accounting systems? Was the error due to a legislative ambiguity that could be clarified by guidance or requires legislative amendment? Is additional auditor training needed to increase error detection? Did the error result from neglect, so that penalties to deter repetition are appropriate? Auditors should also report instances of taxpayer exploitation of weaknesses or ambiguities in legislation, so that appropriate action can be recommended to staff responsible for policy and legislation. Audit adjustments, and any interest and penalties charged on them, should be collected in the same way as regular taxes and accounted for separately.

In some countries it is not the practice to charge interest and/or penalties on tax audit adjustments (although power to do so may exist). Interest should invariably be charged, whether or not the understatement can be attributed to fault by the company—otherwise, the government suffers financial loss, and companies that calculate their tax wrong are have an advantage over those that calculate it right. Penalties are an essential feature of any regime based on self-assessment and selective risk-based audit. If they are not charged, companies have a clear incentive to understate their income—they lose nothing if an understatement is detected but gain whenever an understatement is not detected. Penalties should be charged[9] when omissions result from negligence (that is, any failure by responsible company personnel to exercise reasonable care) or fraud, and should vary with the gravity of the offense and amount of tax put at risk. Culpability may be difficult to establish, and companies may strongly resist penalties, but the threat, even if carried out only occasionally, is a major deterrent. It is important, however, for penalty criteria to be clearly defined, and there should be effective appeal procedures against unreasonable charges, so that the threat of penalty cannot be used

[8] This means keeping records of time spent working on particular areas and allocating costs (mainly salaries) in proportion to the time spent.

[9] Some PSAs contain no penalty provisions, possibly because of the greater emphasis on advance approval rather than posttransaction auditing.

aggressively and unfairly.[10] Penalties for tax return omissions are usually based on the estimated amount of tax owed, but these may not be adequate to penalize and deter overstatement of costs in preproduction periods.

Special audit procedures may be appropriate for joint ventures. In a joint venture, the operator incurs costs centrally and issues cash calls to its partners to meet their share of those costs. It may be more efficient to audit the operator's cost records centrally than to audit each joint venture partner's return, which also ensures consistency of treatment of the partners. Audits of individual partners' returns are then limited to ensuring consistency with the operator's calculation of costs (and any audit adjustment to that calculation) and checking any "sole" costs or income, which are normally relatively minor. To achieve this, special administrative rules may be necessary to provide for submission and auditing of operator returns (although in some cases usual third party information powers may suffice).

NRCs should be audited by tax departments in the same way as other companies. In some countries the NRC is accountable to the sector ministry, which may lack audit expertise. NRC audits are often poor in practice, whichever agency is responsible. NRCs may be powerful organizations under limited ministerial control, with poor accounting standards, and it can be difficult to enforce tax obligations on them. It is often unclear whether it is even appropriate to do so, because NRCs are seen primarily as a government agency, indeed as a superior government agency, rather than as a taxpayer.

It can be difficult to assess standards of audit, and external examination of some audit files may be useful. This can often reveal more about audit strategy and standards than any amount of statistical data and general discussion. If governments obtain advice from independent experts on strengthening tax auditing, they should be allowed to examine audit files, if time, language, and confidentiality considerations permit.

## Appeals and Dispute Resolution

Equitable, accessible, and timely dispute resolution is as essential for natural resource taxation as for any other taxation. Formal litigation is often very resource intensive and slow, and judicial institutions may be unable to cope with a large volume of cases, so to avoid a backlog, it is important that most disputes be resolved by agreement in the course of the audit, or in subsequent negotiation on audit findings. This is usually possible when auditors provide reasonable justification for proposed adjustments; both sides have confidence that reasonable conclusions will be upheld by the courts; and neither party stands to benefit from maintaining an unreasonable stance (which would be the case, for example, if no interest were charged on deferred tax payments or if there were no possibility of costs imposed for vexatious litigation). There should also be effective internal review mechanisms, particularly to resolve disputes on matters of fact. (Some countries have independent tax tribunals functioning at a level below the court, which resolve disputes on a slightly less formal basis, and are the main arbiter of disputes over questions of fact as opposed to law.) When there is a large backlog of unresolved disputes, the reasons should be established and steps taken to address the underlying problems.

In many countries judicial institutions for resolving natural resource tax disputes are weak. Appeal tribunals may not exist, may not be seen as competent to resolve complex disputes (particularly on specialized natural resource issues), or may not be seen as impartial and even-handed, particularly if chaired by finance ministry officials. There may also be a perceived risk of corruption when large sums are involved. Often there are doubts about the competence, impartiality, and integrity of the courts too. Addressing these problems can be difficult, since responsibility for the judicial system falls (rightly) outside the jurisdiction of the tax department. Nevertheless, the lack of fair and effective dispute resolution is a serious weakness in revenue administration and should not be glossed over.

Dispute resolution on natural resource taxation may be strengthened by means of expert international arbitration. Natural resource investment agreements such as PSAs commonly provide for this. It can create potential uncertainty over jurisdiction—the same figures (for example, for sales valuation) may apply for CIT and production sharing purposes, but (as is often the case) national courts may have jurisdiction over CIT and international arbitrators over production sharing. To avoid such uncertainty, the scope for integrating tax appeals and PSA arbitration procedures should be explored. Even when investment agreements do not include rights to international arbitration, the option to appoint independent international experts to special tribunals for natural resource company tax appeals should be considered, if appeal arrangements are inadequate. Such tribunals should, however, follow the accepted principle that where omissions or errors in accounts or returns are established, the onus is on the taxpayer to disprove the tax authority's assessment. In addition to appeals against audit assessments, such tribunals could also hear appeals against reference prices proposed or published by the tax authority during the tax year, where companies are required to use these for the value of natural resource sales.

[10] Lack of clear criteria and effective appeal rights present obvious risks of corruption and, no doubt influenced by this risk, some countries—for example, Uganda—apply the same standard penalty to all tax understatements.

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# CHAPTER 5

# Governance and Transparency

This chapter discusses governance and transparency of natural resource *revenue administration*, which must be considered in a broad context. Maximizing economic and social benefits from natural resource exploitation requires good governance and transparency across a wide range of government activity, not just tax administration. Natural resource companies and their host governments also need to play a part. The wider context is explained in the IMF's *Managing Natural Resource Wealth Topical Trust Fund* (MNRW-TTF) program document (2010) and has references for further reading, but is briefly summarized in this introduction.

Weak governance is considered the main explanation for the "resource curse," which refers to the fact that many countries, far from benefiting from the opportunity natural resources present to finance accelerated development and poverty reduction, experience lower than average growth and human development, often accompanied by serious environmental degradation and civil unrest or even war. Natural resource operations often create only limited direct economic and social benefits in the form of employment opportunities, wider industrial development, and reinvestment of profit, and often present risks of direct harm, in the form of damage to the environment. The main benefits from natural resources are often indirect, in the form of fiscal revenues channeled through governments. It therefore falls on governments to do what they can to maximize the direct benefits from natural resources and minimize the risks of harm, and to convert natural resource fiscal revenues into sustainable national wealth through sound government expenditure and financial asset management. But maximizing direct benefits (for example, by requiring local sourcing of goods and services for natural resource operations) involves trade-offs that are difficult to manage and measure. The volatility, unpredictability, and exhaustibility of natural resource fiscal revenues present major challenges to expenditure management, creating risks of harmful boom and bust. And large natural resource revenues can have devastating effects on the non-resource economy if not managed with restraint.[1] Natural resources thus impose exceptional demands on governance and capacity, in countries where they are often weak to begin with. These resources tend to undermine already weak governance and raise unrealistic public expectations of instant wealth, which undermines fiscal discipline. Large revenues from foreign companies reduce pressure on governments to be accountable to citizen taxpayers, foster development of political patronage, and present opportunities for corruption and capture of rent for the benefit of a political faction rather than the nation as a whole. They may cause or aggravate socially and economically harmful community divisions. Poor governance and corruption tend to spread from agencies dealing directly with natural resource companies to other government agencies, compromising their ability to convert natural resource revenues effectively into public goods and services. The resource curse is not inevitable, however, as can be demonstrated by comparing the very different economic development of countries with similar natural resource en-

[1] In a common pattern, generally described as "Dutch disease," the influx of NR revenues simultaneously causes inflation and a stronger real exchange rate. As a result, previously successful export industries that employed many people (particularly agriculture in developing economies) are no longer competitive and are dominated by imports. To avoid this problem, domestic expenditure and investment of natural resource revenues must be built up gradually.

dowments (for example, diamonds in Botswana and Sierra Leone, petroleum in Malaysia and Nigeria).

Poor governance and transparency also discourage investment. Responsible and well-managed companies are reluctant to invest in countries whose rules are unclear and where competitors who engage in corrupt or dishonest practices are likely to gain an advantage. The perception of corruption is also severely impedes the development of a culture of voluntary compliance with tax obligations.

To maximize social and economic benefits, strong governance and capacity are essential along the whole value chain that turns natural resource endowments into sustainable development and poverty reduction. Governments must:

- Develop and implement sound policies for
  - Managing natural resource exploitation and
  - Achieving a fair fiscal return on natural resource exploitation;
- Develop sound administration and regulation of
  - Natural resource operations to meet natural resource management policy objectives and
  - Collection of government natural resource revenues in accordance with fiscal policy objectives;
- Develop sound management of natural resource revenues expenditures, including of their impact on the overall economy; and
- Develop sound management of natural resource financial assets and liabilities.

The IMF offers guidance and technical assistance under its own programs and under the MNRW-TTF program to build capacity in natural resource fiscal policy design (module 1 of the MNRW-TTF program), natural resource revenue administration (module 2), natural resource revenue expenditure management (module 3), and natural resource asset and liability management (module 4). Its mandate is limited to those economic and financial aspects; on resource management and operational issues, it works with organizations, such as the World Bank, with a broader mandate.

Transparency is a vital prerequisite for strengthening governance. Good governance is generally taken as including a range of features, of which transparency is only one—for example, a system of checks and balances on the exercise of power; free and fair democratic elections; a powerful parliament with a loyal but effective opposition; the rule of law; legal stability; an independent judiciary; a nonpolitical military; a free press and media; strong civil society institutions; effective dialogue between government and civil society; an educated public; a balance between the public and private sector; fiscal, monetary, and budget discipline; strong oversight of government expenditure; control of corruption; a high level of government capacity; and so on. Transparency is, however, fundamental and underpins many of those features. It strengthens the rule of law, enhances public knowledge, fosters democratic debate and consensus building, increases accountability, improves management and oversight of government expenditure, and reduces the risk of waste and corruption.

The IMF uses its *Guide on Resource Revenue Transparency* (GRRT; 2007) as a benchmark for assessing transparency along the whole value chain. The GRRT identifies four pillars of transparency:

- Clarity of roles and responsibilities;
- Open budget processes;
- Public availability of information; and
- Assurances of integrity.

The GRRT is also concerned with issues other than administration, on which administration experts are not specially qualified to advise. This chapter identifies and discusses those parts of the GRRT that are of particular relevance to natural resource revenue administration. Because transparency is a key element of best practice in the design of natural resource tax law, in the allocation of natural resource fiscal responsibilities, and in the execution of natural resource fiscal administration functions, there is inevitably some repetition of points made in earlier chapters.

## CLARITY OF ROLES AND RESPONSIBILITIES

The GRRT calls for:

(1) A clearly established legal framework for government ownership of natural resources and the granting of rights for natural resource development: Licensing procedures should be published and should be simple, objective, and transparent, with a limited number of bid variables and an emphasis on competition when possible. Licensing procedures are not usually the responsibility of revenue administrations and are therefore not discussed further in this handbook.

(2) A clear and comprehensive publication of the government's policy framework and legal basis for natural resource taxation or production sharing:

- A major issue here is that natural resource fiscal rules are often set out in individually negotiated contracts rather than or as well as in legislation. Where the terms vary significantly from one contract to another, the resulting complexity can make the natural resource fiscal regime opaque. The IMF generally argues that a minimum of variable fiscal parameters; for the most part, all fiscal terms should be clearly set out in legislation and standardized contracts.
- The GRRT supports full disclosure (with quantification of any tax expenditures) of the terms of negotiated natural resource contracts, including stability agreements. Significant public funds are involved, and failure to make this information public can mask badly or corruptly negotiated contracts. In the past some governments

and natural resource companies resisted disclosure, on the grounds that it jeopardizes sensitive commercial and negotiation strategies. Confidentiality is a legal requirement of many existing agreements. But contract terms generally become known throughout the industry soon after signing, so that in effect it is only civil society that is kept in the dark. There should therefore at the least be time limits on confidentiality. Some countries, particularly those participating in Extractive Industries Transparency Initiative (EITI), have enacted legislation requiring publication of all natural resource contracts, although they may still be bound by confidentiality clauses in previously negotiated contracts. Tax administrations must respect legal confidentiality requirements, but within those limits should aim for maximum transparency—for example, by publishing model contracts and explaining exactly which variables are confidential. Large reputable natural resource companies increasingly view publication of contracts as in their interest, and may waive confidentiality rights. Contracts are sometimes public in theory but hard to access in practice—they should be made available on a well-publicized and regularly updated government website.

- Further hampering transparency and accessibility is scattered fiscal legislation relevant to natural resources included in mining and petroleum and various tax acts. Some countries address this problem through consolidated natural resource tax legislation, but in the absence of such legislation, the tax authority should, to strengthen internal capacity and taxpayer services, bring together and organize relevant legislation in a published natural resource revenue manual.
- As discussed in Chapter 2, legislation and contract law should be clear and understandable, and minimize opportunities for technical dispute and tax avoidance, for example, with simple rules for cost depreciation and clear enforceable rules on natural resource valuation and transfer pricing. Revenue authorities should provide guidance on how they will apply the law in practice if tax principles are expressed in general terms or are otherwise unclear or if the law grants administrative discretion, and should provide authoritative guidance on legislation in response to requests from taxpayers.

(3) A clear specification of fiscal authority over natural resources–related revenue and borrowing, and full disclosure of all natural resources–related revenue, loans, and assets:

- The GRRT recognizes that royalties are often imposed by petroleum or mining legislation and administered by natural resource departments; similarly, production sharing agreements are usually negotiated by natural resource departments or national resource companies (NRCs). Still, the GRRT argues that the finance ministry should have guide design of the natural resource fiscal regime.
- Good practice is that all natural resource revenues should flow to the government budget before appropriation for spending or investment.
- There should be clear assignment of institutional responsibilities for collecting and verifying natural resource revenues across government agencies and the NRC, and for comprehensive reporting of natural resource revenues by the finance ministry. Fragmented administration can make this difficult and impedes not just transparent accounting but also effective administration. Many countries fail to overcome those barriers in practice. Chapter 3 discusses these issues, and makes a case that integrated, functionally organized administration of natural resource revenues (not merely centralization of reporting) has the same advantages for natural resource taxation as for general taxation. It also set out a case for clearer separation of natural resource management and natural resource fiscal roles and functions.
- The GRRT argues that natural resource industry laws should be consistent with general budget and tax laws. Previous chapters explain that these are often inconsistent with general tax laws, and suggest strategies for greater consistency.

(4) Full disclosure of equity participation and explanation of its implications: On this topic the GRRT is mainly concerned with policy issues, but also covers the need for transparent accounting. Revenues from government equity participation, including dividends, should be clearly defined, as discussed in more detail in Chapter 2, and their payment monitored and accounted for. In practice rules for dividend payments are often vague. Government representatives on company boards should avoid conflicts of interest. These are common, since representatives of government agencies are often appointed to company boards to fulfill an oversight role, but company bylaws and their employment terms may obligate them to act in the company's interests (which may not be the same as the government's). NRCs and companies in which the government invests should publish accounts prepared in accordance with international accounting standards and audited by international accountants.

(5) A clear definition of the ownership structure of NRCs and their fiscal role vis-à-vis the natural resource ministry and finance ministry, and a clear distinction

between commercial and policy, regulatory, and social responsibilities: The GRRT devotes much attention to NRCs, which vary considerably among countries. They handle significant inward and outward flows of public funds and should be subject to detailed accounting requirements and supervision by a government ministry focused on the NRC's performance and integrity management and management costs, including staff compensation. In practice there is often little oversight, scrutiny, or central control. NRC operations are often opaque and their fiscal relationship to government ill defined. Commercial, policy, and regulatory roles are frequently blurred—they negotiate the deal, regulate it, profit from it, and spend the money from it. Quasi-fiscal activities (subsidies, directed nonresource expenditures) are rife. In extreme cases, NRCs operate virtually as a "state within a state." Fiscal risks associated with NRC borrowing and expenditure can be very large. But international awareness of the risks of NRCs that operate this way is on the rise. Previous chapters discuss the emerging consensus that, to improve transparency and commercial efficiency and avoid conflict of interest, NRCs should relinquish their policy, regulatory, and social responsibilities and operate as commercial entities in a competitive environment. These chapters explain how such operations affect their relationship with the tax department and how production sharing can be brought within the normal tax administration framework (even though that hasn't happened).

(6) A clear definition of arrangements for NRCs or natural resource companies' social or environmental expenditures or subsidies to producers or consumers: This is more a budgetary than a tax administration issue, but it can have administrative implications. If the NRC fails to account properly for government revenues withheld to meet quasi-fiscal responsibilities, the tax department cannot enforce its compliance with tax obligations or account properly for natural resource revenues due and payable. Ideally, NRCs should not be responsible for quasi-fiscal expenditure at all. If they are, the next best approach is accounting and payment of natural resource revenues in full to tax authorities and separate budget funding to meet this expenditure. If that is not possible, a mechanism for regular reporting to the tax authority of authorized quasi-fiscal expenditure that can be offset against the NRC's revenue payment obligations is the next best solution. The GRRT also discusses nonmonetary obligations imposed on international natural resource companies and/or the NRC (for example, to develop infrastructure or provide training), and argues for full disclosure of those costs and of their fiscal treatment and implications. This topic is discussed in previous chapters.

(7) Well-defined arrangements to assign or share natural resource revenues between central and subnational levels of government, which explicitly reflect national fiscal policy and macroeconomic objectives: This is discussed briefly in Chapter 3. The GRRT covers it much more fully.

## OPEN BUDGET PROCESSES

The GRRT calls for:

(1) A clear policy statement in the budget framework on the rate of exploitation of natural resources and the management of resource revenues, referring to the government's overall fiscal and economic objectives, including long-term fiscal sustainability;
(2) A clear specification of mechanisms for coordinating the operation of any natural resource funds with other fiscal responsibilities;
(3) A clear statement of operational rules for natural resource funds as part of the overall fiscal policy framework;
(4) A clear statement of investment policies for natural resource funds; and
(5) Clear identification of all government natural resource revenues through the government accounting system, and the issuance of timely, comprehensive, and regular reports to the public.

With the exception of (5), these are budgetary, not revenue administration, issues. Revenue administration plays a major role in accounting for and reporting natural resource revenues, but the GRRT discusses this issue more fully under a later heading, and this handbook does the same.

## PUBLIC AVAILABILITY OF INFORMATION

The GRRT calls for:

(1) Clear identification, description, and reporting of all natural resource revenue–related transactions, including through resource funds, in the budget process and final account documents;
(2) Publication of reports on government receipts of natural resource revenues as part of the government budget and accounting process;
(3) Presentation of the (primary) nonresource fiscal balance in budget documents as an indicator of the macroeconomic impact and sustainability of fiscal policy;
(4) Identification in the government's published debt reports of any direct or indirect collateralization of future natural resource production, and disclosure of all government contractual risks and obligations arising from such debt;
(5) Full disclosure in government financial statements of all financial assets held by government domestically or

abroad, including those arising from natural resource–related activities;

(6) Disclosure of estimates of natural resource asset worth based on probable production streams and assumptions;

(7) Reporting of government contingent liabilities and the cost of NRC quasi fiscal activities arising from natural resource–related contracts, in a format that helps assess fiscal risks and the full extent of fiscal activity; and

(8) Explicit consideration in annual budget documents of risks associated with natural resource revenue, particularly price risks and contingent liabilities, and explanation and monitoring of measures to address them.

Revenue authorities are not responsible for the preparation of budgetary statements and government accounts, but the accuracy and timeliness of their reporting of natural resource revenues are vital to these processes. They are also vital to enabling the government to report natural resource revenue receipts. Revenue administration is not relevant to the other items listed under this heading. (Forecasting of natural resource revenues is clearly relevant to the final three list entries, but as discussed in Appendix 3, natural resource revenue forecasting for the purpose of budget planning is normally the responsibility of policymakers in the finance ministry.)

Public availability of comprehensive and accurate information on natural resource revenues is central to fiscal transparency. The GRRT recommends accounting for natural resource revenues on the same basis as other revenues. The accounting system should have a well-established internal control system, ideally one that allows accounting and reporting on both a cash and an accrual basis. Factors such as the multiplicity of natural resource revenues and of agencies involved in their collection often hamper implementation, and poor accounting for natural resource revenues is an ongoing source of concern. It is one of the most serious and damaging effects of weak natural resource revenue administration and signals that a government has not taken even the first step toward properly managing and accounting for the expenditure of natural resource revenues, which seriously affects the government's reputation and others' confidence in it. These concerns have spawned a number of international initiatives aimed at greater public availability of this information, such as the EITI,[2] discussed more fully later. The GRRT acknowledges that an inadequate accounting system may make it necessary for governments to adopt alternative specific reconciliation and verification mechanisms and institutions, such as those promoted by EITI, to improve the transparency of natural resource revenue flows.

[2] See Annex 2 of the MNRW-TTF program document for a list of stakeholders active in supporting and advising on management of natural resource wealth. In many cases, their advice and assistance goes beyond transparency of natural resource revenues, but most of them support EITI.

It must be recognized, however, that accurate accounting for natural resource revenues is not inherently difficult. In many countries natural resource revenues are paid by a small number of companies, particularly in the case of petroleum. Even in countries with artisanal small-scale mining, the vast majority of natural resource revenues are often paid by a small handful of companies. Accounting for revenues paid by a few dozen taxpayers should be straightforward, however large the amounts.

Accounting for natural resource revenues is difficult because governments often do everything possible to *make* it difficult. There may be multiple taxes; complicated, inefficient, and incoherent payment and filing procedures; responsibility for returns and payments fragmented across different agencies, with different banking arrangements and separate accounting and information technology (IT) systems; revenues paid in kind; weak control over NRC accounting and payments; no clear rules for dividends on equity participation; and no single department responsible for assessment and collection of natural resource revenues. From an administrative viewpoint, every one of those features is undesirable in its own right—they serve no purpose other than to impede transparency. The real motive for maintaining those obstacles to transparency is often political. Failure of governments to remove them demonstrates a lack of genuine political commitment to transparency. Governments may pay lip service to the importance of transparency, but in practice sacrifice it to other political priorities.

With integrated administration and coherent, streamlined procedures, there should be no barrier to transparent accounting for natural resource revenues. Chapter 4 illustrates how under those conditions two documents—a company's self-assessment and any audit assessment—can conclusively determine the natural resource revenues due from a company for any year (and how much of them the company has declared); how those documents and a small number of installment statements can conclusively show the amounts payable by it in the year; and how a simple summary of entries in a government bank account designated for natural resource revenues can show how much it has paid (and how much is unpaid or in dispute). Accounting involves essentially setting up a central taxpayer account for each company, debiting all (analyzed) natural resource revenues payable, and crediting all payments made. This allows natural resource revenue accounting on both a cash and accrual basis. Aggregation of the accounts of a small number of companies to produce consolidated natural resource revenue accounts, again on a cash and accrual basis, should be straightforward. Automation of streamlined and coherent procedures should be possible, further simplifying the process. With such a regime, auditing of each natural resource company account and verification of entries against underlying records should not be a long, complex task. Even with a less radically simplified regime (for example, with parallel procedural regimes for special natural resource revenues and for regular business revenues)

accounting for revenues paid by natural resource companies should be entirely manageable.

## EITI

The EITI has widespread support from governments, companies, and international organizations, with 39 countries classified as oil or mineral rich now implementing this international multi-stakeholder initiative as candidates or as fully compliant members. Its implementation should be encouraged as a way to promote greater transparency and accountability regarding natural resource revenues. An EITI trust fund was established, managed by the World Bank, with participation in a steering group by a range of donors that have committed substantial funding. The steering group provides technical and financial assistance, such as workshops, secretariats, audits, capacity building, information centers, and so on, to participant countries to deliver on EITI objectives. The IMF strongly supports the EITI. A centerpiece of the EITI is to bring together revenue data from different government agencies and to verify the figures using audited data from companies. In doing so, weaknesses, gaps, and inconsistencies in tax administration systems are identified. The standards required are regular reporting by host governments of natural resource revenue streams defined by a multi-stakeholder group, in line with an agreed government reporting template; regular reporting by companies, including NRCs, in line with a company reporting template, also agreed by the multi-stakeholder group; wide dissemination of comprehensive and comprehensible material on payments and revenues; validation and publication of reports of aggregated data, and reconciliation and analysis, by an independent third party; and active participation by civil society. Reporting requirements apply only to upstream activities of participants. To promote reconciliation among the parties to EITI reporting, reporting requirements apply to revenue flows in cash and in kind from natural resource companies to government entities. EITI reports must show these flows broken down by company, type of revenue, and receiving government entity. The EITI also requires the disclosure of licensing arrangements and contextual information putting the natural resource sector into perspective to the whole economy and the government budget. Finally, the new standard also encourages countries to use national and international statistical classification systems, including the IMF's *Government Financial Statistics Manual*.

The EITI process is composed of several phases. The sign-up phase determines whether a country is to be designated an EITI candidate country and requires that key steps be met: the government commits to EITI implementation; commits to work with civil society and companies on EITI implementation; appoints a senior individual to lead EITI implementation; establishes a multistakeholder group to oversee implementation; and the group publishes a work plan, including costs, timetable, and targets. The preparation phase of the EITI requires, among other things, that government remove confidentiality and other obstacles to EITI implementation,[3] agree on reporting templates, ensure that all companies will report, and ensure that both company reports and government reports are based on accounts audited to international standards. The disclosure phase requirements include submission of an EITI report to the validator (the independent organization contracted to confirm that the process has been properly conducted) showing all material natural resource payments by companies to government, and all material natural resource revenues received by government. The dissemination phase requires that the EITI report be made available in a way that is "publicly accessible, comprehensive, and comprehensible." Any discrepancies are to be highlighted and appropriate follow-up action encouraged. As of September 2013, the EITI website[4] listed 16 EITI candidate countries (signed up and engaged in preparation) and 23 EITI compliant countries (meeting all the disclosure and dissemination requirements).

The EITI has broadened its original focus on natural resource revenue transparency. Indeed, as discussed earlier, transparency is required along the whole value chain covered by the GRRT (for example, including policy and expenditure management). The focus now has become broader with the adoption of the revised 2013 Standard and greater transparency in upstream operations that are either mandated (through licensing agreements) or encouraged (through contracts). Countries should therefore be encouraged to participate, and this is an area where advice and technical assistance may be useful.[5]

Countries participating in the EITI should still be encouraged to tackle underlying obstacles to transparency. For example, the EITI may encourage them to publish the special tax arrangements they negotiate, but taxation on the basis of published legislation is more transparent. Countries may publish resource revenues received, but should also address the problems that make accounting difficult to begin with. Because of these problems EITI audits often do no more than attempt to reconcile amounts paid by companies to the government with amounts received by the government from companies (which should self-evidently be the same). Accounting is sometimes so poor that even that limited exercise takes years to complete and is full of unexplained discrepancies. It does not produce the more informative picture of taxes due and paid, declared, and undeclared that could be produced easily if organization and procedures were simplified and strengthened.[6] Stronger accounting systems should

[3] In some countries there have been disputes over how far publication of disaggregated data is permitted by EITI-enabling legislation or agreements. The MNRW-TTF proposes publication of details of companies audited and main audit conclusions and follow-up. This can be controversial and clearly must be permitted by EITI legislation or agreements.

[4] Available via the Internet: http://eiti.org/countries.

[5] See World Bank (2008) for a discussion of practical issues.

[6] In Nigeria, for example, a recent EITI audit reconciled company payments with central bank receipts, without even attempting to match them against the records of the Federal Inland Revenue Service, which is responsible for ensuring that payments are properly assessed.

make it easier to comply in a timely and efficient manner with EITI requirements, allowing the focus of attention to pass to other important issues, such as whether natural resource companies actually pay the right amount of tax.

There is a risk that the EITI (like any initiative) may undermine efforts to strengthen existing institutions and functions, but experience so far shows that the initiative can reinforce institutional efforts. Countries whose natural resource revenue accounting is fundamentally inadequate but are recognized as EITI compliant are an example of the above-mentioned risk, which may lead to unwarranted complacency. EITI participation should not be considered a substitute for stronger departmental and government natural resource revenue accounting, but as reinforcing it. Nor should EITI stakeholder group oversight be seen as a substitute for strong internal auditing and government auditor oversight of departmental and government accounting and performance. Revenue administrations must continue to strengthen auditing of natural resource companies; EITI participation should support that function and not seek to take it over. EITI oversight by civil society groups does not mean that the revenue authorities are not answerable and accountable to government ministers, who themselves must answer to an elected legislature. It is understandable that when existing agencies fail to audit and account for natural resource revenues coherently and effectively, EITI institutions are tempted to step in, but this risks further complication and confusion in natural resource revenue administration.

Strengthening governance and transparency of natural resource revenue administration requires engagement with civil society, including EITI stakeholder groups. Administration experts should set aside time to meet with government and civil society institutions at large to share general knowledge and discuss the particular issues faced by the country concerned. These should include the role of EITI institutions in strengthening the transparency of revenue administration.

## ASSURANCES OF INTEGRITY

The GRRT calls for:

(1) Internal control and audit procedures for handling resource revenue receipts through government accounts or special fund arrangements and public disclosure of spending of such receipts through special funds;
(2) Openness in the conduct of tax administration, so that natural resource companies understand their obligations, entitlements, and rights; the scope for discretionary action by tax officials is clearly defined; and the adequacy of sector skills and procedures is open to review;
(3) Oversight of international companies and NRCs, including a requirement to comply with internationally accepted standards for accounting, auditing, and accounts publication; and
(4) Oversight and reporting by a national audit office or other independent organization on revenue flows between international companies and NRCs and the government and on any data discrepancies.

These are all clearly relevant to natural resource revenue administration (although only (2) is exclusively relevant). Most of the recommendations are appropriate for revenue administration generally, not specifically for natural resource revenue administration.

There should be rigorous auditing of natural resource revenue administration accounting and performance. Each agency engaged in natural resource revenue administration (including the NRC if it has administrative responsibilities) should have an internal audit function, with published procedures open to review. A national auditing body independent of executive government agencies should audit annual accounts of natural resource revenues and administration costs and should periodically review the integrity of administrative systems to control for major risks. Auditing of agencies' performance of their administrative functions, and in particular of how they control risk, may be more challenging than auditing their annual accounts. It may require detailed understanding of natural resource legislation and practice (and the difficulty will be aggravated in the case of confused and overlapping agency responsibilities). The audit should not involve reauditing natural resource companies' returns, but should involve examination of the agency's audit and risk management systems and selective review of audit papers. Audit reports on revenue authorities should be submitted to the legislature and published. In practice there is often no effective audit, or no audit at all, of natural resource revenue administration accounts and performance, even though there may in theory be internal audit and national audit offices. If these offices do exist, their capacity is often poor. In that case, efforts should be made to improve their capacity, and until a reasonable standard is achieved independent professional accountants should be employed.

The legal framework for natural resource revenue administration should clearly and comprehensively set out powers and procedures and taxpayer obligations and rights, including the right to equitable and timely dispute resolution. Chapter 4 discusses in more detail issues on natural resource administration procedures and recommends ways of simplifying and streamlining them and eliminating duplication (generally best accomplished by moving to integrated function-based administration of natural resource revenues). Chapter 3 recommends allocation of administrative responsibilities on the basis of segmentation and sectoral specialization. Staff in specialized units should develop the capacity to deal with sector-specific issues, including, for example, natural resource transfer pricing and cost accounting. (Capacity is discussed in more detail in Chapter 6.) As discussed elsewhere, they should identify and seek to resolve uncertainties in the application of the law, if possible by issuing guidance and rulings or if necessary by litigation or legislative amendment. They should clearly define the basis on which administrative discretion will be exercised to prevent corruption by companies

or officials and the imposition of arbitrary or aggressive assessments. Clear legislation must be backed by effective and fair dispute resolution, both at the administrative level and through the courts or international arbitration, as discussed in Chapter 4. Revenue administration staff should offer professional service, advice, and assistance to help taxpayers understand their rights, obligations, and entitlements under the tax laws. Service and other standards that taxpayers can expect the administration to meet should be published.

Governments should implement a strong anticorruption strategy for natural resource revenue administration. This could include, for example, national anticorruption legislation; anticorruption agencies; revenue-agency-specific ethical codes and anticorruption strategies aligned with national policy; increased accountability through national auditor general investigations and representation before parliamentary accountability committees; declaration of assets by revenue administration staff; specific staff internal affairs units and staff disciplinary frameworks; ad hoc commissions to investigate revenue agency corruption; anonymous customer service surveys on corruption and targets for improvement; confidential and easily accessible reporting of corrupt behavior; and prosecution of offenders (revenue agency staff and taxpayers—it would generally strengthen the anticorruption strategy if anticorruption measures applied to all officials up to and including government ministers). Ministers, departmental board members, officials, and their families should be barred from holding interests in natural resource companies. Revenue administrations should be protected from direct political interference, in law and in practice and penalties should apply. Staff salaries should be paid at competitive levels. Administration should be organized to minimize opportunities for collusion. For example, audit staff should not be involved in routine assessment and collection; audit managers not directly involved in audits should oversee major audit decisions; and teams should work on important audits. Functions such as auditing require continuity, but there should be periodic staff rotation. Administrative appeals and reviews should be carried out by staff not responsible for the decisions reviewed, and there should be a right of appeal to a wholly independent body. IT should be used to provide audit trails, allowing identification of the officer who entered data on the system, which should be cross-referenced to the source document. To prevent fraud, revenues should be paid directly into the banking system and effective repayment security checks applied. These recommendations are relevant to revenue administration generally, and should be covered by the government and revenue authority's general anticorruption strategies. Integrity standards should be established in all agencies involved in natural resource revenue collection, and the same principles should apply to them. (Advising on measures to strengthen integrity across several agencies may, however, be challenging in practice.)

The conduct of natural resource companies and the standards set by their host governments can influence the integrity of natural resource administration. It is difficult to generalize, but some natural resource companies have stronger reputations for integrity than others. More generally, some multinational natural resource companies, particularly in the mining industry, are controlled from countries that score badly on indices of transparency and corruption and may present greater risks of corruption. Risks may in general be greater with privately owned and managed natural resource companies than those that are publicly owned, whose employees may be less willing to break the law since they will not directly benefit. (There have, however been notable cases of large, publicly owned multinational companies engaged in bribery and corruption.) Locally owned natural resource companies may be able to apply stronger corruption pressure than foreign ones (for example, because of greater cultural familiarity or the ability to exploit family and social connections). Large natural resource companies are principle less likely to offer bribes for minor advantages, but may be tempted by the possibility of major benefits from what is to them a relatively minor outlay. Some natural resource companies are based in countries with legislation that penalizes payment of bribes, whether at home or abroad, and there are initiatives in the United States and the European Union to require greater transparency and disclosure by their natural resource companies of payments to governments on a country-by-country basis. Reputation and standards of integrity of natural resource companies and their host governments should be taken into account in awarding natural resource licenses, but often are not. In developing anticorruption strategies, revenue administrations must assess the risks presented by different types of natural resource companies.

The revenue administration's strategic (multiyear) and operational (annual) plans and annual accounts and reports, with performance targets and indicators, should be provided to the legislature and made available to the public in a clear and comprehensible format. They should include specific data on natural resource revenue administration. There is no single key performance indicator (KPI) for revenue administration, but reports should describe the administration's progress in performing its key functions and meeting its key objectives. In many countries, performance indicators are narrowly focused on revenue collection, even though revenues may be determined largely by factors outside the administration's control, and performance is judged by comparing outturn against forecast revenues, providing a strong incentive to underestimate forecast revenues. The emphasis on revenue collection can result in inadequate auditing of natural resource companies before they are profitable, when substantial expenditure may be incurred. A broader range of KPIs may be required.[7]

Reports should account for the *costs* of natural resource revenue administration. Some countries allow ministries and/or the NRC to retain natural resource revenues collected to cover

[7] See Crandall (2010) for a general discussion of performance management and measurement.

administrative costs. This is not good practice. Sometimes these amounts are expressed as a percentage and, with the increase in natural resource prices and government revenues, have in some countries reached astronomic levels, far in excess of what could legitimately be spent on administration. Sometimes there is no accounting for these costs at all.

Appendix 4 contains a sample annual report and accounts for natural resource revenue administration. This is based largely on a natural resource subset of the data required by the IMF's revenue administration financial administration tool. This illustration assumes integrated natural resource revenue administration as recommended in Chapter 3 and consolidated and harmonized procedures as recommended in Chapter 4. Where those conditions do not apply, similar data should be consolidated and reported centrally by the finance ministry, but the necessary coordination of departmental inputs may be extremely challenging.

Natural resource companies and the NRC should be required to prepare and publish accounts in accordance with international accounting standards. These accounts should be audited by reputable, experienced, independent qualified auditors. Natural resource companies should be required to reconcile their commercial accounts to their tax returns, which should be subject to further tax auditing to ensure that tax rules are properly applied. Audits are discussed in more detail in Chapter 4. There should be adequate exchange of information to enable revenue administrations to compare return data with relevant information held by other departments. For example, production data reported to natural resource departments should be compared with tax returns. Confidentiality requirements must be observed but should be framed to allow exchange of the information needed to monitor the accuracy of returns. Exchange of information is discussed in more detail in Chapter 3. The GRRT recommends that other stakeholders, such as EITI institutions, also have access to such information, subject to confidentiality requirements. The national audit office, as part of its review of natural resource revenue administration accounts and performance, should ensure that relevant data are gathered and used for audit purposes.

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# CHAPTER 6

# Administrative Capacity

Revenue administration clearly presents challenges to capacity. Natural resources are often found in developing economies, many of which struggle with routine clerical functions, let alone the difficult technical functions of mineral valuation and financial audit required for effective natural resource revenue administration. Multinational natural resource companies employ top lawyers, analysts, accountants, and tax specialists, some specifically tasked with reducing their tax bill. The imbalance in expertise between natural resource companies and revenue administrators can make effective fiscal control difficult.

It is important not to exaggerate the challenges. Natural resource companies often depend heavily on government goodwill, and there is no reason to assume that they are exceptionally noncompliant. As discussed in earlier chapters, there are particular incentives and opportunities for transfer pricing abuse, but pricing, particularly of sales, is more transparent than in most industries, and there are often commercial controls on costs. The design of natural resource fiscal regimes may present challenges, and there may be weaknesses and complexities to be addressed, but natural resource fiscal regimes in developing economies can be simpler and better designed than those in developed economies, where the length and complexity of legislation often present technical challenges and tax planning opportunities that confound even the most skilled and well-resourced administrations and yield no significant policy advantage.

Understanding the natural resource industry is obviously important for taxing it effectively, but effective administration of natural resource taxation does not require greater understanding of the natural resource industry than effective administration of, say, banking or pharmaceutical taxation requires of those industries, nor is the natural resource industry exceptionally complex compared with other international industries. Governments have an exceptional opportunity to develop knowledge and understanding of the natural resource industry because it is highly regulated, and its operations can be, and are, physically monitored. This in turn provides opportunity for more effective tax administration than may be possible with other industries, because financial data can be cross-checked against data on physical operations. Governments in natural resource–rich countries ought to take advantage of that opportunity, given the special importance and high profile of natural resource taxation. Doing so requires good cooperation between tax authorities and industry regulators, and effective combination of their different skills and knowledge. This can be hard to achieve, and indeed poor definition of roles and poor cooperation can be a barrier to effective administration. But that does not mean that natural resource tax administration is inherently exceptionally difficult—it just means it is difficult to take full advantage of the opportunity to do it exceptionally well.

The requirements for effective natural resource revenue administration are broadly the same as for any other tax administration. There is a need for a good, qualified, motivated staff that is adequately paid, well trained, properly managed, supplied with adequate accommodation and resources—particularly information technology (IT)—and given an adequate delegated budget and authority to do its job.

Fragmented administration hampers capacity building. Duplication of function increases the number of staff members required to do the work, and the same scarce administrative skills must be developed in each agency.

Segmentation allows capacity building to be more productively focused. Where, as is often the case, the natural resource industry is concentrated in the hands of a few large players that generate the bulk of natural resource revenues, those taxpayers present exceptional risks, but carrying out both routine and nonroutine administration of their taxes offers major economies of scale. Relatively few large taxpayer office (LTO) staff members are needed to deal with those companies, and initial capacity building can focus on them. Capacity requirements for dealing with those companies are broadly the same as for other large taxpayers, and the same challenges arise as for strengthening LTO capacity generally, but in many resource-rich countries it is vital to strengthen the capacity of staff members dealing with large natural resource companies. Efforts should also be made to strengthen revenue administration for smaller natural resource taxpayers, who may generate significant revenues in countries with extensive small-scale artisanal mining, but that is usually even more challenging. Capacity development in the LTO can serve as a model for progressive adoption of improved practice elsewhere in the administration.

Governments frequently fail to take basic steps to develop adequate capacity for administering large natural resource companies. When natural resource operations are concentrated in a small number of companies contributing a disproportionate share of government revenue, the importance of effective administration should be obvious. If general tax administration capacity is low, exceptional measures are needed to strengthen the capacity of the small number of staff members with key administrative roles related to those companies. Strengthening measures must ensure that those staff members have better qualifications, training, pay, grading, authority, and status than those doing less vital work. But frequently no such measures are taken. The reasons are not clear. Cost cannot be the obstacle—additional costs on those few staff members would be relatively minor, compared with the amount of tax at stake and the overall cost of tax administration. The obstacles seem to be largely cultural, institutional, and political and are a key reason natural resource revenue administration is often weaker than it should be.

## STAFF NUMBERS

There is no simple guide to the number of staff required for natural resource revenue administration. It depends on such factors as the size and complexity of the natural resource sector, the number of taxpayers, the number and complexity of the natural resource revenues to be administered, the complexity of administrative procedures, and extent to which procedures are automated. As mentioned, fragmentation of natural resource revenue administration across several agencies carrying out duplicated functions tends to increase the numbers required.

When the bulk of natural resource revenue is payable by companies handled by the LTO, adequate staffing is particularly important. Ratios of LTO taxpayers to LTO staff vary greatly across countries, from more than 20 taxpayers for each tax officer in some Organization for Economic Cooperation and Development countries (although there are large variations) to fewer than 5 to 1 in transitional and emerging market economies (for example, Argentina, Bulgaria, Hungary, Philippines). The variation may reflect greater automation of routine procedures in the former. Developing economies are typically at the lower end of this range. Thanks to economies of scale, there is no reason for allocation of staff to the LTO to be proportionate to the share of revenue it generates, but in many countries the allocation of staff and—more important—of staff costs to the LTO is too low. It is generally accepted that collection costs should be kept to a reasonable level, and many administrations, both in developed and developing economies, are making a significant effort to do so.

The key issue is usually whether an appropriate share of the department's more highly paid professional staff, especially auditors, is allocated to the LTO and to large natural resource companies in particular. The allocation should reflect the department's compliance strategy, but too often that strategy does not sufficiently distinguish between LTO and non-LTO taxpayers and does not reflect the much higher audit risk (and usually lower enforcement risks) presented by the former. Revenue administrations can never realistically expect to have enough resources to tackle all risks, and therefore must be selective, but they should begin by addressing the need for effective management of the exceptional risks presented by the large companies that contribute the most government revenue. Apart from the fact that large natural resource companies are typically in that category, more extensive audit coverage of natural resource companies may be required to increase the transparency of natural resource revenues and allay public concern about whether the country is receiving a proper return on the exploitation of its natural resources.

Allocation of staff to large company natural resource revenue administration should be based on a detailed assessment of requirements of effective implementation of natural resource compliance (mainly audit) and taxpayer service plans. These should reflect well-designed risk-based audit and taxpayer service departmental strategies tailored to particular taxpayer segments. For large taxpayers it is better to err on the side of overestimation: staff turnover can mean increased time for some staff members to reach full effectiveness. Relatively few professional staff are required for large natural resource company administration in absolute terms, but they are often scarce and in demand. If they and their associated funding must be reallocated, office politics will come into play and there may be strong resistance to overcome.

Staffing requirements should in principle be assessed similarly across all agencies with natural resource revenue administration responsibilities. When nontax agencies' staffing requirements are reviewed, it is a good idea to assess whether

natural resource revenue administration integration within a single agency will increase compliance (for example, more audits) and to consider employing fewer but more qualified staff members (for example, by increasing salaries).

## SALARIES

Salaries of LTO staff must be adequate to attract and retain staff of the caliber needed for effective large taxpayer administration. Private sector salaries for equivalent work are generally much higher than civil service norms. Civil service salary scales are often flat across grades, so that salaries of key senior professional staff are particularly uncompetitive, and too flat across the country, so that LTO staff members in cities, where large companies have their offices, do not earn a competitive wage that reflects the higher cost of urban living and prevailing area wages. Functional organization sometimes results in inappropriately flattened salary structures (although it does not have to)—for example, managers of different LTO functions may automatically receive the same pay and have the same grade, even though the risks, difficulty of the work, and market rate for the skills required may be far greater for some functions than others. In countries where a handful of large natural resource companies pay the bulk of natural resource revenues, the auditors and key client managers responsible for them are vital to the overall performance of the administration, and that importance should be reflected in the pay structure.

LTO salaries must also be high enough to discourage corruption. The cost of corruption involving large taxpayers is particularly large. Adequate salaries must be accompanied by other measures to control corruption, as discussed in Chapter 5. There may be fewer opportunities for corruption in an LTO, for example, because staff conduct and decisions are under closer scrutiny, there are fewer opportunities to obtain bribes through routine delays and harassment, and large companies try to influence higher-level government officials than mere tax office employees.

The problem of inadequate LTO pay may be worse in natural resource–rich countries. An influx of natural resource companies often means higher salaries and more competition for scarce skills. (Natural resource companies may be under government pressure to fill quotas for employment of indigenous staff). The cost of living in natural resource boom towns can rise astronomically. (Luanda, in Angola, is rated one of the most expensive cities in the world despite high poverty in the country overall). Natural resource specialists may be able to command a premium in the private sector job market, and tax authorities may therefore need to pay more to recruit and retain high-quality natural resource specialists than similar quality employees without specialized skills. Human resource management problems can result. Sometimes personnel structures and grading may need revision to ensure adequate recruitment and retention of natural resource specialists.

Salaries of natural resource specialists should as far as possible reflect private sector salaries and pay differentials. Governments therefore need to keep these under review. Government tax officials rarely earn salaries that match private sector levels. Governments may be able to recruit and retain adequate staff at lower pay because of other benefits, such as the satisfaction that some people get from public service or the greater job security these jobs sometimes offer. Reasonable accommodation and facilities for a small LTO should not be too expensive and may help attract staff. But differentials between private and public sector salaries need to be kept at reasonable levels, and salary differentials between LTO and non-LTO professional staff must reflect the private sector salary differentials of large companies and accounting firms compared with smaller firms. Salary differentials between natural resource specialist and non–natural resource specialists may also need to reflect similar private sector differentials.

Success in recruiting and retaining high-quality staff is a key test of the adequacy of salaries. Limited staff turnover is manageable, and in fact is usually a healthy sign, but high turnover can be very damaging to performance and morale, and is a clear sign that salaries need to be increased. Very low staff turnover, on the other hand, is not in itself a sign that salaries are adequate. It may merely reflect the poor opinion of private sector employers. And all too often it reflects the fact that officials compensate for inadequate salaries by accepting bribes. (In some countries people actually pay substantial bribes to obtain low-paying government jobs with high rent-seeking potential.)

Revenue administration salaries should compete with those for equivalent work in the natural resource department and national resource company (NRC). NRCs in particular often enjoy better staffing and salaries (and also training, facilities, and funding) than civil service departments, which can weaken or hollow out institutional capacity in those departments. Natural resource departments frequently pay higher salaries than tax departments. These salary differences, and ensuing differences in capacity, can significantly impede integration of natural resource revenue administration, and even effective interagency cooperation.

## RECRUITMENT

If salaries are inadequate, the quality of the staff likely to inadequate, and better pay and recruitment may be needed. Recruitment policy is sometimes poor, however, relies on dubious formal qualifications, and is subject to nepotism. Tax departments may have little control over appointments, but depend on bureaucratic and unresponsive civil service human resources departments. LTOs as well may have little influence over recruitment, and must accept the staff allocated to them by headquarters. Recruitment practices may therefore need review and strengthening.

Better wages and employment terms aligned with stronger recruitment practices should eventually strengthen capacity. It is, however, rarely practicable, or even sensible, to replace all existing natural resource specialists wholesale, even if their quality is less than adequate. Improving staff quality takes time, but will be faster if there is effective performance management (briefly discussed later), ability to fire or downgrade poorly performing staff, promotion based on merit, and efficient succession planning.

An issue that often arises when it comes to recruitment for natural resource revenue administration is whether natural resource industrial specialists such as engineers, geologists, and mineralogists are required, but this in part depends on the nature of the natural resource tax regime. For example:

- If the revenue administration is responsible for physical auditing, and in particular for measuring the quality of natural resource production, specialized mineralogical skills may be needed. In many countries, however, physical auditing falls to the natural resource department (or sometimes the customs department) rather than the revenue administration.
- If depreciation rates depend on factors such as rate of mineral depletion or expected mine life, engineering and/or geological expertise may be required. In many countries, however, depreciation is calculated on a simpler basis (for example, straight-line depreciation of development expenditure over *x* years), for which such expertise is not normally necessary.
- If tax auditors are expected to challenge costs on technical and/or commercial grounds—for example, determine that particular exploration was not justified by seismic data, alternative, cheaper extraction technologies could have been used, or the rate of extraction did not maximize the value of production—specialized technological skills are necessary. As discussed in Chapter 2, in some countries it is not clear how much tax auditors can and should use the "necessarily incurred" test to challenge costs on technical and/or commercial grounds. In those cases, tax authorities may prefer to have experts on their staff who can challenge (or second-guess) companies' judgments. Usually, however, the natural resource department (sometimes the NRC) oversees and approves such technical decisions when they are made, and they are not usually reconsidered in a tax audit. If an audit judgment depends on whether a particular cost was technically and/or commercially justified, tax auditors should be able to consult natural resource specialists in other departments. Tax auditors do need to develop some understanding of natural resource technology and jargon. Ideally, staff members should have natural resource technology qualifications and tax and accounting skills, but such staff can be hard to find. In general it is easier for career tax and accounting specialists to acquire the necessary expertise for effective auditing through experience and short training courses than it is for career technological specialists to acquire tax and accounting expertise.

Natural resource technical experts may thus be required but without tax and accounting skills are likely to be useful only in a limited auditor support role.

## TRAINING

Natural resource revenue administration staff members must be adequately trained, and training should be ongoing and progressive. It should include:

- Training courses and materials appropriate for various stages of staff development;
- Written guidance on new legislation, procedures, and other developments affecting administration; and
- Permanent written guidance in the form of manuals and other instructional materials, which should be regularly updated.

Training can be expensive and disrupt work in the short term, but has significant long-term benefits, and human resources departments must ensure that staff members have the means for continuing professional development.

Most of the training and skills needed for natural resource revenue administration are the same as needed for general tax administration, but specialized natural resource tax expertise should also be developed. Specialized skills and knowledge are needed particularly for nonroutine functions related to quantification of natural resource tax liabilities, such as auditing. Such proficiency is not as crucial to enforcement functions and routine work such as returns processing. Training needs for general tax administration are not discussed in this handbook, but it must be remembered that some of the major skills gaps identified in a natural resource training needs analysis may not relate to specialized skills. In fact, the importance of specialized natural resource skills and techniques relative to general skills and techniques is often exaggerated. Staff members new to auditing large natural resource companies who have a sound foundation in general auditing can usually build on that foundation without too much difficulty. The problem is that they often do not. Training courses and materials for natural resource revenue administrators therefore need to be developed with this in mind.

Specialized training should cover a broad range of natural resource topics, including a thorough grounding in:

- Natural resource industry operations, in general and with particular reference to the country concerned;
- Natural resource industry accounting;
- Natural resource tax legislation and the special issues it presents;
- Benchmark-based pricing; and
- Natural resource volume and quality measurement (if this is the responsibility of the department concerned).

The natural resource administration staff may also need training in English, the language generally used in the

industry, in order to access information in company documents and on company websites (for example, parent company accounts).

Training must focus on the particular issues presented by the country's natural resource tax legislation. Some training will be much the same for all countries—for example, on mining and mineral processing operations or industry cost accounting. Some techniques for auditing natural resource company returns are the same as for other large companies. But since natural resource tax legislation usually presents special challenges, such as those discussed in Chapter 2, particular risks arise. It is important that specialized training focus on the assessment of those risks and the audit tests that monitor them. Although there may be similar risks in many countries, their type and magnitude vary significantly from one country to another, depending on the legislative details. (For example, transfer pricing abuse is far more likely and more challenging and difficult to audit where transfer pricing legislation is weak and imprecise.)

Training must be directed to the appropriate staff. In many countries governments workers are so desperate for training that a wide range of staff members will turn up for any training available. Training on natural resource company auditing, for example, could attract officials from the entire department and from many external institutions, such as the central bank or the finance ministry. It is good for a wide range of officials to understand the principles and issues involved in natural resource revenue administration, but detailed training should be limited to the staff members responsible for putting it into practice.

There are many external training sources, but it is better to make use of local expertise. International firms can provide training on general topics such as those mentioned earlier, if funding can be obtained. International training courses and workshops are often offered by development partners (such as the IMF and World Bank), but these tend to be rather general, because participants come from a variety of countries and have a wide range of roles. In-country sources of more focused training should be exploited. Too often administrations look for external training, for example, on the nature of natural resource operations, when their own NRC could do a better job. Private natural resource companies operating in the country may also provide such training. In order to avoid conflict of interest, training by the NRC or private firms should focus on knowledge of business and company operations rather than tax issues. Local universities and training institutions may be able to develop customized courses.

Training should be practical and involve local staff. International experts are likely to be more focused and useful if the trainer spends time in the country working alongside local staff; learns about a country's natural resource industry and tax legislation and their challenges; and designs materials to support actual casework with staff input and involvement, obtains feedback, and involves staff members in improving training materials to reflect that feedback. Administrations should also develop their own training materials, informed by their experience and by external training. There may be no clear allocation of natural resource training responsibilities within the tax authority. Unless natural resource training is provided centrally by the human resources division, selected senior natural resource caseworkers or managers should be given specific training responsibilities—for example, to develop a one- or two-day induction course for auditors newly appointed as natural resource specialists or to mentor new staff members. (Lack of training often contributes to overly rigid specialization: no one ever changes jobs or gains new experience.)

Guidance and training materials should be kept in permanent instruction manuals and regularly updated. These are potentially more important than training courses, which only reach some staff members, may not be available when needed, and may be soon forgotten—leaving only a few summary PowerPoint presentations. As discussed in previous chapters, staff manuals should also be published as a way of disseminating to the natural resource industry the administration's views on the application of natural resource revenue law and practice. Feedback should be requested from the industry on how to improve the manual's usefulness both as a staff training tool and as a means of improving voluntary compliance. Staff responsibilities for regular updating of training manuals should be clearly allocated.

Visits to foreign revenue administrations with natural resource experience are a popular idea, but may have limited value in practice if not properly focused. They are expensive and are inevitably limited to just a few staff members. The other country's experience may not be particularly relevant. Their staff may be too busy to give useful training and advice to foreign visitors. It is usually best if such visits have a specific and limited purpose—for example, to allow key client managers to study in detail how that role is carried out in a country where it has been developed in a notably successful way.

Finally, on training, it must always be remembered that the way people learn things is by doing them. The difficulty of natural resource tax auditing is subject to much mystery and exaggeration, which intimidates administrations in developing economies and leads them to wait for training that will make everything clear. Such training often never comes. (When revenue administrations come across production sharing for the first time, it is often a particular source of mystery and confusion, giving the impression that company revenues and costs must be audited in some fundamentally different but unexplained way.) Training can be useful, but auditors must conduct their own analysis of the natural resource tax rules and the audit risks they present and get on with the job, using the authority at their disposal, which is usually more than adequate to obtain whatever information they need.

## PERFORMANCE MANAGEMENT

It is important to manage natural resource staff performance. Performance targets and objectives should be set, and performance against targets regularly reviewed; there should

be regular, at least annual, reporting on staff members and feedback to them; and there should be mechanisms for rewarding high achievement or getting rid of poor performers. Performance management is not, however, specific to natural resource revenue administration, although suitable performance indicators must be developed. Appendix 4 illustrates some broad departmental performance indicators, and individual staff targets should be set to align with those targets. The topic is discussed in more detail in Crandall (2010).

## INFORMATION TECHNOLOGY

Natural resource revenue administrations need adequate and appropriate information technology (hardware and software). IT should support routine administrative functions, making them easier to execute and control. IT should enable management information on routine functions to be gathered in standard or customized formats, improving accounting for assessment and collection. IT should allow creation of tax databases with information from multiple sources. It should also support data sharing between agencies. IT manipulation and analysis of data from tax returns and other sources should be used to strengthen compliance risk assessment. Auditors should have laptops with access to data required for audit purposes and software for extracting and analyzing company records. IT should be used to monitor staff work activities and establish audit trails, improving transparency and reducing risks of corruption. Access to information and functions must of course be carefully managed and controlled to meet confidentiality and security requirements.

In practice, revenue administrations in developing economies rarely have enough computers or adequate IT systems. A common problem is the absence of a functioning computer network linking headquarters and operational staff. Setting up an effective network is even more complicated if revenues are administered by separate agencies in different offices using incompatible software. Even when there is an IT network, countries' experience of integrated tax administration system (ITAS) implementation has been mixed, and rarely an unqualified success.

IT requirements for natural resource revenue administration are broadly similar to those for general tax administration, but a number of special considerations arise:

- ITAS are often designed around particular taxes, even where administration is theoretically function based. There are typically a number of special natural resource taxes that do not fit easily into those systems.
- Natural resource taxation may involve special procedures, which also may not fit easily into standard systems—for example, U.S. dollar accounting and/or payment, a unique method of interest calculation, or in-year natural resource valuation procedures.
- Exchange of information between government agencies is vital, particularly between the natural resource and tax departments, even when natural resource revenue administration is integrated. Systems must be sufficiently adaptable and compatible to support regular exchange of these specialized data.
- Where administration is fragmented, development of systems to promote coordinated administration, and in particular coordinated accounting for assessment and collection of natural resource revenues, may be particularly challenging.

Revenue administrations are generally advised to acquire off-the-shelf ITAS, but there can be an argument for a custom-built system for natural resource revenue administration. Tried and tested off-the-shelf ITAS are likely to be cheaper, less risky, and more effective than custom-built systems (even when, as is often the case, testing was not satisfactory). Public service procurement of custom-built IT administrative systems is riddled with costly disasters, even in developed economies. If natural resource revenue administration is integrated and natural resource tax administration procedures harmonized with those for other taxes (subject to limited exceptions as discussed in Chapter 4), and if there are effective general ITAS in place (or under development) to support function-based administration, the best option is usually to adapt the ITAS to natural resource taxation. If these conditions are not met and natural resource revenues are payable by a small number of companies whose affairs are administered by a few dozen people, a custom-built system may be the best choice. The system should be able to handle the peculiar features of natural resource taxation—such as particular legislation and, often fragmented and inconsistent, procedures—and may be less expensive and risky to develop than usual because of its small size. It may be preferable to attempt adaptation of a general ITAS to meet special requirements. A specialized system can be based on standard off-the-shelf spreadsheet and database software, with strong security protection.[1] A separate custom-built system does have disadvantages if a general tax ITAS is in place or proposed—an important concern is the ability to set up and adequate interface between the systems where required. The advantages and disadvantages and relative costs of these two options must therefore be carefully evaluated with expert assistance from IT specialists.

## FUNDING AND AUTONOMY

Revenue administrations require adequate funding. Core funding should come from a secure budget line. Complementary funding for specific purposes may be obtainable from loans, credit, donor grants, and so on. Sometimes governments allow the revenue administration to retain a portion of revenues collected. This is not generally desirable, and is likely to be even less satisfactory if there are significant natural resource revenues, given their high volatility and potential for growth. As discussed in Chapter 5, this practice

[1] Angola, for example, has developed a separate petroleum revenue administration IT system, which is managed with assistance from external consultants.

has sometimes allowed revenue administration agencies to retain and not account for far more than is needed for administration requirements.

Administrations require reasonable autonomy over their operations and how the funds allocated to them are spent, subject of course to proper audit and oversight. In particular, they need to be able to design their own internal structure, set staffing levels and salaries, hire and fire staff, and exercise discretion over capital as well as current expenditure.

## THE ROLE OF THE PRIVATE SECTOR

Some governments respond to capacity constraints and bolster their revenue administration staff skills by relying on the expertise of private firms and consultants. Private performance of some services—for example, legal representation in arbitration proceedings—is common in developed as well as developing economies, but wholesale outsourcing of core functions (usually including collection and auditing) is rare. However, some countries have experimented with outsourcing of auditing and valuation in particular circumstances or have brought in support from private firms.

Neither countries nor the IMF sees outsourcing as a permanent solution. Natural resource revenue administration by government agencies and investment in development of in-house capacity are the preferred option. Natural resource taxation is a long-term activity that justifies a strong capacity-building effort, even if it demands some years of initial investment. Tax administrations should therefore resort to private sector support only as a temporary solution, to fill gaps in administrative capacity in the short to medium term, and to provide systems and skills transfer to develop the government's own capacity in the longer term. Contracting therefore often carries with it obligations to employ local staff and/or provide training opportunities. In all circumstances, it should operate under close supervision of a tax administration's official and within a framework that protects information and tax confidentiality.

If a country opts for private expertise, it should ensure that international consultants and professional firms operate with a view to improving standards of administration, in terms of both efficiency and integrity, and transfer valuable skills. Such an approach could be undertaken, for example, by countries that are not in a position to develop capacity to administer a normal tax regime in a required time period (for example, postconflict countries). The option of developing an natural resource tax regime simple enough to fall within a limited capacity (perhaps based on a very simple royalty) may be difficult, and may have significant long-term economic disadvantages compared with a more efficient but more administratively challenging regime. Even when countries are not in a desperate situation, it may be difficult to develop local expertise to match that of specialized international firms for complex functions such as mineral pricing or analysis. At times of peak demand internal efforts may need to be bolstered by outside assistance. In short, if outsourcing can significantly strengthen performance, it may be considered by the tax administration to complement and boost internal capacity.

Outsourcing is not always successful, and tax administrations should be aware of its pitfalls. The service delivered by professional firms can vary, and oversight of their work can be difficult. Their links with natural resource companies may create conflicts of interest. The cost of outsourcing can be very high. Governments may move from paying civil service salaries that are uncompetitive even by local standards, to paying top international consulting rates plus expensive travel and subsistence costs plus a hefty profit margin, without having explored whether a solution between these two extremes would give better value for money. The desired transfer of skills often does not take actually place, perhaps because the consultants have no incentive to succeed, perhaps because the supposed recipients of those skills cannot absorb them. And the outsourcing process is subject to corruption.

In-house capacity must developed, at least to the extent necessary to specify requirements for, and oversee delivery of, outsourced services. A transparent and competitive bidding process is necessary, with contracts awarded on the basis of both quality and price. Governments may need unbiased technical assistance from a noncommercial source to help with these needs.

## IMPLEMENTING REFORM SUCCESSFULLY

A comprehensive diagnostic assessment of current strengths and weaknesses is the first step in any natural resource revenue administration reform and modernization program. A working group of senior staff members from various departments (of the kind recommended in Chapter 3) should determine and set priorities for reform with ministers and set up formal arrangements for implementation. External technical assistance may be useful in developing a diagnostic assessment and improvement plan, but if several technical assistance providers are involved their input must be coordinated, and the local staff must take ownership of the project.

Implementing reform can be challenging. Major cross-departmental initiatives may be needed to establish the necessary policy and legal framework, improve organization and cooperation, develop new business processes and systems, improve transparency and integrity, and strengthen institutional capacity. Managing the change associated with such a program is difficult. During the transition operations and services to taxpayers must continue, revenues must be protected, and compliance must be enforced.

Successful change management will be contingent on many factors, including:

- Sustained political commitment and ministerial support;
- Competent, committed, and dynamic leadership: Senior managers responsible for day-to-day administration must take full responsibility for supervision and implementation of any modernization strategy;

- A clear agreed vision of the reform's desired outcome, with well-articulated strategies and comprehensive plans for achieving it in practical, manageable steps;
- Legislation where necessary to support reform proposals;
- Adequate resources and funding;
- Good project management procedures, with appropriate external oversight: A formal approach to managing change—beginning with the senior leadership and then engaging key stakeholders and second- and third-tier leaders—should evolve as change cascades through affected departments;
- Setting of clear targets and milestones, with regular monitoring and evaluation of progress and a high level of accountability;
- Staff involvement in, and ownership of, the reform process throughout the affected departments: Change tends to unsettle employees, and only a few see it as presenting new opportunities. Unless these human problems are understood and systematically addressed the most well-intentioned reforms can be doomed to failure;
- Cohesion between those developing and implementing the change program and those performing current operations;
- Involvement of external stakeholders, including government, taxpayers, civil society, business associations, tax professionals, and development partners;
- Appropriate use of technical assistance; and
- A strong and proactive communications strategy. Without this the entire reform effort can be jeopardized. Communication plans must be developed for both internal and external stakeholders and constantly updated.

# APPENDIX 1

# Special Natural Resource Tax Provisions

## NATURAL RESOURCE VALUATION AND TRANSFER PRICING

The valuation of natural resource sales and gross revenues for the purpose of ad valorem royalties and profit-based taxes such as corporate income tax (CIT), resource rent tax (RRT), and production sharing raises a number of linked administrative issues:

- The point at which sales of natural resources are to be valuated for the purpose of those taxes;
- The pricing basis and method of valuation to be used; and
- Transfer pricing rules for non-arm's-length sales.

The law should also stipulate how revenues indirectly related to natural resource sales are to be treated for the purpose of special natural resource taxes. These could include, for example, exchange gains and losses on natural resource sale proceeds or gains and losses from hedging of natural resource sales (discussed in more detail later).

### The Point of Valuation

Special natural resource taxes are usually intended only for upstream operations and not downstream for processing and distribution. This may be because downstream operations do not have the same capacity to generate rent (excess profits), which special natural resource taxes aim capture, or because—unlike upstream operations—processing often takes place abroad, perhaps encouraged by special taxes, thereby reducing rather than increasing tax collection. If special taxes applied only to processing by companies in upstream operations, those companies might see this as inequitable and reorganize to avoid them (by setting up separate domestic processing subsidiaries and/or moving processing abroad). Governments in developing economies often see domestic processing of the nation's natural resources as particularly desirable, because they consider it (sometimes with scant justification) an activity that adds more value than extraction and/or as a stimulus for industrial development. Instead of imposing special taxes, governments are likely to offer special tax incentives for domestic processing.

The value of production must be set for the purpose of special natural resource taxes at the point it passes from upstream to downstream. If a company is engaged in both upstream and downstream activities, there is no actual sale at that point, which requires establishment of an internal transfer price. (Similarly, in the case of profit-based taxes, costs should be limited to those for extraction and exclude those of downstream operations. If the value of sales or gross revenues subject to special taxes excludes value added by downstream operations, the cost of downstream operations should not offset those gross revenues. The exclusion of downstream costs is achieved by ring-fencing rules, discussed later.)

There is, however, considerable variation in the approaches taken by governments to the point of valuation. They may be influenced by a number of factors, including the nature of the extractive industry concerned. Common broad themes are relevant to different natural resources but there are significant differences of detail in how they apply to oil, gas, and minerals, and the valuation of each of these different types of natural resources is therefore discussed separately later.

### Pricing Basis

Different pricing bases may be used by the parties to a sale of natural resources. The main ones are:

- Free on board (FOB): Property and risk pass to the buyer at the point of loading and the buyer is liable for further transportation and insurance costs;
- Cost, insurance, and freight (CIF): Although property passes to the buyer, the seller remains liable for costs and risks until the cargo is unloaded;
- Cost and freight (CF): Similar to CIF except that the seller is not liable for cargo insurance; and

- Delivery: Property and risk pass to the buyer on delivery at the destination point and the seller is liable for all costs to that point.

The law must state the basis to be used for tax purposes. Usually, countries tax natural resource sales based on FOB prices. Sale prices on CIF or CF terms are higher than FOB prices and must be adjusted for tax to arrive at the FOB price, but the seller's costs beyond the delivery point must be disallowed, or there would effectively be a double deduction (since the FOB price excludes the value added by those costs). If there is no other way, the FOB price can be established by netting back from the CIF or CF price the seller's costs beyond the point of loading; if these costs are paid to an associate they must be at arm's-length prices. Standard international freight charges may be required for transportation by associated companies—for example, from the London Tanker Brokers Panel, widely used in the extractive industry to fix shipping rates. If valuation is based on a benchmark FOB price, it may have to be adjusted to reflect transportation cost differentials; if possible, standard international freight charges should be used.

## Transfer Pricing

Profit shifting through transfer pricing[1] presents a major risk in natural resource taxation. There is such risk in general business taxation, but high natural resource taxation rates can be a strong incentive for transfer pricing abuse. But there is also exceptional opportunity. In developing economies, large-scale extraction operations are usually carried out mainly by foreign-owned multinational companies; most natural resource production is exported; operations are financed with foreign capital; and the highest-value goods and services are imported. These multinational companies are often vertically integrated: their operations range from exploration through the sale of final products, which makes sales to downstream associates common. Even without vertical integration, sales are often channeled through an associate for marketing purposes. Goods and services are commonly provided to locally based upstream companies by a central group management and services company. Associates may be based in tax havens, which maximized the potential tax savings from non-arm's-length pricing. Transfer pricing risks apply to royalties based on sales value as well as to profit and rent taxes. It is important to acknowledge, however, that the natural resource sector is composed of an array of firms with different compliance behavior, including many that are reputable, carry out group transactions on arm's-length terms, and do not make use of tax havens. What is crucial is that tax administrations incorporate in their risk management models the assumption that the natural resource sector, in general, is more subject to transfer pricing risks than, for example, sectors that operate mainly in the domestic market at standard tax rates.

If a country taxes natural resource profits at a higher rate than other profits, transfer pricing abuse can occur not just in cross-border transactions, but also in domestic transactions with a less highly taxed associate. This risk is aggravated if there are special tax incentives for some operations, such as favorable regimes to encourage development of local downstream infrastructure. International tax planning may seek to exploit these opportunities—for example, by routing goods and services to upstream companies through lower-taxed domestic associates. There can even be transfer pricing abuse within a single company, because, as discussed previously, it may be necessary to price transactions between the upstream and downstream operations of a single company when these are taxed differently.

Some factors, however, make for lower natural resource transfer pricing risks compared with other industries. Extractive industries are physical operations. Outputs are standard commodities, not branded products, and can be physically weighed and measured. Variations in their type and quality can likewise be physically defined and measured. Standard commercial measurements are used. The prices of the most common are quoted on international exchanges. These features increase price visibility. Although the value of a barrel of oil may be subject to dispute, it will usually be within a narrow range. Costs charged by associates may be more difficult to valuate, but they generally relate to physical goods and operations involving genuine technical know-how, and not to more nebulous intellectual property, such as brand values. And, at least in the case of petroleum, commercial structures may limit transfer pricing risks, as discussed in more detail later. Some multinationals require their subsidiaries to price all transactions on arm's-length terms, although others may not.

There are often special transfer pricing rules for natural resource businesses, and the rules vary considerably from one country to another. In some countries they allow much more transparent and effective administration than others.

Three different types of rules for controlling transfer pricing can be identified:

- General transfer pricing rules;
- Specific transfer pricing rules; and
- General valuation rules.

## General Transfer Pricing Rules

A general transfer pricing rule requires transactions between associates to be taxed on the basis of arm's-length prices. Transactions between nonassociates are taxed on actual prices, which are assumed to reflect arm's-length terms. A rule of this kind is usually

[1] The discussion in this guide is focused on natural resource–related transfer pricing issues. A general guide to transfer pricing for developing economies was prepared by the United Nations (2012).

found in income tax legislation. Sometimes there is no such rule in royalty legislation—it is a serious weakness if royalties are based on sales values.

In some countries, general transfer rules are flawed.

- Sometimes the definition of non-arm's-length transactions is too narrow. For example, "association" may be poorly defined. Sometimes a parent company and subsidiary fall within the definition, but sister companies under common control do not. Or the definition may not capture transactions with a nonassociate that form part of a wider agreement involving an associate. (For example, *A* could sell natural resources for $*X* to nonassociate *B*, which as part of a wider agreement undertakes to sell the natural resource for $X + y$ percent to a refinery owned by *A*'s associate. *B* has no interest in *X* but only in *y*, so *X* is a non-arm's-length price.) Such transactions may be hard to detect, but if they produce tax savings it is naive to suppose they will not take place.
- Sometimes the rules do not require that taxpayers report transactions with associates at arm's-length prices for tax purposes. In Anglophone developing economies, transfer pricing rules are sometimes still based on the United Kingdom's pre-1998 legislation, which merely *permitted* the tax authority to substitute arm's-length prices if transactions between associates were priced in a way that reduced tax. This leaves taxpayers free to misprice such transactions, and puts the onus on the tax authority to detect such mispricing and determine the arm's-length prices to be substituted. This is not the best foundation for ensuring appropriate transfer pricing and is incompatible with self-assessment principles.[2]
- Transfer pricing rules sometimes do not apply to domestic transactions (a problem if extractive industries are taxed differently from other domestic businesses).

It is essential to eliminate these weaknesses from transfer pricing rules if the tax authority hopes to use them to control transfer pricing abuse. Merely strengthening administration will not suffice. The rules must be amended, or supplemented by regulations, to:

- Comprehensively define non-arm's-length transactions; and
- Require taxpayers to
  - Disclose significant non-arm's-length transactions in their returns;
  - Use arm's-length prices for non-arm's-length transactions for the purpose of tax computation; and
  - Maintain records showing how they established arm's-length prices.

The onus should be clearly on taxpayers to demonstrate that prices equate to arm's-length terms. Substantial penalties should apply for failure to comply with those obligations.[3]

## Specific Transfer Pricing Rules

General transfer pricing rules express the arm's-length principle but do not define how it should be put into practice. For example, they may just say that prices to be used are those at which parties would carry out transactions if acting at arm's length. Sometimes tax legislation mandates following Organization for Economic Cooperation and Development (OECD) transfer pricing guidelines. These outline five specific methods: comparable uncontrolled price, resale minus, cost plus, profit split, and transactional net margin.[4] (For natural resources, *netback* pricing is the term generally used to describe the resale minus method, although if the costs netted back include a profit element, it is more like a profit split method.) These methods can produce widely different results. For natural resource sales, comparable uncontrolled price is the ideal, with resale minus a possible alternative. It is clear from actual prices of widely traded natural resources that the other methods do not necessarily produce realistic sale prices—there is no fixed relationship of natural resource sale prices to costs. But differences in natural resource quality may make it unclear which sale transactions can be regarded as comparable for comparable uncontrolled price purposes, how they can be used, or what types and level of costs should be used for netback calculations. For natural resource costs, comparable uncontrolled price may be difficult to establish. It may be unclear from legislation or OECD guidelines which pricing method is most appropriate, and the choice may have a large and unpredictable impact on taxes.

Without specific rules companies may have considerable latitude to manipulate transfer pricing, which hampers tax authorities' ability to prevent tax avoidance. Most developed economies struggle to apply general transfer pricing rules effectively. Highly trained specialists are usually employed, but even then transfer pricing audits can require long and complex investigations, with conclusions often disputed and the outcome uncertain. Tax authorities in developing economies may have neither the resources nor the capacity to undertake such audits. They are often called on to resolve uncertainties by negotiating specific transfer pricing rules with individual taxpayers under advance pricing agreements, but may lack both the information and negotiating skills to do so. In practice, advance pricing agreements are more common in developed economies. As an alternative, developing economies may wish to explore the scope for clarifying some pricing issues with natural resource companies through contracts

[2] Similarly, section 482 of the U.S. Tax Code ostensibly places on the tax authority the obligation to identify and adjust nonmarket prices, but extensive regulations require companies to use arm's-length prices for tax return purposes and impose penalties for failure to do so.

[3] In many developing economies, investors benefit from tax stabilization agreements, but in most cases these do not prevent governments from changing procedural rules in this way.

[4] See OECD (2010) for definitions.

and agreements (for example, the method for determining prices for royalties). Developing economies may prefer, where possible, to base transfer pricing on standard, published, objective rules for transparency as well as simplicity. Tax law that is clear and predictable, and not a matter for departmental discretion or negotiation, is an important element of transparency. Individually negotiated agreements on transfer pricing are arguably inconsistent with transparency.

General transfer pricing rules are therefore often supplemented or overridden by specific rules, in legislation or contractual agreements, that specify how transfer prices are to be calculated. Under this approach, the value of non-arm's-length transactions of a particular type is determined according to a specific transfer pricing rule, whereas arm's-length transactions of that type are taxed on actual prices. This approach is particularly common (not just in developing economies) for natural resource sales. A specific transfer pricing rule, for example, may set the value of non-arm's-length natural resource sales for tax purposes according to the average arm's-length sale price for the natural resource over the period—say a month or quarter—during which the sale occurred.

Average or weighted average prices are a common feature of specific transfer pricing rules for natural resource sales. The advantage is that it increases the pool of arm's-length sales from which prices can be established, allowing use of a modified version of the comparable uncontrolled price method. Use of average prices also simplifies administration; once the average is established, it can be published and applied uniformly to all non-arm's-length sales in the period. It does not strictly adhere to the arm's-length standard. Natural resource prices are highly volatile, and the average price may differ significantly from the market price on the date of the transaction. This could in theory lead to double (or no) taxation because it is unlikely that the value of the associate's purchase will be based on average prices in its home tax jurisdiction. Companies might therefore be able to seek adjustments under mutual agreement procedures in taxation treaties, but there is little evidence of this in practice. Companies may be willing to settle for such an arrangement on the assumption that what they lose at one price extreme they will recoup at the other.

There is a risk that companies may be able to exploit use of average prices. For example, at the end of the period, they may choose whether to sell to an associate or a nonassociate, depending on whether prices at that stage are higher or lower than the likely average. Or they may be able to use hindsight to decide which deliveries to treat as sales made to nonassociates. The longer the period over which prices are averaged, the greater are the risks of this kind of manipulation. A detailed examination of the rules will establish the extent to which this manipulation is possible. (They are often more complex than the description above suggests.) But such manipulation is often possible, and if it is can be done in theory, it will almost certainly happen in practice. In 2006, the United Kingdom revised its petroleum valuation rules to curb substantial tax losses resulting from this kind of manipulation.

Because there may not be enough arm's-length sales in a period to provide reliable data, transfer pricing rules often specify use of average international benchmark prices as well as or instead of average prices. Benchmark prices are discussed in more detail later. These prices produce realistic arm's-length values only if the benchmark resource is similar, with appropriate adjustments to reflect differences affecting relative value.

Specific transfer pricing rules of the kind discussed can make for greater simplicity, predictability, and transparency. But they must be clearly defined, and companies must be given the information they need to self-assess. These pricing rules may not produce entirely realistic arm's-length prices, but may be acceptable if they provide a reasonable approximation. Although general transfer pricing principles should be set out in primary legislation, it may be sensible to include specific transfer pricing rules in secondary regulations to allow flexibility—for example, to respond to the emergence of more reliable benchmarks.

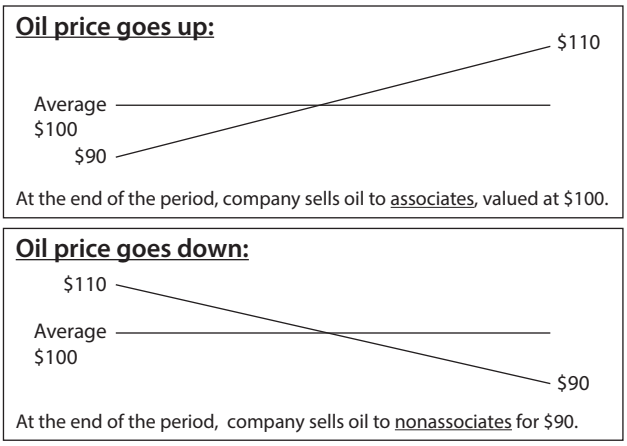


**Figure A1.1** Exploitation of Average Prices.
Source: Author's elaboration.

## General Valuation Rules

An alternative approach sometimes adopted is to apply a general valuation rule to all transactions of a particular type, whether or not an associated party is involved. For example, all natural resource sales during a particular period might be valued for tax purposes on the basis of the average arm's-length sales price during the period. (Benchmark prices or a combination of actual prices and benchmark prices could be used instead.) Actual sales prices are not used even for arm's-length transactions, so there is no need for transfer pricing rules (although the primary motive for this approach may be to prevent transfer pricing abuse). This approach is sometimes described as reference or norm pricing or, where benchmark prices are used, benchmark pricing. (There is a risk, however, of confusion because benchmark prices are also a common feature of specific transfer pricing rules.) The intention of a general valuation rule may be a reasonable approximation of arm's-length sales values. (If the rule is based on benchmark prices, it will achieve this only if the prices are for a comparable natural resource and are adjusted for differences affecting relative value.) This is normally the intention when a general valuation rule is used for profit tax purposes. Otherwise, it could cause tax treaty problems, but that is not necessarily the intention when the rule is used for royalty purposes.

Valuating all sales according to a common rule has advantages and disadvantages compared with a specific transfer pricing rule.

- It simplifies administration if the value of sales can be assessed simply by measuring total production and multiplying it by the stipulated price. As with specific transfer pricing rules, average prices are often used, so that the same price applies to all production in the period concerned.
- The fairness problem discussed previously is worse with a general valuation rule, because the average applies to all sales, not just non-arm's-length sales, which may be unpopular with investors. Double taxation could become a problem if buyers get tax deductions based on actual purchase prices, not average prices (although there is little evidence that mutual agreement procedures are invoked much in practice). To minimize this problem, it is best to use a short calculation period for the average price—a month at most. This removes companies' ability to exploit average prices by choosing whether to sell to associates or nonassociates, but there may still be room to manipulate the timing of sales to reduce taxes once the likely average price for the period becomes clear, particularly if tax rules do not specify the date of sale.
- A significant advantage of a general valuation rule that uses benchmark prices is that tax authorities do not need to identify non-arm's-length transactions, which can be difficult. Tax authorities may be able to spot suspicious transactions, but not necessarily prove that they were not at arm's length for the purpose of transfer pricing rules. (If a general valuation rule requires use of the average price of arm's-length sales in a period, it is still necessary to identify and exclude non-arm's-length transactions, because their inclusion could depress the average.)
- General valuation rules based on benchmark prices may also have advantages for transparency. These prices can be published and verified, and the public may have more confidence in the government's ability to ensure that they are applied than in its ability to identify and assign the appropriate value to non-arm's-length transactions.
- However, general valuation rules often suffer from lack of data. Reference prices (for example, linked to a benchmark crude oil price) can become non-arm's-length prices due to market movements and regional variations. It is, therefore, important to keep prices up to date to avoid double nontaxation or double taxation.

Where countries use general valuation rules, the design of transfer pricing rules (general or specific) is not crucial but is still important, because a general valuation rule may not be practical for all natural resource sales and will usually not be practical for cost valuation.

Countries use these different kinds of rules in many different ways. They may apply one to all natural resource taxes, or they may apply one type of rule to some natural resource taxes and another to other natural resource taxes (for example, a general transfer pricing rule to CIT but a general valuation rule to royalties). The same type of rule may apply to all types of natural resources or different types to different natural resources. Specific transfer pricing rules provide greater simplicity, clarity, and predictability than a general transfer pricing rule, but designing them to valuate non-arm's-length transactions realistically is harder for some types of natural resources than for others, and harder for costs than sales. A general valuation rule may have additional advantages, but companies may hesitate to substitute government-imposed prices for actual prices paid between independent parties, especially if the former consistently exceed the latter. Again, a general rule that valuates transactions realistically is harder to design for some types of natural resources and transactions than others. Transfer pricing of different types of natural resources involves common broad issues, but there are significant differences of detail between oil, gas, and minerals, as is discussed later.

Some countries combine different types of rules. For example, Nigeria uses reference prices but requires valuation at the higher of the average reference price or actual sale price. Investors may, however, object to such an approach. Mining and petroleum agreements in some countries apply a specific transfer pricing rule to non-arm's-length sales, but also have a general rule, such as requiring all sales to be made at international prices or forbidding discount sales, which may give the tax authority scope to revaluate a sale at below market prices even if negotiated at arm's length.

## Oil Valuation[5]

The value of crude oil is usually set, for the purpose of both royalties and profit-based taxes, at the point of sale or delivery—that is, the point at which ownership passes to a buyer in a sale and at which production is measured for sale purposes. The point of valuation tends to matter less for oil than for gas and hard rock mining. Upstream and downstream operations are fairly distinct. Extraction and refining are usually carried out by separate companies. Operations between the point of extraction and point of delivery generally consist of limited initial treatment (removal of water, salt, and other impurities), transport and storage, and marketing. There is therefore usually no major difference in value at those two points. The costs—for example, pipeline fees and demurrage charges—are typically limited and relatively easy to quantify. In practice, they are usually deductible for the purpose of natural resource profit taxes, subject to transfer pricing issues if paid to an associate. They may or may not be deductible for royalty purposes, but in most cases are unlikely to be a major source of dispute either way, as long as the basic rules are clear. For developing economies that export most of their production, the point of delivery tends to be a terminal where oil is loaded onto a tanker. For offshore production, the terminal is often at an offshore platform where the oil is brought to the surface, sometimes from a number of different undersea wells. Some production may be delivered to a domestic refinery, in which case the delivery point is a terminal at the refinery.

There may, however, be exceptional cases where costs between the point of extraction (the wellhead) and the point of delivery are significant. In those cases, the alternative approach of assigning the value of oil at a point nearer the wellhead may be adopted.

- An example is production in a land-locked country that is transported by pipeline or less commonly by road or rail to a tanker-loading point at a port in another country. This may be the point of delivery, but the transportation costs to that point could be substantial. If the point of valuation is defined as the point of loading into the pipeline, it is necessary to determine the value (or internal transfer price) at that point. This could be done by netting back the pipeline fees from the sale price at the tanker loading point. These costs would then not be separately deductible for profit tax purposes (which would amount to a double deduction). Assuming that both the sale at the tanker loading point and the pipeline fees were at arm's-length prices, this would be a reasonable basis for calculating the internal transfer pricing. It could also be adopted for royalty purposes, if the government's policy aim is to base royalties on arm's-length sales value at that point. If the tanker-loading point is adopted as the point of valuation, the pipeline or other transportation costs would usually be deductible for the purpose of profit taxes (subject to any transfer pricing issues if paid to an associate), but again it would be a matter of policy choice whether those costs should be deductible for royalty purposes.
- Another exceptional case of substantial costs that arise between a wellhead and the point of delivery is in Nigeria, where costs of onshore pipeline transportation are greatly increased by "bunkering" (illegal extraction of oil from pipelines). The value of oil in Nigeria for tax, royalty, and production sharing purposes is based on reference pricing, and there has been controversy over whether, as the authorities have argued, this valuation should be applied to production measured at the wellhead instead of at the point of delivery (where the volume may be substantially lower).

Oil values for tax and royalty purposes are based either on sale prices, subject to a specific transfer pricing rule, or on the basis of general norm or reference pricing. The latter is less common but is used by some major producers, such as Angola, Nigeria, and Norway. For oil, arm's-length sales from the same reservoir can reasonably be considered comparable uncontrolled prices for the purpose of the value of non-arm's-length transactions, because the quality is generally fairly consistent, at least over the short to medium term. Oil valuation rules are generally based on this assumption[6] and commonly allow for use of monthly or quarterly average prices to increase the pool of comparable uncontrolled prices.

If there are insufficient arm's-length sales from the reservoir to provide a reasonable range of comparable uncontrolled prices in a period, it may be possible to use benchmark prices. These may be used on their own or in conjunction with actual arm's-length sales of the crude oil to be valuated, and combinations of benchmarks may be used. There are differences in quality—light or intermediate crude oil has a higher proportion of the lighter components, such as gasoline, most in demand, and sweet (low sulfur) crude oil can be refined more cheaply than the sour variety—but crude oil from one reservoir is often physically comparable in quality with that from other locations and is priced similarly in commercial transactions. Spot prices for a range of widely traded crude oil varieties[7] are quoted on international exchanges and in publications and databases of organizations such as Platts, which provides the data required for benchmark or reference pricing. Generally, once a similar quality benchmark crude oil has been identified, standard formulas can be applied to adjust its price to reflect measured differences in its physical

[5] This section refers only to the petroleum sector.

[6] If different oil from fields of different quality is delivered to the market (or to a major loading terminal) by a single trunk pipeline, the product actually loaded and sold is a blend. To reflect the different quality of each field's input, the owners will lift a quality-adjusted volume of oil. In taxing the individual fields, both for royalty and profit tax purposes, it is important that this be taken into account. The precise mechanism will depend on the valuation point as well as other specifics of the particular pipeline system.

[7] Brent and West Texas Intermediate are among the most commonly quoted.

quality. Adjustment may also be needed for transportation cost differences, as discussed previously. Benchmark pricing is consistent with standard commercial practice because sales between independent parties are often priced on the basis of a benchmark crude oil with a premium or discount. If local arm's-length sales are consistently priced in this way, it may be possible simply to use the standard market premium or discount rather than calculate quality and transportation cost differentials independently.

Inconsistency between transfer pricing rules in production sharing agreements (PSAs) and tax legislation should be avoided. Usually a PSA article sets out oil valuation rules for production sharing and royalty purposes. It usually contains a specific transfer pricing rule (or in some cases rules for norm pricing), and this is not always reflected in general income tax legislation, which contains only a general transfer pricing rule. PSA valuation rules vary, but they often require arm's-length sales to be valued at actual sale prices and non-arm's-length sales on the basis of the weighted average of arm's-length sales in the month or quarter; if less than half of the oil sold in the period is sold at arm's length, however, the average price of one or more designated benchmarks, adjusted for quality and transportation cost differentials, is used. Such specific rules cannot be inferred from a general transfer pricing rule, and could even be inconsistent with it, because average prices may not be equivalent to arm's-length prices on the date of sale. There is usually no clear policy reason for different valuation of oil sales for income tax and royalty and production sharing, and there are clear administrative advantages to using the same basis. Disputes about oil transfer pricing should not need to be resolved under different rules for different taxes for no good reason. PSA valuation rules may be applied for income tax purposes as a matter of practice, but as a matter of law PSAs cannot usually override general tax legislation. Income tax rules should therefore be aligned with PSA rules unless, exceptionally, there is perceived to be a policy reason for them to differ.

## Gas Valuation[8]

Where gas is sold as liquefied natural gas (LNG) the point of valuation may be an issue. Gas, like oil, is generally subject to a special tax regime, usually the same one that applies to oil or a modified version. In developing economies, some gas may be sold in the domestic market, but usually most can only be exported as LNG. This means that, unlike with oil, significant local processing costs are necessary before gas is exported because LNG plants are expensive to develop and need to recover their costs.[9] There are broadly two approaches to the taxation of LNG exports:

- The aggregated approach: Upstream gas production and downstream (or midstream) operations, including LNG processing, are taxed as a single project. With this approach, there is a single point of valuation for the purpose of any special taxes on gas—namely, the point of sale from the LNG plant. Transfer pricing is relevant only to non-arm's-length sales at that point. However, this approach is not usually recommended given that, as explained, the objective of the upstream fiscal regime is to measure and capture economic rent in the nonrenewable resource. An LNG plant, as an isolated business, constitutes lower-risk infrastructure with no economic rent and therefore should be taxed like any other industrial activity.
- The (more common and recommended) segmented approach: Upstream production and LNG processing are taxed separately, with a different tax regime for each. Usually the LNG plant is subject only to general business taxes, although sometimes it enjoys a preferential regime. For the purpose of special taxes on upstream production, gas must be assigned value when it passes to the LNG plant. (This approach could include the pipeline as part of the upstream operation or separately.) If there is common ownership of the LNG plant and the gas fields that supply it, or if the owners of each are associated, a transfer price must be established at that point. Governments often, however, regulate the pricing of gas sales to LNG plants. There are various possible reasons—for example, to guarantee the plant a sufficient return to encourage investment, to prevent LNG plants from exploiting monopoly buying powers, or to maximize upstream profits subject to higher taxes. The regulated price may be calculated on a cost-plus basis. It could be a toll designed to give the LNG plant a prescribed after-tax rate of return. All sales to the LNG plant would be calculated on that basis whether they involve associated parties or not. In such cases the government should establish with LNG plant operators which records they must keep and supply on request to show that prices have been charged on the prescribed basis in practice. Auditing these records requires some technical expertise, but the basis for transfer pricing should not itself be a source of uncertainty or dispute.[10]

Specific transfer pricing rules and average pricing are more difficult for domestic gas sales and LNG exports than for oil. There are some variations in the quality of gas at the point of extraction, depending on the amount of liquids and impurities, but once processed it is a fairly consistent product. There is nevertheless no standard international spot price that can be used as a proxy for arm's-length sales values in the domestic market. Spot prices are quoted in regions like the United States and Europe with

[8] This section refers only to the petroleum sector.

[9] There are also pipeline costs, but to simplify discussion it is assumed that there is no separate tax regime and that pipeline operations are taxed either under the upstream or the LNG tax regime.

[10] See Kellas's chapter in IMF (2010) for a comprehensive discussion of LNG pricing.

efficient gas distribution networks and extensive and highly developed infrastructure for domestic gas consumption, but these differ from one region to another and are of little relevance to developing economies whose circumstances are quite different. Domestic gas prices are in any case often subject to government regulation, so that (just as in the case of sales to LNG plants) transfer pricing is not a factor: all sales are priced on the same regulated basis, whether to an associate or not. International prices are potentially more relevant to LNG exports, but, whereas the huge growth in LNG international trade is likely to lead to more standardized spot pricing in future, for now there is considerable regional variation based on local supply and demand.

LNG is usually sold under long-term contracts rather than at spot prices. Prices payable under these contracts are usually based on the price on the date of supply of some non-gas comparator in the buyer's location, such as oil or alternative fuels. Sometimes obligations to take a certain amount of supply ("take or pay") are built into the contract.[11] Transportation costs may be netted back. If an LNG plant sells gas to an associate, for example a related marketing company, it is usually under a similar long-term contract. There is not usually a range of arm's-length spot price gas sales from the same gas field in the month or quarter that can be used to establish transfer pricing; spot prices quoted elsewhere may not be relevant; and, in any case, use of spot prices is inconsistent with how sales are actually priced in standard arm's-length transactions. Although future prices payable under the contract may be based on benchmark prices, all the contract terms and other factors, such as the buyer's location, must be taken into account in determining whether it equates to arm's-length terms. Tax authorities must consider whether the comparator used, the length of the contract, break clauses, take-or-pay obligations, transportation cost adjustments, and so on reflect normal arm's-length terms for sales in the same market. If not, the authorities must ensure that nonstandard variations are reflected in the price. This can be a challenging task, especially when gas is first sold. There may well be no local contemporary long-term gas contracts on arm's-length terms available for comparison. The fact that international gas markets are evolving rapidly with the growth of LNG and unconventional gas adds to the difficulty. Governments may well need external expert assistance.

Because long-term contracts determine prices for years to come, there is a good case for governments to require terms to be approved or agreed in advance if an associate is involved. They should also carry out checks later to ensure that those terms are applied in practice (or modified only with agreement).

## Mineral Valuation[12]

For minerals, there can be significant and varied costs between the point of extraction and point of sale, which can have a significant impact on value. The point at which output is valued for the purpose of special mining taxes can therefore be an important issue. Many countries apply income tax to mining in the same way as to other industries—it is not a special tax. No special point of valuation is prescribed, and gross revenue is simply based on sales, subject to the same transfer pricing rules as apply to other industries. Often, the main special taxes imposed on mining are output-based royalties, and it is only for these that there are rules specifically prescribing the point and method of valuation. These rules do not necessarily value output at the sale value. There is a surprising variety in the approaches different countries take to the value of mining output for royalty purposes.[13] Sometimes a country will take different approaches to different minerals.

The following simplified example of production of a metal helps to illustrate the options. This example assumes that the values added by different operations are clearly quantifiable, which they may not be in reality (and the values used are not necessarily realistic).

**EXAMPLE:**

| | Cost | Cumulative |
|---|---|---|
| Value of 100 tons extracted ore | $500 | $500 |
| + cost/value added by crushing, grinding, screening | $100 | $600 |
| + cost/value added by chemical, etc., concentration | $100 | $700 |
| + cost/value added by domestic transport | $50 | $750 |
| + cost/value added by foreign transport/insurance | $50 | $800 |
| + cost/value added by smelting/refining | $150 | $950 |
| + cost/value added by other inputs (e.g., marketing) | $50 | $1,000 (LME[14] price) |

Source: Author's elaboration.

[11] Clear and well-understood rules for timing of taxation for take-or-pay contracts are needed. For accounting purposes, money received under take-or-pay provisions is not generally reported as sales in the profit and loss account, but as deferred revenue on the balance sheet, and is released to the profit and loss account only when the corresponding volume is delivered.

[12] This section refers only to the mining sector.

[13] This is comprehensively discussed in Otto and others (2006).

[14] LME = London Metal Exchange. Mineral sales are often based on published LME prices, though other benchmarks can be used.

It is assumed here that crushing, grinding, and concentration take place within the mine before transportation, but they could be done at a separate plant. Smelting or refining usually takes place at a separate plant—this could be operated by the mining company or a separate company (which might be an associate). Processes may differ from those in the example; for example, leaching within the mine may produce finished or nearly finished metal. Sales can be in the form of crushed, screened ore, ore concentrate, or finished metal. The point of sale is not usually the mine gate or mine mouth. For exports, it is either the export loading point or a foreign point of delivery. For domestic sales, it could be a domestic processing plant or, in the case of finished metal, an end user's premises.

Some countries just apply royalties to the sale value at whichever point the mineral is actually sold.[15] In the example, the royalty value under this method could in theory vary from $500 to $1,000 depending on the point of sale (although in practice ore is not normally sold without at least some treatment). This approach has the advantage of consistency with income tax, but this is often given little weight, particularly where, as is common, royalties are designed and administered separately. Under this approach royalties would apply to any value added by domestic processing. Governments and investors might be comfortable with this where processing is an integral part of mining operations. Outputs from crushing, grinding, concentrating, and any processing carried out at the mine site are normally treated as mining outputs for royalty purposes. Most developing economies that produce gold, for example, export it as dore (a gold and silver alloy) for final refining abroad, and this is normally treated as mining output for royalty purposes even though conversion of gold-bearing rock to dore requires considerable processing. But taxing the value added by processing that is not integral to mining operations, such as smelting, may be seen as undesirable, particularly if the government wishes to encourage development of local smelting facilities. Companies may seek to minimize mining royalties by selling minerals in unprocessed form to a nonmining company (perhaps an associate) not subject to such royalties.

Another option is to distinguish mining operations from processing, and where a company does both, apply royalties to an internal transfer price. But the distinction between extraction and processing is less clear-cut for mining than petroleum. Extracted oil is a distinctive, valuable substance. Some impurities have to be removed, but refining is mainly a process of distilling it into different components, all of which have value, although some more than others. Minerals, on the other hand, are found in low concentrations, and the initial mining product extracted is mainly waste earth and rock, which is then subject to a series of further extractive processes to separate minerals from waste material. Extraction and processing are thus conceptually similar, and if governments want to tax one and not the other, they must define where one ends and the other begins. They can then exempt from royalties operations defined as processing and apply royalties to inputs to those operations, whether sales or internal transfers, but not outputs. In the example, the royalty value might exclude the $150 value attributable to smelting but include the value added by any processing or other costs up to that point. Some countries, instead of exempting particular processing outputs, apply lower royalty rates the farther along the processing chain a sale occurs, but this can be complicated to administer.

Some countries base royalties on output measured at the mine mouth or mine gate. If they are based on the actual value at that point, in the example the royalty value would be $700, assuming all costs up to and including concentration occurred within the mine. But this raises policy and practical issues. Regarding policy, if one company adds value by processing ore at a mine and another adds equivalent value by carrying out similar processes at a separate plant, it is not obvious why the latter should pay less in royalties than the former. This disparity could generate tax manipulation opportunities. Practically, internal transfer pricing must apply to output at the mine gate, since sales do not generally occur at this point, but (for the same reason) there are no sales on which to base a comparable uncontrolled price. Moreover, international benchmark prices for unrefined minerals are hard to identify, as discussed more fully later. Variations in quality of output between mines and even between different shipments from the same mine add to the difficulty of establishing comparable uncontrolled prices.

In the absence of comparable uncontrolled prices or usable benchmarks, some countries assess the value of production at the mine gate by taking the value at a later point of sale and netting back costs incurred between the mine gate and that point.[16] But this may not be straightforward. Costs of processing beyond the mine gate may vary significantly and involve several different stages. Ore may contain different minerals with different values and different processing costs. Minerals from different sources may be blended during processing. Varying amounts of transportation may be required, again possibly in several stages. Processing and transportation may be carried out by associated companies, raising transfer pricing issues, and it may be difficult to investigate or verify their charges. Costs may vary with the scale of the operations. The sale from which costs are netted back may be a sale to an associate, for which transfer pricing may in turn have to be established by netting back from a later sale to an

[15] This approach is broadly followed by Zambia for copper, although there is debate about its implications for local smelting.

[16] In broad terms, this is the approach adopted in Australia for the purposes of its Minerals Resource Rent Tax. (Royalties are imposed at state level and varied methods are used.)

independent buyer, with all the same difficulties. The farther downstream the point of sale to an independent buyer, the greater the potential complexity of the netback calculation. The costs to be netted back may not be known until long after measurement of output at the mine gate, causing difficulty where royalties are calculated and paid on monthly. All these factors can make it problematic to establish mine gate value by netting back costs from the point of sale, and eliminate the advantages of simplicity that royalties are supposed to have over profit-based taxes. Royalties need not be based on actual value, and countries may simply decide to include some costs and not others in the netback calculation—for example, domestic costs but not foreign costs, or transport costs but not processing costs. This may simplify administration, especially if ease of quantification was a factor in deciding which costs to include. Clear rules are necessary, and the calculation of netback costs must be defined (for example, only direct costs, or also related overhead costs), but whether the calculation produces the equivalent of an arm's-length sales value is not be an issue.

Some countries adopt a different approach altogether and simply base the value mineral content on a benchmark price for the finished mineral—for example, the LME price or, for gold, the London fixing price.[17] This avoids some of the difficulties of the other methods. Production may for convenience be measured at the mine gate, but really the point of valuation is immaterial—in the example, the royalty value is $1,000 no matter what point is chosen. Output can be valued at whichever point physical measurement is considered most practicable. There is no disincentive to domestic processing—the royalty is a smaller proportion of the value of processed minerals than unprocessed minerals. The royalty value will be higher than the sales value of unrefined mineral, but governments can charge a lower rate to compensate. Royalties based on mineral content will reflect market value to some extent—a high-grade ore is more valuable than a low-grade ore and will attract higher royalties per ton—but the relationship is far from exact. Two tons of 35 percent concentrate will be valued the same as one ton of 70 percent concentrate, but are in fact worth less because of the higher transportation and refining costs required. The royalty rate could be graduated to compensate for this, at the cost of some complication. Alternatively, a deduction could be given for some processing and transportation costs to bring the royalty value more in line with actual value, reintroducing some of the complexities of the netback method. Because this basis of valuation does not produce arm's-length sale values for unrefined minerals, for consistency it must be applied as a general valuation method to all taxpayer sales of the unrefined mineral, not just to non-arm's-length sales or internal transfers. But it is not as simple as the general valuation methods for oil described earlier. These require a simple quantity times price calculation, but accurate measurement of mineral content also requires application of expert sampling and assay procedures.

The choice of method often represents a compromise between policy objectives and ease of administration. Some of the simpler methods to administer, such as valuation based on the benchmark price for the final refined mineral content, produce values that bear no consistent relation to arm's-length sales value. Does this matter? After all, to mining companies any output-based royalty is somewhat arbitrary, because it is not related to profit, their main concern. It could be argued that using this notional basis of valuation just makes royalties arbitrary in a slightly different way. The processing and other costs ignored under this method might be relatively insignificant. Gold dore, for example, is often valued by applying the London fixing price to its gold content. This overstates its true value but the difference is often marginal. And royalties are often charged at low rates and are tax deductible, so that the fiscal impact of a small overvaluation is minor. A notional value based on mineral content may have practical advantages over an actual value that is uncertain and open to dispute. It may also have public appeal.

The choice is ultimately a matter of policy, and is not straightforward. With the increase in commodity prices, countries are increasingly looking to capture a greater share of mining rent, often by introducing graduated royalty rates. As royalties assume greater importance, they may become more unattractive to investors if not based on realistic values. The difference between a royalty value based on refined mineral prices and the value of the unrefined product actually sold is often significant. Companies do appear to consider this particularly arbitrary and unfair, which could have negative effects on investment and voluntary compliance. Another point to bear in mind is that governments may choose what appears the simplest method to administer, but then, in an attempt to overcome its worst policy disadvantages (market distortions or disincentives), add numerous complications, ending up with the worst of both worlds—a method that is neither easy to administer nor particularly successful in meeting policy objectives.

From an administrative standpoint, what is important is clear rules. There should be a clear description of the point, and the method, of valuation, and in particular what costs are to be taken into account (which, in addition to transportation and processing costs already mentioned, might include, for example, port supervision charges, demurrage charges, arbitration costs [umpire assays], packaging costs, and so on). Often the rules are not clearly defined, possibly reflecting the common but mistaken assumption that ad valorem royalties are a simple tax. Clearer legislation or alternatively more detailed administrative guidance may be required.

[17] This, broadly, is the approach adopted to royalty valuation in Mongolia, for example.

For special profit-based mining taxes there is likely to be a greater presumption in favor of valuation on arm's-length principles than there is for royalties. Governments are showing increasing interest in such taxes. These could take the form of a higher income tax for mining, special RRT or excess profit tax. The rationale is to target economic rent more accurately than royalties, an aim that may be frustrated if profits are based on unrealistic notional values. Countries introducing these taxes therefore must define carefully the mining operations to which they apply and the point and method of valuation to be used. Simpler royalty valuation methods that produce unrealistic values may be inappropriate. This may make these taxes harder to administer, but alternative strategies designed to make output-based royalties more progressive and responsive to rent often fail to achieve their objective and introduce even more administrative complexity—again, the worst of both worlds. If countries do develop more realistic valuation methods for special profit-based mining taxes, they should consider applying them for royalty purposes too. This is not essential, and may make royalties harder to administer, considered on their own, but it may make them less distortive and unattractive and make the fiscal regime considered as a whole simpler and more coherent.

If the policy intention is output valuation at arm's-length prices, it may be possible to develop specific rules that simplify transfer pricing and make it more transparent and predictable. This is clearly more difficult for minerals than oil. Unrefined mineral production does not have the same consistency of quality as oil and gas production, so it is more difficult to establish comparable uncontrolled prices from arm's-length sales, even if average prices are used (and if the point of valuation is the mine gate, there are probably no arm's-length sales at that point). Benchmark prices are published mainly for refined minerals, not unrefined mining output, whereas for oil they are published for unrefined crude varieties. There is some transparency of pricing of the more common concentrates, such as iron and copper concentrate, but it is not usually possible to use standard formulas to adjust values for quality differences, as it is for crude oil. These factors make it difficult to design a general valuation rule for minerals that reasonably approximates market prices.

For many common minerals, however, benchmark prices do play a role in arm's-length commercial transactions, and it is possible to use them in a similar way in designing specific transfer pricing rules. Usually the terms of an arm's-length sale to a smelting or refining company stipulate that it will sell the finished mineral on the mining company's behalf and pay the mining company the price quoted on a recognized exchange, such as the LME, minus a deduction for treatment and refining costs—with credits for valuable mineral byproducts and penalties for impurities above a permitted level. This price—the net smelter return (NSR)—is often accepted as the basis of valuation for tax and royalty purposes. The pricing basis to be used (FOB, CIF, or CF) must be clear and consistent with rules for deduction of transportation and other costs. Subject to adjustment to the sale value, as discussed earlier, the NSR is the usual sale value under well-established commercial practice. In many countries, the vast majority of mining sales are exports to nonassociated smelting companies made on those terms. Transfer pricing issues do not arise.

One difficulty with this method is that the smelter typically pays the miner a provisional amount on the date of sale. This amount is based on international prices on that date, but the final amount is adjusted to reflect the price when the smelter sells the finished mineral and reflecting the adjustments mentioned above. Often royalties must be calculated and paid on or close to the date of sale, perhaps monthly, before treatment and refining costs are incurred and before the final sale price of the refined mineral is known. Royalties must either declared and paid on estimated instead of actual NSR (or on some other basis entirely) or declared and paid provisionally and recalculated later. This can complicate administration, but the solution may be better royalty assessment procedures, not abandoning this basis of valuation. Most countries successfully administer income tax as an annual tax paid by in-year installments, not by monthly calculation, and there is no obvious reason royalties cannot be administered under a similar regime. (This is discussed in more detail in Chapter 4.)

Where a mining company does sell production to an associate, often it will not be because the group does its own smelting, but because sales to independent smelters are routed through a group marketing company. This company collects the proceeds and takes a fee for marketing and administrative services. It may be based in a tax haven (often Singapore for sales to the Asian market). In these cases the sale price used by the mining company should be the proceeds received by the marketing company, based on NSR. This is the comparable uncontrolled price. The presence of the marketing company should not prevent the tax authority from verifying from sales records that this price was used. The marketing fee should be considered as a separate issue. If it is deductible, an arm's-length transfer price must be established. But a simpler approach may be a law requiring that when sales are made to associates, marketing fees must be regarded as downstream costs under ring-fencing rules, not deductible against upstream revenues.[18]

If an export sale is made to an associated smelting company, the transfer pricing should be based on NSR calculated according to a benchmark price, as described. But unlike in an arm's-length transaction, the charges for treatment and refining costs and other adjustments will involve transfer pricing. Full access to the associate's records is needed to ensure that these

[18] In the United Kingdom, for example, marketing fees are deductible for petroleum revenue tax purposes only if the sale is to a nonassociate.

costs and adjustments are calculated reasonably, but even if they are, general transfer pricing rules may leave room for dispute and uncertainty over the pricing method to be used, particularly if the smelting company claims to use special proprietary technology. There is, however, reasonable pricing transparency on treatment and refining costs. Market rates for treatment and refining costs in particular countries are often determined up to a year in advance, and some commercial organizations publish data on pricing of treatment and refining costs for certain minerals. It may be possible in those cases to impose a specific transfer pricing rule based on benchmark treatment and refining cost rates and include it in regulations (or, if that is not possible, use it as the basis for individual advance pricing agreements). Some countries, instead, allow simple percentage deductions for processing costs. This is not strictly consistent with the arm's-length principle, but if such costs are relatively minor and the percentage is broadly in line with past experience, it may be acceptable in practice and have advantages of simplicity and predictability.

If a mining company processes its output domestically, internal transfer pricing based on NSR can be calculated in the same way: at the point output passes to a separate processing plant. The value of a sale to a domestic processing associate can be determined on a similar basis. There is a risk that companies will move processing from mines to separate processing plants to minimize upstream taxes, so it may be necessary to limit treatment and refining costs to clearly defined processes.[19]

For rarer minerals, markets may not be deep enough to allow quoted prices to be developed and used in calculating NSR. The onus must be on companies to demonstrate that sales to associates are priced on an arm's-length basis, but it is not possible to prescribe use of a particular benchmark.

Coal, like oil and gas, is a hydrocarbon. It is also similar in the sense that it generally undergoes less complicated processing than minerals. This may allow development of similar valuation methods as those described for oil.

For gemstones, although it is possible to identify characteristics that determine value, there is no standard benchmark, and larger stones require individual expert valuation. For non-arm's-length sales, there may be no alternative but physical inspection and valuation by the tax authority before sale, with arrangements for arbitration in case of dispute.[20]

## Cost Transfer Pricing Rules

A general valuation rule consistent with the arm's-length principle is not practicable for the total cost of an extractive industry operation. It would likely cause double taxation and tax creditability problems. Developing economies often apply cost recovery limits to profit taxes (limiting costs to a percentage of sales), but generally these affect merely the timing of deductions. Nigeria (which has high costs for many reasons) has considered benchmarking costs administratively for tax purposes, but there is little clarity about how this would be done in practice. Countries should, of course, seek to compare their costs against costs in other countries and, where they are higher, establish the reasons and find ways of reducing them. And cost differences for different projects within a country should feature an audit risk assessment. But such differences are common and may have nothing to do with transfer pricing. They may reflect greater physical and technological challenges, higher costs imposed by regulation, or greater perceived risk of providing goods and services to particular countries.

There is, however, some scope for applying specific transfer pricing rules to extractive industry costs. Again practices on this vary significantly from one country to another.

For petroleum, joint ventures are common and impose cost restrictions that give governments significant protection from transfer pricing abuse.[21] An operating company incurs costs on behalf of the joint venture and bills each participant for its share. The other participants' interests are at odds with those of the operator with respect to shared costs. If an associate of the operator charges excessive transfer pricing, it will reduce the other participants' profits and the government's tax. Joint operating agreements, fairly standard in the industry, therefore incorporate specific fact-based transfer pricing rules. These follow the principle that costs charged by an associate should be at the original cost to the associate. Participants may audit to ensure compliance. Governments cannot necessarily rely entirely on joint venture partners to enforce this no-profit rule, but they can, and often do, build it into PSAs (closely modeled on joint venture agreements) and/or petroleum tax legislation. The no-profit rule may at first sight seem inconsistent with OECD guidelines, but is in fact the comparable uncontrolled price for costs between nonassociated participants in petroleum joint ventures worldwide.[22] Tax authorities then face the issue of how to establish that goods and services were actually provided by associates at cost. They are often advised to negotiate

[19] As with LNG plants, pricing for domestic smelting may be determined by government regulation focused on wider industrial policy objectives and not just tax.

[20] Many countries require this for all sales, not just those to associates, which can be expensive. (In Sierra Leone in recent years, valuation fees have amounted to about a third of royalties and export duties on diamond sales.) Where the intention is to base taxes on actual values, it is not clear why government valuations should be substituted for arm's-length sale prices, particularly where it is clear that the buyer is not an associate.

[21] It may for this reason be prudent for governments to award petroleum licenses to joint ventures rather than to single companies.

[22] An effect of limiting cost to a group's original cost may be to limit payments to captive insurance companies if a group self-insures. Captive insurance companies are usually based in tax havens and present a common transfer pricing problem.

exchange of information agreements with other countries, including tax havens. This is fine in principle, but it is unlikely to be adequate for this purpose. Instead, audit powers must allow tax authorities to monitor and enforce the no-profit rule. In some cases general legislation requiring taxpayers to keep records to substantiate their tax returns may be enough, but, if not, specific provisions are needed to disallow costs charged by associates if the taxpayer will not or cannot for any reason (including claimed confidentiality) show that they were charged at original cost. Or a certificate to this effect from a government-approved independent auditor may be required. The onus of evidence must be on companies.[23]

For mining, joint ventures following the no-profit principle are not common, nor is it standard practice to build this principle into mining legislation and contractual agreements. There may, however, be scope for doing so. Associates often supply mining goods and services that they brought in from external providers, and it may be reasonable to treat the cost to the group as the relevant comparable uncontrolled price for determining the intragroup transfer price. (The right to evidence of the cost to the group would be vital.) An alternative, if inconsistency with OECD rules remains a concern, is to allow a small markup under the cost-plus basis, but governments must be aware that this may make it easy for companies to inflate costs by routing them through tax haven–based service companies.

Alternative specific transfer pricing cost rules are possible. One fairly common approach is to limit management service charges to a maximum percentage of total operating costs or total revenues. The percentages used vary significantly from country to country. Although it might be argued that this is consistent with the OECD net transactional method, it is an inaccurate and somewhat arbitrary method of determining arm's-length prices. It does, however, have the important advantages of clarity and objectivity. If it is built into legislation or contractual agreements at the outset, then governments can take the generosity or otherwise of the limit into account in planning their overall natural resource fiscal regime, and companies can similarly take it into account in planning whether to invest in the country concerned. Within limits, therefore, such rules may be acceptable and workable in practice. PSAs often contain standard rules for costing previously used equipment. Again, these may not strictly meet the arm's-length standard but have the advantages of simplicity and predictability.

Mining and drilling costs charged by associated companies can be very large and present significant risks if there are no clear and specific transfer pricing rules. If the original cost cannot be determined, it may be possible to use standard rates, such as for rental of drilling rigs, but special factors often complicate like-for-like comparisons, and the tax authorities may have trouble obtaining data. For example, the cost of natural resource development may vary considerably across jurisdictions because of different technical demands. Costs may vary across companies, reflecting different approaches to safety and environmental concerns. (Countries with natural resources can benefit from exchange of such data.) If it is impossible to come up with specific transfer pricing rules, companies must be required to justify prices charged.

Payments to associates for intellectual property (special processing technologies, technical research, and so on) are less common than in other industries, but not unheard of. Ownership may be located in tax havens. Pricing is notoriously difficult. Ring-fencing rules (discussed further later) may disallow or at least limit such costs if they do not relate specifically to a project in the country concerned, but if not, claims for such costs may have to be considered on their individual (often questionable) merits.

### Transfer Pricing Procedures

Application of the rules discussed previously may involve special procedures. For example, physical auditing procedures have a key role in the application of benchmark-based pricing. And there are often arrangements for the government to publish benchmark-based prices, instead of leaving that calculation up to companies. Physical auditing and valuation procedures are discussed in Chapter 4.

## FINANCING COSTS

Companies may avoid tax by charging excessive financing costs. CIT is most likely to be at risk, because finance costs are generally deductible, whereas equity financing costs are not. Some countries may negotiate generous interest deduction rules as a deliberate tax incentive, but the following discussion assumes that their aim is to prevent excessive deductions. Financing costs may be excessive in two ways:

- They may be excessive relative to the level of borrowing (for example, interest rates or guarantee or facilitation fees at higher than usual market rates); and/or
- The level of borrowing may be excessive (generally described as "thin capitalization").

[23] Most of the OECD transfer pricing methods can be verified only with data from the foreign associate. There is a case for framing transfer pricing regulations generally so that deductibility of payments to associates is conditional on tax authority access to the associate's accounts and records, where reasonably required to verify the pricing basis used. This is particularly important where tax havens are involved because they may have strong secrecy rules.

Thin capitalization is a special type of transfer pricing problem. It generally applies when a taxpayer that is part of a group of companies borrows more than it could or would if it were an independent entity. Thin capitalization risks are not unique to natural resource taxation, but it presents the same incentives and opportunities as for other transfer pricing abuse. The industry's unique features, such as the high risk of exploration operations, may justify special rules.

There is a range of approaches to countering thin capitalization; some lend themselves to more effective and transparent administration than others. Some countries have little protection against excessive borrowing or interest rates other than general transfer pricing rules (which, as discussed previously, are often poorly designed and particularly hard to apply in this area). Others impose specific limits. For example:

- Maximum debt to equity ratio disallowance of interest on borrowing that exceeds that ratio: There is considerable variation in such ratios, ranging from 1:1 to as much as 4:1. It is sometimes unclear whether the ratio represents a permitted level or simply a maximum level subject to further restrictions. There is frequently no special debt to equity ratio for natural resource companies, and a generous ratio may apply even to an exploration company operating in a new province (which could probably not borrow at all on arm's-length terms if it were operating independently). Sometimes the rule applies only to borrowing from abroad and/or borrowing from associates. This may allow excessive borrowing by means of so-called back-to-back loans (that is, loans from an associate routed through an independent bank) or parent company guarantees (explicit or implicit). The rules often leave open for argument the definition of debt and equity (for example, does the definition refer to average debt over a period of time or stock of debt at a point in time? Does it include debtlike instruments such as preference shares?).
- Limit imposed according to the purpose of borrowing: For example, interest may be deductible only on borrowing to fund development costs or a maximum percentage of such costs. This approach risks allowing companies to accumulate debt no longer required for the original purpose, so there an additional requirement test may be needed. An example is Uganda's model PSA, which allows interest on loans (from any source) to finance development operations only up to 50 percent of the total financing requirement. Interest on loans to finance exploration is not allowed. Such a restriction could be supplemented with regulations or guidance defining the financing requirement as the cumulative negative cash flow, including tax paid but excluding other disallowed costs.
- Restriction of interest to a percentage of profits before interest (and sometimes depreciation and amortization) is typically known as an earnings-stripping rule. Again, limits vary from country to country. Because disallowed costs may be carried forward to future years, this may merely defer excessive deductions rather than disallow them altogether.

Some countries take simpler approaches than others to limiting interest *rates* chargeable. Again, they may just use a general transfer pricing rule—for example, prescribing that interest must be charged at usual commercial rates. The problem is that such rates can be difficult to define. Where thin capitalization rules are inadequate, insult may be added to injury, because companies may borrow far more than they could if operating independently and then argue that the interest rate should be higher than usual to reflect the exceptional risk. An alternative approach would set the maximum rate at a specific percentage above a quoted benchmark rate, for example, six-month dollar LIBOR plus 2 percent.

Countries sometimes use ministerial or departmental discretion to limit deductible financing costs. Companies have to seek approval of loans, and of the terms applying to them. Sometimes this is the only protection against excessive financing costs, sometimes it is combined with other restrictions. Clearly it is better than nothing, but it is preferable to have published rules that are administratively transparent and effective.

Disguised interest presents a further risk, so restrictions on deductibility need to apply to all finance charges, not just those explicitly described as interest. Companies may disguise financing costs to circumvent restrictions on interest deductibility of the kind discussed previously; circumvent disallowance of interest for the purpose of special taxes, such as RRT or production sharing; or avoid withholding tax (WHT) on interest payments. Companies may use financial instruments such as finance leases to disguise interest. A finance lease is in substance a loan-financed asset purchase but legally it is an asset rental. International accounting standards recognize the substance but in some countries tax rules do not.[24] Other kinds of payment (for example, guarantee fees) or financial instruments (for example, interest rate swaps) may also be used. (Where interest hedging instruments are used, there may be scope for avoidance unless there is a requirement to mark to market and offset finance costs against finance gains.[25])

## HEDGING

Because natural resource prices are volatile, companies may hedge them. The results should in principle be unpredictable. Over the last decade, NR prices have on average increased substantially, and because NR producers hedge against price declines,

[24] Another advantage of finance leases for companies is that they may circumvent PSA rules giving the government ownership of assets acquired for NR operations.

[25] Some countries reclassify disallowed excessive finance costs as dividends. This adds complexity but, depending on the country's WHT rules, may be necessary to ensure that they are not taxed more favorably than dividends.

in practice hedging is much more likely to have generated losses than gains. Taxation of hedging gains and losses varies from country to country.

Where countries recognize hedging gains and losses in taxing natural resource profits, the rules can be complex and open to avoidance. Some countries recognize them for the purpose of some taxes but not others (for example, taxes where natural resources are valued according to general valuation rules). Some recognize them if the instrument is genuinely used for hedging purposes and not for speculation, although this distinction can be difficult to apply in practice. Some recognize gains and losses on some types of hedging (for example, forward sales) but not others (for example, exchange-traded forward contracts). Often these different types of instruments are economically equivalent, and treating them differently may be inconsistent from a policy viewpoint and may create opportunities for artificial tax planning. Concern is widespread that natural resource companies manipulate hedging instruments and the timing of transactions to generate predictable losses, perhaps because they are on non-arm's-length terms, perhaps because they are matched by offsetting gains realized by tax haven–based associates.[26] There may be grounds for this concern, or it may simply reflect the fact that in recent years hedging losses have been more common than gains. But in case manipulation is possible, countries that recognize hedging gains and losses for tax purposes should have a general or specific antiavoidance provision to counter it. To prevent timing abuse, offsetting hedging positions need to be broadly defined and hedging instruments marked to market.

Tax authorities may, however, lack capacity or confidence to deal with these issues even with the help of antiavoidance provisions. It can be argued that in any case, as a matter of policy, governments should decide for themselves how far their exposure to natural resource price risks should be hedged, and not allow companies to decide the issue indirectly on their behalf. For those reasons, some countries disregard hedging gains and losses in taxing natural resource production altogether. (They may tax them separately as nonproduction income.) This is administratively the simplest and most effective way of managing avoidance risks, and governments that do not take this approach should carefully consider the policy and administrative arguments in its favor. (Because forward contracts are a hedging mechanism, this approach implies that all forward sales should be valued on the basis of the market price at the date of delivery rather than the price in the forward contract. If a general valuation rule applies—see the earlier discussion of transfer pricing—it may provide for that; otherwise, forward contracts must be deemed non-arm's-length transactions. It may, however, be difficult to do this when arm's-length spot prices are difficult to establish, so exceptions may be necessary.)

## GENERAL CONDITIONS FOR TAX DEDUCTIBILITY OF COSTS

Countries need to have general conditions for deductibility of costs, but the interpretation of these rules is sometimes problematic. If countries merely attempt to list all categories of deductible and nondeductible cost individually, there will inevitably be costs that do not clearly fit into the listed categories, the tax treatment of which will be unclear. Legislation should therefore allow costs to be deducted if they meet certain general conditions and are not specifically disallowed. Sometimes legislation applies the same general conditions as apply to business taxation generally, sometimes it applies general conditions specific to natural resources.[27]

A common but potentially problematic approach is to limit costs to "ordinary and necessary" costs, or to costs "wholly, exclusively, and necessarily" incurred for business purposes.[28] It could be argued that companies need not incur any particular cost for business purposes (for example, they could always sink an exploration well somewhere else and might find it hard to show that a particular unsuccessful well was "necessary"). Even some quite general categories of expenditure may not be strictly necessary (for example, some natural resource companies bear their own risks and do not insure, so it could be argued that insurance is not a "necessary" cost). It would be unreasonable to disallow costs on that basis, and in practice most countries interpret the "necessary" test quite loosely, treating any normal cost for the purpose of earning income as necessary, as long as it is not specifically disallowed. In other countries the position is more ambiguous, and tax authorities reserve the right to use this test to challenge normal business costs on commercial grounds.

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[26] A simplified example may illustrate this concern. Company A in a producing country (with a 50 percent tax rate) enters a forward contract to sell petroleum at $100 in six months' time. Associate B in a tax haven (with a zero tax rate) pays $5 for an option to buy petroleum at $100 on the same date. If the price rises to $120 A makes a $20 hedging loss, $10 after tax; B exercises its option, making a $15 profit. If the price falls to $80 A makes a $20 hedging gain, $10 after tax; B lets its option lapse, making a $5 loss. In each case, the overall gain is $5 but in the first case no gain is taxed.

[27] From the investor's perspective, problematic deductions include, for example, infrastructure development and operating costs, community spending, and environmental rehabilitation—that is, areas where the industry is complementing the functions of the state. From the investor's standpoint, these are true economic costs and should be deducted. Officials should, therefore, be aware that rules on deduction that are seen as unfair can increase compliance risks because companies will always seek to obtain deductions for what they consider legitimate business expenditures.

[28] "Ordinary and necessary" is the test in U.S. legislation. In the United Kingdom, the test is "wholly and exclusively incurred for business purposes," but costs deductible against employment income must be "wholly, exclusively and necessarily" incurred, and that wording is often applied to business costs in Anglophone countries.

This raises the wider issue of the relationship between taxation and industry regulation. Countries generally give the natural resource ministry (and sometimes the NRC) extensive powers to control costs. Typically, private natural resource companies must submit work plans and budgets for approval, but these can be withheld on various grounds. Governments obviously have a legitimate interest in ensuring that companies' commercial decisions are in line with national resource management policy. They also have an interest in company cost control, which some companies manage more efficiently than others. In principle, therefore, government oversight and regulation are necessary to control costs (although in practice in some countries excessive, inefficient, rent-seeking government regulation is a main cause of high business costs). Such oversight and regulation generally take place in real time. Some countries are concerned that their natural resource fiscal regimes give companies an inadequate commercial incentive to control costs—because, for example, where tax rates are higher than 50 percent, the government bears a higher share of the cost than the company. In extreme cases countries may be concerned that the fiscal regime gives companies an incentive to incur unnecessary costs, where a dollar spent saves more than a dollar in tax. Few practical examples of such "gold-plating" incentives have been identified in practice, and obviously it is a serious weakness in legislation if they occur.

The question is whether tax rules (such as the "necessarily incurred" test) should be interpreted as permitting governments to disallow commercial costs they disapprove of after those costs have been incurred. If so:

- Narrowly interpreted, such tax rules can be used to disallow commercial costs not properly approved under the regulations;
- A wider interpretation might be that they can be used to allow tax authorities to decide all over again, in hindsight, whether commercial costs should have been approved in the first place.

Tax authorities should not disallow costs as unnecessary unless the grounds on which such a disallowance may be made are clearly spelled out in legislation or official guidance. If not, the law will be fundamentally nontransparent; tax auditors will have to make judgments they are unlikely to be qualified to make; there will be scope for corruption; and investors will face uncertainty and risk, highly damaging to the investment climate. If general conditions for tax deductibility are unclear or ambiguous, tax authorities should issue guidelines to both tax auditors and taxpayers explaining how they will be applied in practice. For example, costs could be disallowed as unnecessary specifically if they resulted from illegal activity or from negligence established by legal proceedings.[29]

## RING-FENCING OF COSTS

Countries commonly ring-fence natural resource production, so that only directly attributable costs are deductible. This is needed where natural resource production is subject to higher rates of CIT than other businesses, or to additional profit taxes.[30]

Ring-fencing adds significant administrative complexity and risk, particularly when license areas or even individual projects are ring-fenced, as is true in many countries.[31] The area or activities to be ring-fenced and the costs to be treated as falling inside or outside the ring-fence must be clearly defined. A basis then must be established for allocation of costs shared by separately ring-fenced areas.

- The costs to be shared may be incurred by *the local company*. The basis for allocation may not be straightforward, for example, if the company moves equipment between separately ring-fenced areas. A standard cost allocation rule may be necessary in such situations, such as time-apportionment of depreciation allowances, which will produce a reasonable result on average and be applied consistently. Often, there are no clear rules for this, either in legislation or guidance. Problems of cost allocation will be most common where ring-fencing applies to individual mines or oil fields within a license or contract area, because the same company will be involved in different projects. Where ring-fencing applies by reference to contract or license area, companies operating in different contract areas will need to allocate costs between them, but some countries require a separate company to be established for each contract area, which reduces the need to apply ring-fencing rules. This approach may be less cumbersome from an administrative viewpoint but may be inefficient for investors.[32] Where countries apply different profit tax regimes to different types of natural resources (common for oil and gas, for example), profits must be calculated separately, raising similar but even more difficult cost allocation issues, particularly if the natural resources come from the same mine or oil field, which calls for a standard cost allocation rule.

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29 Hedging losses could in theory be disallowed as not "necessary" (companies do not *have* to hedge), but it would be important to give companies advance notice of such an interpretation.

30 Favorable tax treatment, such as tax holidays, is sometimes granted to the natural resource industry or to particular license areas or projects, and ring-fencing may be needed to ensure that only the intended revenues benefit.

31 Norway has no license- or field-based ring-fencing for petroleum, greatly simplifying its fiscal regime.

32 If a natural resource company invests in a number of different projects in the same jurisdiction, it is likely to share certain costs whether or not the projects are held in separate legal entities. In this case, the use of distinct legal entities does not overcome the allocation problems discussed but it may add administrative costs (for example, registration, filing). It may also prevent the natural resource company from obtaining tax synergies in its home jurisdiction, which could reduce the attractiveness of the host country regime.

- Common costs may include service costs recharged by a *foreign parent or management company* to its operating subsidiary (for example, for management or technical services). As already discussed, these present transfer pricing problems, but the definition of common head office costs that can be recharged and the method of allocating them to the national subsidiary are separate ring-fencing issues, although they present similar problems. Companies often adopt standard methods of apportioning such head office costs (for example, on the basis of share of production or allocation of capital). Countries either need their own specific rules, or a mechanism such as an advance pricing agreement for negotiating a consistent and reasonable allocation of such costs. In that case, in addition to an agreed basis of allocation in principle, it may be necessary to reach agreement on the head office records that will be available as evidence of compliance.

## TAX HOLIDAYS

It is common for governments to provide investment incentives,[33] and for mining these too often take the form of tax holidays. They are less common for petroleum. Tax holidays are widely regarded as a particularly poor form of investment incentive, and one that poses risks to the wider tax system. The objections to them are largely policy based, but they are likely to have major administrative disadvantages too. They are often adopted as a supposedly "simple" form of tax incentive, with the result that the precise nature and boundaries of the tax holiday are poorly defined. For example, the definition of the scope of the project benefiting from the holiday may be vague; it may be unclear whether the holiday is defined purely as a period of time or if production and grading levels are taken into account, and if so, the consequences if these differ significantly from original assumptions; and the treatment of depreciating assets at the end of the holiday may be uncertain. Such factors can give rise to uncertainty and technical disputes. They also create significant opportunities for abuse through transfer pricing and other profit-shifting arrangements. The transition to regular taxation at the end of the tax holiday can be administratively complex, even if the rules are clear, particularly in the absence of adequate record-keeping requirements. For existing tax holidays, the administrative risks and complexities must be understood and managed, and the disadvantages of this form of incentive in the future should be recognized. Alternative, easier to administer incentives should be considered—for example, accelerated depreciation simplifies administration, for the reasons discussed later.

## CAPITAL EXPENDITURE

There are often special rules for natural resource capital expenditure. Tax depreciation rules are sometimes based on elaborate classification of assets, but this may be difficult to apply to natural resource operations, opening the door to technical disputes. New asset classifications specific to natural resource operations may be introduced, but these too may be complex, requiring extensive detailed guidance, and still leaving room for technical disputes. Such complexity may be unnecessary and is best avoided. Governments often allow accelerated depreciation of natural resource capital expenditure as a tax incentive for investment (combined with counterbalancing ad valorem royalties or cost recovery limits to ensure that some tax is payable from start of production). This permits simpler depreciation rules than if depreciation aims to reflect the varying lives of different capital assets. It may also minimize noncompliance because it reduces the tax benefits of misclassifying capital expenditure as operating expenditure. Even if depreciation is not accelerated, there are advantages to keeping classifications simple and the number small.

For petroleum, expenditure can be classified into broad categories of exploration, development, and production. *Production* expenditure can treated as operating expenditure and immediately expensed. *Development* expenditure can be treated as capital expenditure, and all such expenditure subjected to a common depreciation rule, possibly with limited and clearly defined exceptions. Accounting standards allow different accounting treatment for *exploration* expenditure. For consistency, it is usually best to specify how it should be treated for tax purposes. Exploration is often counted as capital expenditure under general taxation principles, but in practice governments may offer special tax incentives for exploration—for example, immediate write-off or exemption from normal ring-fence restrictions. These three broad categories are usually defined in legislation, but are well understood in the industry, and their use can simplify administration considerably. Still, there can be room for dispute—for example, as to whether reservoir or mine appraisal is no longer exploration and is now development expenditure or whether expenditure for enhanced recovery after the beginning of production is development expenditure. Clear rules, possibly supplemented by guidance, may be required. A further common source of dispute is the treatment of indirect or intangible costs, such as intangible drilling costs. It generally simplifies administration if the law presumes that expenditure capitalized under standard accounting principles must also be capitalized for tax purposes.

[33] See Zee, Stotsky, and Ley (2002). This is mainly concerned with policy issues, but also discusses transparency and administrative considerations.

Similar classifications may be useful for mining, but the rules may have to be more complex. For petroleum, drilling and installation of machinery generally happen mainly at distinct exploration and development stages. There are similar distinct stages in mining, but ongoing production operations often require upgrading of very expensive heavy machinery, which is normally regarded as a capital expenditure even though not incurred as part of mine development. Again, it may help to rely mainly on classification of expenditure as capital or operating expenditures under generally accepted accounting principles. Companies usually present their results favorably in their commercial accounts, which gives them an incentive to capitalize expenditure rather than write it off.

(Mining) The tax treatment of *stripping* costs (removal of overburden and waste materials to obtain access to ore) can be problematic. For accounting purposes, stripping costs incurred before production begins are generally capitalized, but until recently there was a wide variety of accounting treatments for stripping costs after production begins. In these circumstances it makes sense to specify a standard treatment for tax purposes—for example, requiring that production stripping costs be expensed. But an international accounting standard (IFRIC 20), effective as of January 2013, now provides guidance on when production stripping costs should be capitalized and depreciated for accounting purposes and when they should be expensed. The rules are complex, but should provide greater consistency.

Rules for calculating depreciation can present major administrative challenges if not clearly defined. Accounting principles generally require depreciation of assets over the period in which they produce economic benefits. Depreciation could therefore be based on economic factors such as mineral depletion rate (described as the "unit of production" method), mine life, or the useful life of the asset. In some countries depreciation of assets for tax purposes follows accounting principles, or concepts such as useful life, mine life, or mineral depletion rate may be explicitly built into tax depreciation rules. As a result, tax auditors must judge the amount of natural resources still in the ground and how long it will take to extract. Even experts may be unable to judge such matters with precision. Such rules will require tax authorities to develop specialized technological expertise, and even then there will still be room for tax planning and dispute. Estimates of depletion rates or mine life, furthermore, change from year to year, complicating calculations and prolonging the scope for dispute. Administration is much simpler if depreciation follows simple rules (for example, straight line depreciation of capital expenditure over $x$ years or the shorter of $x$ years and the number of years the license has left to run). The rules about the start of depreciation allowances (and any time apportionment within a year) should also be clear to prevent manipulation of timing of deductions. (For example, depreciation could begin at the start of production or when an asset is brought into use, whichever is later).

Investment allowances (sometimes called uplift) and credit for capital expenditure are common in natural resource taxation, but like other artificial tax costs, present an opportunity for artificial tax planning and abuse, particularly where rates are high,[34] and misclassification of expenditure is likely. Basic computational rules for such allowances—for example, the interaction with depreciation rules—are sometimes unclear and open to dispute. The risks need to be understood and managed. Accelerated depreciation may be simpler to administer than investment allowances or credits.

Profits must be set aside for back-loaded costs of mine and well closures and environmental restoration. It is generally the responsibility of the natural resource ministry to negotiate abandonment and decommissioning plans and their funding. Many countries require natural resource companies to place funds in an escrow account to meet this expenditure. Sometimes general tax rules disallow deduction of reserves and provisions, or leave their treatment unclear, but this is generally considered inappropriate for natural resource abandonment costs because it is in the government's interest that companies provide for such costs, and profits during the abandonment years may not cover them. From a tax administration viewpoint the most straightforward approach is generally to link the deductibility of reserves to the abandonment plan agreed by the company with the natural resource ministry. (Provisions found to exceed actual expenditure must of course be taxed.) The natural resource ministry should aim to negotiate a reasonably simple and objective basis for accumulating reserves to meet estimated abandonment costs, but this agreement should be regularly reviewed because estimates will change, and should become more accurate over time.

## SOCIAL INFRASTRUCTURE COSTS

The law on deductibility of social infrastructure costs often needs clarification. Capital expenditure necessary for mining operations such as expenditure on transport infrastructure may be clearly deductible, but the position may be less clear for

[34] In an investment allowance deductible investment expenditure is increased by a certain percentage. So, for example, if there was a 30 percent investment allowance, a tax deduction of $130 would be given for every $100 of development expenditure. A 30 percent investment tax credit, on the other hand, would mean that for every $100 of development expenditure the company's tax bill would be reduced by $30.

expenditure on schools, hospitals, and other facilities not directly used in mining operations. This may reflect unclear policy. For example, the government may require natural resource companies to meet such costs under the terms of negotiated agreements, but regular CIT deduction rules may not cater clearly to their deduction. Reputable natural resource companies, recognizing the need for popular support, may voluntarily incur social infrastructure costs not specifically required by agreements. Whether these are deductible may be even less clear. The rules may be inconsistent for CIT and other taxes such as production sharing. This could of course reflect a different policy intention for each tax, but more likely just shows that policy has not been clearly thought through. Where the law is unclear, the tax authority should establish the government's policy intention and seek to apply the law in a manner consistent with it. Where, however, it is clear that the law does not allow these costs, the tax authority of course cannot allow them. In that case, it may be appropriate to recommend amendment of legislation if it is inconsistent with the government's underlying intention.

## LICENSE TRANSFERS

Transfers of natural resource license interests are common, and there is considerable variation in how they are taxed. Taxation of business transfers is not unique to natural resources, but the amounts involved can be exceptionally large, even billions of dollars, and there are often special natural resource provisions. Some countries do not impose tax.[35] Some charge CIT (or capital gains tax) on the transferor's gain, but allow the transferee to depreciate the cost (a license is a wasting asset). This treatment is broadly symmetrical but the government gains from timing of cash flow. Others charge CIT on the gain, but disallow or restrict the transferee's costs. Some countries disallow particular costs of acquisition, such as signature bonuses or apply other taxes, such as value-added tax (VAT) or stamp duty to sale proceeds.

In some countries the rules, and the interaction with depreciation rules, are complex. Different tax rates may apply to different kinds of assets included in a sale, which may give rise to valuation disputes and artificial tax planning. Transfer pricing may further complicate the picture. The treatment of unrelieved losses incurred by the seller can also be complex because rules may be needed to prevent loss-buying: the purchasing of a loss-making business so that its losses can be counted against the profits of a different business (ring-fencing rules may be enough to prevent this).

Companies may seek to avoid tax on license transfers. The incentive is strongest where gains taxed are artificial (because they ignore acquisition costs) or the treatment of seller and buyer is asymmetrical.

- One way to avoid tax on license transfers is through *indirect transfer* (that is, transfer of shares in the company holding the license.) This may be difficult for tax authorities to detect[36]; general legislation on taxation of gains may not apply to gains on sales of shares held abroad. If it does, treaty restrictions may make it impossible to enforce payment even if tax is due. Some countries are very concerned about indirect transfers and have developed legislation intended to tax them more effectively. One approach (adopted by the United Kingdom) makes nonresidents liable for tax on a gain on sales of shares whose value derives wholly or mainly from natural resource rights or assets, with a right to recover unpaid tax from the license holder. Another approach is to deem that a license holder has made a disposal or partial disposal if there is a significant change in the ownership, direct or indirect, of its shares.[37] Companies should self-assess such gains, subject to penalties for failure to do so. Such rules may, however, present major technical challenges.
- Transfers of licenses for *noncash consideration*, such as swaps and "farm-outs," may offer other avoidance opportunities. These deals can be complex. A farm-out may, for example, require the farmer-in to pay a higher share of costs than the ownership share it is acquiring or to pay the farmer-out future "overriding royalties" contingent on results. The issue then is not just how to treat the payments for tax purposes when they are made, but how to tax the value of the right to receive them when the interest is transferred. Capital gains legislation may not apply adequately to that value or tax auditors may not recognize that it represents a gain or may simply find it too difficult in practice to apply the law (which may require valuation of a mine or oil field).[38] If transfers for cash consideration are taxed, but not transfers for noncash consideration, companies will obviously structure transfers to avoid tax. Legislative change and/or training may be needed to ensure that valuable noncash consideration is taxed.

There may of course be genuine commercial reasons for structuring disposals in these ways, but where tax avoidance is the motive, the loss of tax may be significant.

[35] The rationale may be that transfers of license interests can be economically beneficial, and the tax regime already captures an appropriate share of rent over the life of the project.

[36] Companies are usually required to obtain natural resource ministry approval for license transfers, but this may not apply to indirect transfers.

[37] This allows for symmetry of treatment because the license holder can also be deemed to have immediately reacquired the license interest.

[38] In countries where international accounting standards apply, companies may have to account at fair value for such disposal, and that value could be the basis for self-assessment of gains (subject to possible audit).

## UNITIZATIONS AND REDETERMINATIONS

(Petroleum) If an oil field spans two or more license areas held by different license holders or spans national borders, development of the field as a single project—described as *unitization*—is usually more cost-effective and less likely to cause dispute. In the former case, the petroleum ministry typically may require license holders to enter into a unitization agreement; in the latter, unitization may be negotiated under an international treaty. Broadly speaking, an appraisal is carried out to determine the amount of petroleum within each license area (or country), an operator is appointed, and the various parties agree to share costs and lift petroleum in proportion to their share. For each party those costs and petroleum revenues are then taxed in accordance with the fiscal regime within the license area (or country) concerned. Tax authorities are not normally involved in negotiating unitization agreements or carrying out the required appraisal. Usually, unitization agreements provide for the share of the parties to the agreement to be revised at intervals as the reservoir is developed and a more accurate picture emerges of the petroleum within each license area/country—a process known as *redetermination*. At that stage it is customary for a financial adjustment to be made among the parties so that they are a position comparable to where they would be if the revised shares applied from the start. This adjustment tends to include an interest element. For tax purposes, redetermination is not usually regarded as disposal of the license interest, but the future taxation of the parties must reflect the revised shares, and past tax liabilities may also require adjustment. This adjustment can be complex and problematic, so it is usually helpful to have a simple rule for taxing any redetermination adjustment for earlier years—for example, simply treating it as cost or revenue from petroleum operations at the date the liability or entitlement to the payment is agreed.

## WITHHOLDING TAXES AND DOUBLE TAX AGREEMENTS

WHT and double taxation agreements can play an important part in natural resource taxation, and there is a wide variety of approaches with different administrative implications. Some countries have very complex WHT regimes—under domestic law and/or as a result of varied rates negotiated in double taxation agreements—leading to administrative complexity and scope for tax planning. Treaty shopping may be a risk (for WHT on interest and dividends as well as on service payments), but this depends on the extent and nature of the country's double taxation agreements. Limiting variations in WHT rates and widely defining the payments to which they apply simplified administration. The application of WHT rules to service payments often depends on whether they are deemed domestic or foreign-sourced income. Disputes can arise over the source. A clear definition of what constitutes a permanent establishment and of what should be regarded as domestic source income is required, but sometimes lacking. For natural resource–producing countries, it is advantageous if legislation and double taxation agreements expand the permanent establishment definition to include natural resource exploration and exploitation installations generally, so that there can be no doubt that the host country has full taxation rights over all natural resource operations in the country.

## VAT AND CUSTOMS IMPORT EXEMPTIONS

Countries often exempt imports for natural resource operations from VAT and customs duties. One of the main reasons for VAT exemption of imports may be to avoid the administrative problems of handling extremely large VAT repayment claims arising from zero-rating of natural resource exports. Distinctions between exempt and nonexempt imports are sometimes difficult to apply and open to abuse. Both to prevent abuse and limit their economic impact, such exemptions should be clearly defined and limited to capital goods specific to the sector that are not available in, or resellable in, the domestic market. This needs clear legislation and rules, often contained in a "mining list" prepared jointly by customs and the natural resource department, and sufficient expertise to verify that imports meet the exemption conditions. This is likely to require cooperation between customs and the natural resource department. Assessment of the value of the exempt imports is good practice, both to measure the amount of the tax expenditure and to enable subsequent assessment if goods are not put to the approved use.[39] If natural resource companies do have output VAT (for example, sales in the domestic market), another option is the use of deferred payment plans. In this case, the payment of VAT on imported goods is deferred until the taxpayer files the next VAT return, with the input tax credit effectively removing the need for actual payment.

[39] For fuller discussion of this issue, see Mullins in Daniel, Keen, and McPherson (2010).

## DOMESTIC PROCESSING AND CONSUMPTION INCENTIVES

Governments sometimes use the tax system to provide incentives for domestic processing of natural resources. For example, they may allow favorable transfer pricing where a production company uses a domestic refinery or LNG plant or smelter under its control. This arrangement may be costly and open to abuse. Another approach is to impose export taxes on unfinished exports or limit VAT zero-rating to exports of finished products. The definition of finished products may be unclear and give rise to dispute. Limiting VAT zero-rating to finished products is likely to be particularly complex because it may be unclear at any stage how far input costs relate to a product that will be exported as a finished product. A production subsidy for local processing plants may be a better targeted, simpler, and more transparent way of providing an incentive for domestic processing.

Governments are often under pressure to subsidize domestic natural resource consumption as a direct benefit to the community, either by controlling prices or reducing taxes on natural resources intended for domestic use. This can be very expensive and, from a policy standpoint, may be criticized as benefiting primarily the wealthy. Administratively, it can lead to tax evasion and avoidance if the subsidized production is in fact exported, either by simple smuggling or by more sophisticated intercompany transactions.

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# APPENDIX 2

# Illustrative Harmonized Administrative Framework for Natural Resource Taxation

To bring together some of the themes discussed in Chapter 4, this appendix sets out an illustration of rules that would streamline and harmonize natural resource tax administration in a manner consistent with self-assessment principles.[40]

(1) Define "tax" to include all revenues payable by natural resource companies (including revenues payable in kind to the national resource company, NRC, or other government agency).
*Commentary:*

*(A) Revenues may include, for example: corporate income tax (CIT), resource rent tax (RRT, or government production share), surface rentals, education tax (probably profit based), regional levies (also probably profit based), value-added tax (VAT), withholding taxes (WHTs, including pay-as-you-earn taxes), and bonuses. For some purposes this definition could be expanded to include dividends from government equity participation.*
*(B) Separate regimes for regular business taxes such as VAT and WHTs and natural resource taxes would obviously be an option, but to illustrate maximum simplicity a common framework for all taxes is assumed.*
*(C) The complication of revenues payable in kind usually applies only to petroleum.*

(2) Natural resource companies must submit a self-assessment tax return for each calendar year by, say, April 30.
*Commentary:*

*(A) This could be a consolidated return, including all the taxes listed, calculated on an annual basis, including revenues payable in kind (or consolidation can be sought for a particular subset of taxes that share similar characteristics, such as CIT and RRT).*
*(B) Returns would be required from the start of operations (to be defined), whether or not any tax is payable.*
*(C) No government assessment would be issued except as provided for below.*

(3) If a company fails to submit a self-assessment by the due date:

- A late filing penalty automatically applies; and
- The tax authority may make a best judgment assessment.

*Commentary:*

*(A) Late filing penalties must be substantial enough to provide meaningful deterrence and be regularly updated.*
*(B) The tax authority assessment would be for estimated total tax due.*
*(C) The tax authority assessment would have the status of a self-assessment. Taxpayers cannot appeal, but can submit an amended self-assessment.*

[40] This is not a comprehensive description of all the procedural rules that would be included in a tax procedure code (TPC). A TPC would cover additional areas, such as registration and use of taxpayer identification numbers, record-keeping requirements, rulings, remissions and refunds of tax, confidentiality, and so on. All those matters would similarly benefit from development of coherent, harmonized rules for different natural resource revenues.

(4) Self-assessment returns must be in a format (ideally electronic) prescribed by the tax authority (including any supporting documents).

*Commentary:*

*(A) Return to be designed to produce information needed for initial audit risk assessment, including, for example, reconciliation between CIT profit and commercial accounting profit, details of transactions with associates, reconciliation of different taxes, and so on.*

*(B) Ideally legislation to require electronic filing of a return in the prescribed format would be enacted, which would automatically prevent submission of incomplete or inconsistent data on the return. This would eliminate the need for desk auditing or verification as part of return processing.*

(5) Companies must make monthly or quarterly payments on account of tax (excluding tax payable in kind, provided for separately below) within 21 days of the end of each period; a final payment of any additional tax shown by their annual self-assessment within 21 days of April 30; and payment of tax charged by a tax authority assessment within 21 days of issuance.

*Commentary:*

*(A) These payments would again include all taxes for the period.*

(6) Monthly or quarterly tax payments must be based on estimated results of the period (attributed to the period on the same basis as annual revenue is attributed to a year).

*Commentary:*

*(A) Installments could instead be based on time-apportioned annual results (easier to administer, but does not work for in-kind revenues, harder for companies to calculate accurately, and not common for taxes other than CIT): simplest to use same basis for all taxes.*

*(B) Option to make bonuses payable on the date stipulated by the investment agreement may be preferred, but a consistent basis is used in this illustration in the interest of simplicity.*

(7) Companies must submit to the tax authority within 21 days of the end of each period a payment statement as prescribed by the tax authority. This will show their calculation of tax attributable to the period, distinguishing tax payable in kind to the NRC and tax payable in cash.

*Commentary: This would be a simple summary of the taxes making up the payment. Electronic submission should be required. Tax due (as analyzed) would be entered in the taxpayer account but not audited (desk audit or otherwise). Companies would have read-only access to their account.*

(8) If a company fails to submit a payment statement by the due date:

- A late filing penalty will automatically apply; and
- The tax authority may issue a best judgment payment notice.

*Commentary: The late filing penalty would be set at a level to ensure deterrence, and the best judgment notice would be for all tax; companies could not appeal but only submit their own payment statement.*

(9) Companies must electronically transfer all cash taxes due, by the due date, without demand to a designated government bank account (single treasury account).

*Commentary:*

*(A) Assumes legislation enacted to require electronic payment.*

(10) Payments made must be allocated against tax due in the taxpayer current account.

(11) If for any reason tax is paid later than the date stipulated in the rules for installments, interest must automatically be charged from that date until the date of payment. (Interest also must be charged on any penalty paid late—due dates for penalties to be defined). The taxpayer account must be credited with interest on any overpayments.

*Commentary: This would require all late payment, such as further tax charged by annual self-assessment or by government assessment, to be attributed to the correct period.*

(12) Payment enforcement and recovery powers—as usual but consolidated for all taxes.

(13) If annual tax due is understated in an annual self-assessment because of negligence or fraud it will incur penalties (as is customary).

(14) Self-assessed tax materially understated because of negligence or fraud in periodic payment on account statements (individually or in total) will incur a penalty surcharge.

(15) Provide the tax authority with audit powers plus penalties for noncooperation—as usual, but include, say, a two-year time limit before beginning "normal" annual auditing (that is, not an audit based on further information—see next entry in list).

*Commentary: Possibly also set nonstatutory performance targets for starting audits within one year of filing date and completing within two—fair to taxpayers (gives finality) and encourages good tax administration practice.*

(16) Provide the tax authority with third-party information powers, including special powers to obtain and audit operator returns for joint ventures, and so on.

*Commentary:*

*(A) Should include formal powers to require information from other departments and the NRC—including penalties for noncompliance.*

*(B) Auditing of operator returns and accounts for joint venture and production sharing contracts to avoid duplication and ensure consistency between joint venture partners.*

(17) If the tax authority thinks tax may have been underassessed, it can make additional assessments up to, for example, six years after the end of the year and use auditing and information powers as necessary to establish the amount of the understatement—time limit to be materially extended in cases of negligence or fraud.

*Commentary: Provide nonstatutory assurance that auditing and assessment will take place outside the usual two-year time limit only if there is new information to justify this opinion (but define this widely—for example, includes establishment of current year errors that may also have occurred in earlier years).*

(18) Rights of appeal against audit adjustments and rules for payment of disputed tax, as usual, subject to provisions to allow access to international arbitration in line with investment agreements.

*Commentary: Any disputed tax ultimately payable will earn interest from the date it would have been payable if self-assessed.*

(19) Revenues payable in kind to the NRC or other government agency to be delivered within 21 days of end of the month or quarter (or according to agreement rules).

(20) Cash value of in-kind revenues, calculated according to standard tax valuation rules, to be declared by the NRC on annual return, paid in monthly or quarterly installments and subject to all the rules described above.

(21) If in-kind revenues delivered to the NRC for any period are subsequently found to be incorrect, the value of the natural resources under- or overpaid is to be treated for all purposes as a cash tax underpayment (or overpayment) of the payer company in the relevant quarter.

*Commentary: Collection of audit adjustments in kind not sensible or practicable.*

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# APPENDIX 3

# The Role of Economic Modeling

Contract-based economic models are an important tool for natural resource tax policy, forecasting, and administration. An economic model is essentially a spreadsheet incorporating rules for calculating government natural resource revenues for a contract area for the full duration of a project. Models can be varied to include different tax, depreciation, and cost recovery rates, and so on. Various projections of prices, costs, and production levels can be fed into the model and their impact on government take, investor return, progressivity, and timing of revenue can be measured. Governments in developing economies often lack the required modeling skills, but tax policy experts routinely construct such models for the evaluation of natural resource fiscal regimes, and expert technical assistance in developing and maintaining them is therefore available from various sources. Contract models are used as follows:

- Natural resource tax policy development and contract negotiation: Governments can use models to experiment with various policy options and measure their impact. They can use them to assess the impact of modification of fiscal terms proposed in contract negotiations in a range of alternative price, cost, and production level scenarios. Companies generally use economic models to assess natural resource tax regimes and for contract negotiation, and governments are at a serious disadvantage if they do not have the same tools at their disposal.
- Natural resource revenue forecasting and expenditure management: Projections of costs, prices, and production levels for the medium term and for the full life cycle of the project can and should be obtained regularly from natural resource companies, supplemented with figures from the government's own sources. Responsibility for collection of the data, whether by the finance or natural resource ministry or partly by each, and for sharing it with other departments, must be clearly defined. It may be necessary to impose a legal requirement on natural resource companies to provide the necessary data (production profile, exploration expenditure, capital by same categories as depreciation, operating costs, closure and rehabilitation costs, and price assumptions, especially for production sold through contracts) but it is generally in their interest to provide it because revenue predictability is likely to strengthen public trust. These projections may be subject to some uncertainty, particularly over the long term. Often models are slightly simplified—for example, they may assume that projected commercial capital and operating costs will be categorized in the same way for tax purposes, which may not be true, or they may not reflect some taxes, such as labor and some indirect taxes. Even so, model-produced forecasts are a far better basis for forecasting and planning than mere guesswork. Alternative assumptions on prices and costs can be fed into the model to produce a range of possible outcomes around a central budget forecast, allowing planning for different contingencies. Assumptions should be regularly updated, at least quarterly. Publication of model-produced natural resource revenue forecasts can help manage public expectations, which otherwise are often unrealistic. Revenue projections for the long run are also essential in order to design fiscal rules for the management of natural resource wealth in countries that expect large windfalls from the natural resource sector.
- Explaining actual natural resource revenue outturns: Actual figures of costs, prices, and production levels reported by companies for tax purposes can be fed into the model, and the revenues projected by the model from those figures compared with actual revenues. As long as actual revenues are in line with the model projections (adjusted to reflect any simplified assumptions) this should provide reassurance to the government and the public that, at least if the reported figures are correct, actual revenues are in line with underlying policy intentions. The model should also allow the reasons for differences between forecasts and actual outturns to be identified and explained. This should increase transparency and public confidence in the regime's integrity. (It is important to explain, however, that just because projected and actual revenues match, does not guarantee that they are correct—that of course depends on whether the reported figures are actually correct.) Tax authorities should provide explanations if actual revenues do not match model projections.

This of course assumes departmental accounting systems that are adequate for this purpose, which may not always be true. Discrepancies (other than those from departmental accounting errors) may arise from arrears of unpaid taxes or erroneous calculations in company self-assessments (in which case confirmation that appropriate audit adjustments have been made will also be required).

- Audit risk assessment: If the tax authority has information technology (IT) systems for electronic filing and tax calculation and database interrogation, economic models may add little (they may in effect already be built into its IT system). But, if not, comparison of model projections and actual revenues may identify errors that might not otherwise be picked up (for example, calculation errors or inconsistencies in figures assessed for different tax purposes or incorrect allocation of contract costs to individual companies). Differences between forecast natural resource revenues and outturns may also highlight unexpected cost increases or price declines that merit further investigation by tax auditors.

Because the main role of economic models is to support policy development and economic forecasting and planning, initial responsibility for developing and maintaining them and disseminating their results should rest with the finance ministry. (This assumes that the finance ministry is responsible for natural resource fiscal policy—in practice, the natural resource ministry or even a natural resource company may have primary responsibility for contract negotiation.) Tax departments should, however, be responsible for entering actual return data into the model to allow comparison and reconciliation of projected and actual revenues and, where appropriate, use in risk assessment. Moreover, it is generally recommended that economic models be regularly reviewed and maintained by an interagency group composed of staff from the key ministries involved in natural resource issues and the tax administration.

# APPENDIX 4

# Sample Annual Report on Natural Resource Revenues

(1) Review of the natural resource sector.

Broad description of main developments in national natural resource sector in year *X*.

(2) Statement of responsibilities for natural resource revenues.

List natural resource revenues and explain departmental responsibilities and exchange of information requirements. (It is assumed here that the tax department is responsible for all government revenues payable by natural resource companies and that these are all classified as natural resource revenues for report purposes.)

Explain who is responsible for monitoring and recording volume and quality of production (physical audit) and describe any outsourcing of this function.

(3) Review of major developments in natural resource revenue administration.

For example, "We centralized all natural resource revenue administration in the tax department, implemented self-assessment, incorporated streamlined natural resource procedures in a tax procedure code and automated them, published an natural resource tax manual, developed an natural resource revenue administration website, implemented an natural resource taxpayer service program, and became compliant with the Extractive Industries Transparency Initiative (EITI)" (busy year).

(4) Active registered natural resource taxpayers.

(Define natural resource taxpayers: assumed to be all taxpayers engaged in natural resource upstream operations.)

| Companies | Large taxpayer office (LTO) | Non-LTO |
|---|---|---|
| - Registered at start | | |
| - New registrants | | |
| - No longer active | | |
| - Registered at end | | |
| Individuals | | |
| - As above | | |

Explain departmental allocation of responsibilities for natural resource tax administration, including segmentation by size and industry and segmentation criteria.

Explain any registration key performance indicators (KPIs). Provide data required to show performance against KPI target.

| (5) Filing by natural resource taxpayers | Year *X* | Previous year comparatives |
|---|---|---|
| Returns expected | | |
| Returns filed on time | | |
| Returns filed late | | |
| Total returns filed | | |
| Returns not yet filed | | |

Explain natural resource return requirements and self-assessment principles. It is assumed here that all natural resource revenues are included in a single annual return, but if not explain which returns are required for various natural resource revenues and for what periods and give these details separately for each type of return.

Show data separately for the LTO and non-LTO.

Explain KPIs for return submission and processing. These could include percentage of returns filed on time (available from above figures, targets probably different for LTO and non-LTO) but could also include KPIs for processing (for example, speed and accuracy of processing or percentage electronically submitted) and return enforcement (for example, 100 percent imposition of penalties for late returns and issuance of tax authority assessment within two weeks of nonsubmission). Provide data required to measure performance against KPI targets.

(6) Assessment.

| Natural resource revenues assessed | Year *X* | | Previous year comparatives |
|---|---|---|---|
| | Year *X* self-assessments | Year *X* government assessments | Earlier years audit assessments |
| Corporate income tax | | | |
| Royalty | | | |
| Production share | | | |
| Resource rent tax | | | |
| Surface rentals | | | |
| Fees and bonuses | | | |
| Value-added tax | | | |
| Pay-as-you-earn tax | | | |
| Other withholding tax | | | |
| Other revenues (list) | | | |
| Interest on late payment | | | |
| Penalties | | | |
| Total | | | |

Revenues listed will depend on the nature of tax regime. These data can be reported only after submission of Year *X* returns. Explain currency of reporting and payment of natural resource revenues by natural resource companies and, where relevant, exchange rates used. Show data separately for LTO and non-LTO.

(7) Natural resource revenues collected during year *X*.

| | Year *X* | Previous year comparatives |
|---|---|---|
| Arrears at start | | |
| Year *X* revenues payable in year *X* | | |
| Previous year revenues payable in year *X* | | |
| Minus - repayments | | |
| - arrears at end | | |
| Total | | |

Show data separately for LTO and non-LTO. Explain rules for payment of natural resource revenues, including installment arrangements, and relationship between natural resource revenues assessed and natural resource revenues payable. Confirm that total revenues paid were reported for EITI (if applicable) and budget purposes and provide analysis of reported EITI figures. Give details of any natural resource revenues withheld to meet administration costs and of any natural resource revenues paid to subnational governments, not paid to the central budget.

Explain any KPIs. These might include percentage of timely submission of installment statements, and 100 percent issuance of penalty notices and issuance of government installment demand within two weeks of nonsubmission. Provide further data required to measure performance against KPI targets. Here and elsewhere, specifically identify any noncompliance by the natural resource company.

(8) Payment arrears.

Arrears should be controlled based on tax type, age, size, and collectability. If more than one department is collecting different revenues, it is important to exchange information and coordinate (or even integrate) enforcement collection actions.

| | Year *X* | Previous year comparatives |
|---|---|---|
| Value at start of year | | |
| New arrears arising during year | | |
| Arrears collected | | |
| Arrears written off | | |
| Arrears at end of year | | |

Analysis of arrears by age

- Less than twelve months overdue
- Twelve months or more overdue
- Total (to match arrears at end of year)

Show data separately for LTO and non-LTO.

Explain any outsourcing of arrears enforcement. Explain policy on arrears write-off and reasons for any exceptionally large write-offs. Explain KPIs. Provide further data required to measure performance against KPI targets.

(9) Audit

On hand at start of year
Taken up
Settled
On hand at end

| Settled | Number | Additional Assessments | Penalties/Interest | Amount collected |
|---|---|---|---|---|
| Comprehensive | | | | |
| Issue-oriented | | | | |
| Desk audits | | | | |

Also include previous year comparatives. Show data separately for LTO and non-LTO.

Explain audit strategy and coverage. Explain any outsourcing of audit function. Explain and discuss significant findings on settled audits. Explain audit KPIs and provide relevant performance data.

(9) Objections and appeals.

| Objections | Number | Value |
|---|---|---|
| - On hand at start of year *X* | | |
| - Received in year | | |
| - Settled in year (revenue in dispute) | | |
| (revenue determined) | | |
| - On hand at end of year | | |
| Appeals | | |
| - As for objections | | |

Explain payment consequences of appeals and objections. Explain objection and appeal arrangements, including any arrangements for international arbitration. Explain any outsourcing of legal advice and representation. Explain any significant legal issues resolved. Explain KPIs for objections and appeals and provide relevant data to show performance.

(10) Taxpayer service.

Details of taxpayer service activities and monitoring of natural resource taxpayer satisfaction data. Explain KPIs and provide performance measurement data.

(11) Natural resource tax expenditures.

List, quantify, and explain natural resource tax expenditures.

(12) Natural resource production.

Volume and value for tax purposes of natural resource produced in year *X* analyzed by type of natural resource and reference prices used for valuation.

Explain system of measuring volume and quality of production and method of valuation, including determination of reference prices.

(13) Production share comparison of value and net proceeds.

Market value of government production share (per 6 above)
Actual proceeds received from the natural resource company
Difference (natural resource company marketing costs)

(14) Number of staff engaged in natural resource revenue administration.

| | Corporate overhead | Account management | Audit enforcement |
|---|---|---|---|
| Average number in year | | | |

Show data separately for LTO and non-LTO.

(15) Cost of natural resource revenue administration.

| | Year *X* | Previous year comparatives |
|---|---|---|
| Total annual expenditure | | |
| Total current expenditure | | |
| - Staff | | |
| - Other operating costs | | |
| Total capital expenditure | | |

*Note:* Customs data should also be reported where relevant (not included in this illustration).

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