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Managing Mineral Resources: From Curse to Blessing

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Attempts to explain the relationship between a country's natural resource endowments and its economic performance have generated a significant body of literature highlighting the risk that resource abundance may not only have an adverse impact on growth but may also, in many cases, contribute to corruption and social unrest. The so-called resource curse is not inevitable, however. While there are many examples of poor management of resource wealth, a range of countries (including Botswana, Canada, Chile, Malaysia, and Norway) appear to have avoided the resource curse through prudent and transparent resource management practices. Thus, the key question for a large number of countries is how they can turn their abundant resources into a blessing, rather than a curse, using them to set off a virtuous cycle of economic growth, development, and poverty reduction.

The extraction of mineral resources in large international projects—megaprojects—plays a dominant role in the economies of many developing countries, as a source both of export earnings and, to a lesser extent, of infrastructure development. But the most important impact of mineral extraction may be fiscal, the taxation of mining projects being a major source of government revenue. To ensure that the state receives an appropriate share of the economic rent from these projects, fiscal regimes must be well designed, with special care given to balancing the desire to maximize short-term revenue against any deterrent effects this may have on investment.

Mozambique is a resource-rich country that has so far avoided the resource curse, but significant resource-related fiscal revenues have yet to be generated. The country changed its economic regime in the 1990s, shifting from socialism to market-oriented policies. Accordingly, it has revised its fiscal regime from one that was inward-looking to one designed to attract foreign direct investment. In this regard, Mozambique can be seen as a success story. However, the future of its extractive industries' contribution to growth and poverty alleviation will crucially depend on the adoption of a comprehensive, uniform fiscal regime and a transparent policy framework that will allow Mozambique to avoid the curse and reap the benefits of its resource wealth. Recently adopted tax legislation and steps to improve revenue transparency seem to indicate that the country is moving in the right direction.

In the next section we review the literature on the resource curse, after which we analyze the main fiscal policy elements needed to turn the curse into a blessing. We then look at Mozambique's progress through different phases, including the reforms in 2007, in creating a virtuous cycle, and in the last section we draw lessons for other developing countries.

Literature Survey

Common sense would indicate that large revenues from mineral resources should, in principle, be an engine of growth, generate wealth, and, ultimately, alleviate poverty. We would expect this to be particularly true for developing countries rich in mineral resources. Yet much of the economic literature has focused on the possibility that these resources might be the cause of the developing countries' poor macroeconomic performance and are thus a curse, not a blessing. Some authors have even suggested that countries would be better off avoiding export-oriented extractive industries altogether (Ross, 2001). Moreover, empirical studies have shown that resource-rich countries have performed worse in terms of growth and poverty reduction than countries without these endowments. While most of this strand of literature has focused on the negative impacts of mineral resources, some work has been done on what a country needs to do to get things right (Gocht, Zantop, and Eggert, 1988; Gelb and Associates, 1988; and Tilton, 1992).

The theory that the production and export of minerals could hobble growth originated in the field of development economics in the early 1950s, in studies focused on the deterioration of the terms of trade (Prebisch, 1950). The literature from this period predicted that declining revenues

would result in declining imports of capital goods, thus constraining investment. In addition, there would be fewer backward and forward linkages between primary exports and the rest of the economy (a concept developed by Hirschman, 1958) than between exports of manufactured goods and the economy.

With the first oil shock of the 1970s, attention shifted to oil-exporting countries, generating a body of literature concerned with the “Dutch disease” effect of oil, gas, and mineral resources. The term “Dutch disease” was coined in the 1960s in connection with the harmful impact on the Dutch economy of the huge increase in the Netherlands’ wealth after the discovery of large natural gas deposits in the North Sea. As the Dutch guilder became stronger in real terms, the country’s non-oil exports became less competitive, and the non-mineral tradable manufactures sector contracted. The ultimate result was deindustrialization.

Over time, the use of the term has broadened to encompass all poor macroeconomic performance related to the resource curse. Much of the empirical work in this area has found evidence of a negative relationship between growth rates and natural resource abundance. A much-quoted empirical study by Sachs and Warner (1997) found that over a 20-year period (1970–90) a sample of 95 resource-abundant developing countries had slower growth than resource-scarce developing countries. The authors did not offer any single explanation for this phenomenon, nor did they suggest any specific policies that countries could follow to avoid the resource curse. In general, much of the criticism of this empirical work has focused on the methodological approach or the period chosen rather than on the authors’ conclusions.

Some studies have focused on the definition of natural resource abundance. For instance, Stijns (2005) found that the Sachs-Warner result is not robust “to changes in the measure of natural-resource abundance from trade-flows to reserves or production” and that natural resource abundance has not been a significant structural determinant of economic growth.

Some of the empirical work has focused on mineral-exporting countries. For instance, Auty and Mikesell (1998) compared the economic performances of mineral-exporting countries with those of other developing countries with different natural resource endowments and found that the first group underperformed, compared with the second, especially the resource-scarce developing countries. However, they also noted that underperformance was not inevitable but could be avoided if countries implemented the right macroeconomic policies.

One of the macroeconomic explanations for the resource curse has focused on revenue volatility. For instance, Auty and Mikesell (1998)

noted that minerals are “more subject to world price fluctuations than are manufactures or services.” The volatility is greater in “mineral-led economies” where the largest share of government revenues is derived from mineral taxation. This volatility, in turn, makes it difficult for governments to pursue a prudent fiscal policy. Too often, windfalls are consumed rather than invested during export booms and, because of political pressure, governments maintain expenditures at the same level during downturns, resulting in deficit spending and increased indebtedness.

The nature of the mining sector has also been analyzed. Often it has been argued that large-scale mining is an enclave activity, where the extraction of minerals requires large, durable, location-specific investments. For megaprojects, inputs are usually imported, very little value added is produced domestically, and much of the ore or concentrate is exported. In addition, modern large-scale mining operations have a high capital-to-labor ratio and, initially, even the few skilled workers employed come from abroad. Further, there are very few positive externalities to forward and backward industries (Hirschman, 1958; and United Nations Economic and Social Council, 1998), and learning by doing is not as important as in manufacturing. The main benefits the country gets from megaprojects usually come through the fiscal linkage and the emplacement of infrastructure. In contrast to megaprojects, smaller-scale mining, such as in the quarry sector, can have substantial linkages to the economy but limited impact on macroeconomic indicators.

Large revenue inflows from extractive industries may encourage rent-seeking and corruption in the ruling elite. Considerable resources may be devoted to obtaining control of these rents, which, in the end, will lower income and welfare while leading to distortionary economic policies (Torvik, 2002). Sala-i-Martin and Subramanian (2003) found that “oil and mineral resources in particular exert a negative and nonlinear impact on growth via their deleterious impact on institutional quality.” The policy implication is that revenues should be distributed directly to citizens. More recently, Hodler (2006) found that the positive income aspect of natural resource endowment holds only in homogeneous countries, not in fractionalized ones.

In general, much of the resource-curse literature has focused on problems rather than on solutions and does not explain differences in outcomes between countries that have suffered from the resource curse and ones that have not. Apart from some extreme views (Ross, 2001), it has been recognized that some developing countries have benefited from their mineral endowment while others have not. As a result, as noted by Davis and Tilton (2005), “one uniform policy toward all mining in the developing

world is not desirable.” For them the right public policy question is “not should we or should we not promote mining in the developing countries, but rather where should we encourage it and how can we ensure that it contributes as much as possible to economic development and poverty alleviation” (see also International Council on Mining and Metals (ICMM), 2006). Stijns (2005) also noted that “the story behind the effect of natural resources on economic growth is a complex one that typical growth regressions do not capture well.” Finally, it appears that there is no single reason certain countries manage to turn their endowment into a blessing instead of a curse.

Although there is no consensus on the reasons behind the few successes, agreement has emerged on the importance of transparent and prudent management of tax revenues from mining projects and of public understanding of the policies and framework adopted by the government. Recently, a case study of some success stories (Botswana, Chile) confirmed that mining may affect national poverty levels primarily through fiscal and consumption linkages (ICMM, 2006), especially in developing countries where economic linkages and the impact on employment may be limited both because of capacity constraints and because of the capital-intensive nature of mining projects. A few governments have prudently saved and invested surplus revenues during booms, setting up stabilization funds that allow them to smooth spending and continue funding social programs and investment needs during downturns.

From Curse to Virtuous Cycle

At the national level, mining can contribute to poverty reduction indirectly, by providing the government with revenue, provided that government policies ensure the sound use of revenues for poverty alleviation programs and that these programs are efficient. The design of a comprehensive fiscal regime for the mining sector is crucial so that the state, which is usually the resource owner, can receive the appropriate share of the economic rents generated by the sector. In addition, prudent and transparent management of resource revenues is needed to ensure fiscal sustainability.

General Principles for a Mineral Sector Fiscal Regime

Mining is a global activity, and international investors have many countries to choose from. As a result, a country’s fiscal regime for minerals

Table 8.1. Ranking of Investment Criteria at the Exploration/Mining Investment Stage

Ranking		Decision criteria
Exploration stage	Mining stage	
1	n.a.	Geological potential for target mineral
2	3	Measure of profitability
3	1	Security of tenure
4	2	Ability to repatriate profits
5	9	Consistency and constancy of mineral policies
6	7	Company has management control
7	11	Mineral ownership
8	6	Realistic foreign exchange regulations
9	4	Stability of exploration/mining terms
10	5	Ability to predetermine tax liability
11	8	Ability to predetermine environmental obligations
12	10	Stability of fiscal regime
13	12	Ability to raise external financing
14	16	Long-term national stability
15	17	Established mineral titles system
16	n.a.	Ability to apply geological assessment techniques
17	13	Method and level of tax levies
18	15	Import-export policies
19	18	Majority equity ownership held by company
20	21	Right to transfer ownership
21	20	Internal (armed) conflicts
22	14	Permitted external accounts
23	19	Modern mineral legislation

Source: Otto (1992).

cannot be too far out of line with the regimes of countries with competing deposits. Generally, nations with prospective geology, reasonable and stable tax terms, acceptable legislation, and political stability have brighter prospects for long-term mineral sector development than those that fail to meet one or more of these criteria, each of which will be considered by companies analyzing long-term investment decisions (see Table 8.1). If political risk is high, a country can make itself more attractive to investors by strengthening macroeconomic and fiscal stability. Governments can take actions to minimize risk, which, in turn will reduce the supply price of investment and increase the amount of economic rent that can be taxed without discouraging investment.

As shown in Table 8.1, in a survey undertaken by the United Nations the fiscal regime is one key criterion that investors take into account. Of investors' top 10 criteria, all but one—geological potential—are in some way related to, or affected by, the regulatory system. Of the top 20, four are related to taxation: measure of profitability, ability to predetermine tax liability, stability of the fiscal regime, and method and level of tax levies.

International best practice has tended to favor comprehensive fiscal regimes that are largely embodied in general tax laws, that take features specific to mining into account, and that are comprehensively set out in government policy statements. In principle, policies underlying such regimes should be stated openly to the public, and the tax treatment of the mining industry should be subject to normal budgetary and public scrutiny. The overriding transparency objective should be to move toward a clear definition of the fiscal regime and reduce discretionary options.

In practice, a wide spectrum of regimes are in place because the mining sector is considered unique as a high-risk and, depending on commodity price cycles, occasionally a high- or no-return sector, and special tax treatments are often devised. The result is frequently a complex fiscal regime and—especially in Africa—great scope for discretionary arrangements set up on a case-by-case basis. The farther the tax system governing the mining sector is from the general tax laws, the greater the degree of discrimination. Such discrimination can be (1) by sector—for example, all mines being subject to a tax not imposed on other types of activities; (2) by subsector—for example, a special incentive for gravel mines producing less than 1 million tons a year; or (3) project-based, such as an individual mine operating under a negotiated tax agreement. The extent to which mines are taxed specially will depend on the government’s desire to provide tax uniformity or to take into account special attributes.

Uniqueness of the Mining Sector

The justification often given for setting up a different fiscal regime for the mining sector is the special role played by economic rent—the difference between the existing market price for a commodity and the opportunity cost of engaging in supply—in this sector. Economic rent appears as a surplus that is not required to motivate desired economic behavior and that could therefore be taxed without altering resource allocation, while the opportunity cost consists of all necessary costs of production, including an *ex ante* minimum return to capital required to induce investment. The return on investment should cover the cost of exploration, development, and production; the cost of capital; and a risk premium for both sovereign and project risks.

In theory, a fiscal system with rent as the tax base will come closest to tax neutrality. Because a resource rent tax appropriates only returns in excess of the producer’s opportunity cost of capital, it does not distort investment and can be considered superior to other fiscal instruments, such as royalties. In principle, governments can tax rent without affecting

the input of effort and sacrifice. In practice, however, no nation taxes mineral producers based solely on rent, whose value is difficult to determine. Most governments lack the ability to measure and audit it. The trade-off for governments is to establish a fiscal regime that captures a fair share of resource rent through traditional types of taxes and methods without driving away potential investors. At present, countries vary widely in the degree to which they utilize taxes to appropriate rent. In a number of countries, the taxation of petroleum is more oriented toward capturing rents than is the taxation of mines. This is particularly true of many production-sharing agreements in which the concept of “cost oil” and “profit oil” help identify and distribute rent to stakeholders.

What distinguishes mineral extraction projects from other types of projects is the high degree of uncertainty regarding investment outcomes, particularly in view of the large amount of capital involved (see Box 8.1).

Specificities of Mineral Fiscal Regimes

Maximizing short-term versus long-term fiscal revenues

A fundamental fiscal policy question for governments is whether the primary tax objective is to maximize the fiscal take in the short term or to grow the tax base through increased investment in the long term (see Box 8.2). If the goal is short-term maximization, the system needs a high effective tax rate (EFT)—the share of the present value of all taxes and fees paid by the mine divided by the present value of pretax net cash flow. If the EFT is high, individual mines pay more, but in the long run there will be fewer mines, thus fewer taxpayers, a smaller tax base, and a smaller contribution to the treasury. If a nation has untapped and largely unexplored minerals potential, a policy that emphasizes attracting new investors that will discover and build more taxpaying mines is clearly a better strategic choice. This concept is illustrated in Figure 8.1. If the EFT is too low, the government will needlessly forgo fiscal revenues. If it is too high, the tax base will not grow over time and revenues will be forgone (companies will not come, explore, and discover more mines). Good tax policy will strive to set the effective tax rate at T^* , where an optimal balance is found. For most nations, the optimal EFT for mines is usually between 40 and 50 percent. The EFT for petroleum projects ranges widely but is often much higher than for mining.

Recent experience suggests that the effective tax rate—the combined impact of taxes and fees—in the mining sector (other than diamonds) is unlikely to go above 50–60 percent, and that the EFT is 40–50 percent in countries actively seeking exploration and development.

Box 8.1. Characteristics Unique to the Mining Sector

The following attributes distinguish mining enterprises from other types of projects:

- There is a lengthy period of exploration during which there is high risk and no revenue.
- The amount of capital required during the development and construction phase is lumpy and proportionately larger than in most other businesses.
- Once the mine is built, the capital is captive and not transportable.
- Equipment tends to be specialized and available from only a few manufacturers worldwide, and must be imported.
- Mines may have long lives and be subject to regime changes and policy instability.
- Revenues are cyclical as commodity prices, determined by global markets, move up and down, more so than is experienced by most other businesses.
- The scale of operations can be very small or very large.
- Large costs are incurred at the time the project closes and reclamation is completed.
- Substantial costs unrelated to production may be incurred, such as investment in community infrastructure or programs.

State equity participation

Today, most governments do not take an equity interest in mining projects. Such an interest is viewed very negatively by almost all mineral sector investors. And, from a purely financial perspective, taking a stake in mining projects is risky, since governments cannot know if they are making a good investment. Taxation is more likely to maximize government revenue flows than an equity interest, given that future dividends may never be paid. In addition, potential governance issues could arise when the government is acting both as a shareholder and as a regulator. As a result, improvements in mining tax systems have prompted governments to focus on risk-free tax measures rather than on risk-prone equity as the primary means of reaping financial benefits.

There are many different ways governments can take an equity stake in mining projects, but the three that have dominated over the past two decades are paid (working) interest; free interest equity; and, more rarely, carried interest equity (government free equity requirements are very rare today). Of the three, a free equity share more closely resembles a tax than

Box 8.2. Mineral Fiscal Regimes—Common Features

Optimal fiscal regimes can be achieved through different tax combinations. The specific design of a regime has an impact on project profitability and risk sharing and, therefore, the impact on the government and investors must be carefully assessed. Mineral fiscal regimes vary greatly across countries but they do share common features.

Direct taxes

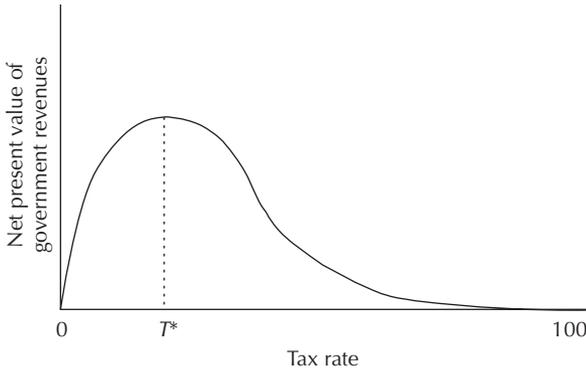
- Normal corporate income tax (25–35 percent), but with the valuation basis calculated taking into account special features of the mineral sector, such as its capital intensity. Most nations allow capital assets to be depreciated on an accelerated basis. Thin capitalization rules are often imposed to cap debt interest deductions. Tax holidays, a feature of mineral sector fiscal systems several decades ago, have fallen into disfavor and are now rare.
- Moderate withholding taxes on dividends and interest payments (10–20 percent). For a foreign-owned profitable mine, withholding tax will be one of the three largest taxes paid, along with income tax and royalty. Withholding tax, when required to be paid by the mineral project, is deductible in many mineral-producing nations.
- Tax accounts are usually not ring-fenced project by project, unless a project is subject to a negotiated agreement that includes fiscal terms.

Indirect taxes

- Royalties of about 2 to 3 percent for metals, imposed on the sales value. While some nations use a netback value as the royalty basis, this introduces administrative challenges because verification and auditing of deductible costs is beyond the capacity of tax authorities in most developing nations. Likewise, care is taken to avoid transfer-pricing situations where less than the full value of the product sold is reported for royalty and tax purposes. This is particularly relevant where sales are to affiliates, or to processors in duty-free zones.
- Mineral projects are usually exempted from paying import and export duties on goods, or such duties are zero-rated or low.
- Value-added taxes on inputs and sales are often not imposed or benefit from crediting or refund schemes that negate their impact.

a return on government capital. If a government takes an equity stake and pays for it through a working interest, the opportunity cost can be substantial. State revenues invested in the mine will be diverted from other

Figure 8.1. Optimal Effective Tax Rate
(In percent)



Source: Otto and others (2006).

possible uses and put at risk. Not all mines are successful; some fail or do not generate sufficient profits to justify a distribution to shareholders. The primary motivation for state participation is often a government's desire to demonstrate ownership and control rather than to maximize revenues. Ideally, government involvement in the sector through equity participation should be fully disclosed to the public and the implications clearly stated. In practice, particularly in Africa, many agreements that establish state participation in mining projects are confidential.

Nontax fiscal benefits of mineral projects

It is important to recognize that mineral titleholders contribute more to the economy than just tax revenues: nonfiscal economic linkages can confer greater benefits on host countries than taxes. While some, perhaps most, of the sums spent on megaproject capital and operating costs may go to foreign entities, governments can greatly influence the amount spent inside the country. Because of an economic multiplier effect, this, in turn, can have an even larger impact than the actual revenues received and spent by the government. Statutory law or mining agreements may require that foreign companies invest in local communities, develop infrastructure (or pay user fees), hire a certain percentage of their workers locally, or buy power from a local company at a given rate. Distribution of revenues to local governments can also be embodied in law to avoid fractional conflict. In addition, companies can have separate contracts with the com-

munities affected by their projects or be required to set up programs with local suppliers for value addition.

At the local level, forward and backward linkages as well as job creation can contribute to economic development and poverty alleviation. Mining and processing companies can be encouraged or required to use local suppliers as well as public-private partnerships for the provision of infrastructure and inputs such as power and water. To maintain competitiveness, such programs need to be based on the ability of local enterprises to provide goods and services under competitive conditions. It is increasingly common for countries to require, either by law or by agreement, a local sourcing effort. Even though such linkages are encouraged, in many countries linkage requirements have been difficult to implement.

For instance, a cornerstone of Botswana's mineral policy and a key element in the country's economic development has been to avoid an enclave situation and to plan infrastructure that promotes regional linkages and broader development. The development of mine-related infrastructure has provided the country not only with the capacity to accommodate other industries but has also been a source of revenue for the water and power companies, as is illustrated by the Selbi-Pikwe nickel-copper mine project. The mine turned out to be subeconomic and rarely paid any tax, including royalties (royalties were assessed on operating profits rather than on sales). However, even though the mine added little to the national treasury, it has been a substantial springboard for development, paying for critical parts of the national infrastructure through user fees, which often exceeded the income from royalties and fees. Chile has also developed strong linkages between the copper mining industry and the local economy.

Model mining agreements and stability clauses

Investors in megaprojects want assurances that they will not be subject to changes in the fiscal regime that could be detrimental to them, in particular when taking into account the sunk costs of their up-front investment. They may therefore seek an agreement with stability clauses that freeze the tax system as of the date the agreement is signed. However, mining agreements between the state and the mineral companies are not always needed when a complete and historically stable mineral sector statutory system is in place. While some nations negotiate each megaproject agreement on an ad hoc basis, other nations negotiate based on a model agreement. Model agreements do not have to supersede statutory law but, rather, can complement and supplement it. Many developing countries provide a form of stabilization, and a model agreement can be a useful way in which to document the fiscal system being stabilized. Care should be

taken in such an agreement to avoid stabilization of the entire fiscal system and to stabilize only discrete taxes and rates. In any case, stability clauses should be disclosed to the public along with their potential implications. As a country's legal and fiscal systems develop and stabilize, the need for special agreements lessens.

Institutional strengthening

Large mining companies generally have experts on staff with specialized knowledge of the industry as well as training or experience in negotiation strategies, techniques, and approaches. In contrast, many developing nations do not have officers trained and skilled in megaproject negotiations and may lack the resources or the political will to bring in outside experts. Government negotiators who are well trained or assisted by experts would be better able to maximize nontax benefits, minimize tax losses, and understand which terms should be negotiated and which should be rigidly defined in a model agreement or left to statutory law. Project financial (fiscal) analysis is a key part of project negotiations unless tax terms are not open to negotiation. Without a financial (fiscal) model for understanding the magnitude of the taxes forgone or secured, policymakers may make mistakes. A financial model typically comprises spreadsheets that estimate all cash flows for the project, including revenues and all costs. It incorporates the principal taxes, fees, and other payments to government as well as tax deductions, credits, and other incentives. Such models can be used to understand the implications of each tax type and incentive individually for both government and investor cash flows as well as determine whether the overall tax take is reasonable. Fiscal models are also useful for revenue forecasting. For example, in Botswana:

the negotiation of agreements by the government has been done after a major discovery is known and after the government has been able to build a financial model of the planned mining development. Government analysis includes an estimation of the internal rate of return to the investor in both current and constant terms and also estimates the government's net present value of revenues for different fiscal regimes. The government places considerable importance on having effective representation on the board of directors of major mining companies and has generally placed professionals, not figureheads, on the boards to represent its interests. Representatives appointed by the government are senior civil servants. Financial, legal, and technical experts are included on the team that advises government directors prior to, and where necessary, during each mining company board meeting. Government officials have not played a "rubber stamp" role on important issues and

have thus succeeded in influencing board decisions on issues that are important to the government.¹

By the same token, Chile put a strong institutional framework in place to prevent capture of economic policy by special interest groups and to strengthen the governance and transparency of the mining sector.

Revenue transparency and management

It has been mentioned above that revenue and expenditure transparency can play a role in avoiding the resource curse. Some resource-rich nations have chosen not to negotiate fiscal terms but instead to rely on general laws; others make negotiated terms open to public scrutiny. However, some nations still keep negotiated terms secret, and most governments do not provide a direct link between revenues derived from megaprojects and expenditure. This may change in the near future. The Extractive Industries Transparency Initiative (EITI) is aimed directly at defeating the resource curse by improving transparency and accountability in resource-rich countries through the full publication and verification of company payments and government revenues from the oil, gas, and mining sectors. Implementing EITI as part of a program of improved governance can help ensure that revenues from extractive industries contribute to sustainable development and poverty reduction by holding decision makers accountable for the use of those revenues.

The following principles guarantee the transparency of revenue flows to the government and can contribute to improved governance in public financial management:

- Regular reporting, in an agreed format, of all payments by companies (including state-owned enterprises) to all levels of government and of all revenues received at all levels of government;
- Independent audits, applying international auditing standards, of payments and revenues; reconciliation of any discrepancies by an independent administrator; and public dissemination of this information on a regular and consistent basis;
- Engagement of civil society in monitoring the process and ex post independent external validation to enhance credibility.

However, the mining sector's contribution to sustainable development is an even bigger issue than revenue transparency. The advantage of the EITI is the simplicity of its approach. It can be a good starting point for a country seeking to improve the transparency of revenue flows from the

¹Johnson (1981, p. 353).

sector, increase the potential to defeat the curse, and make sustainable development a priority. In that regard, revenue transparency should also be linked to how and where revenues are used. If the issue of revenue transparency is not linked to the broader objective of using the funds derived from mining to promote sustainable development in a particular area or country, then transparency is not particularly useful to the mining industry. Consequently, priority should also be given to establishing clear policies for the use of resource revenues. Many nations now dedicate a portion of mineral revenues to special uses (for example, the development funds established by Ghana and Namibia), or for distribution to local governments or communities affected by the projects (for example, Brazil, Indonesia, Mozambique, Papua New Guinea, Peru, and the Philippines). The disbursement of earmarked mineral revenues can be a challenge for governments. While it works well in some countries, such as Brazil, other countries, such as Peru and Indonesia, have encountered operational difficulties. Clear fiscal rules associated with revenue stabilization and expenditure based on mining revenues, and transparency in the use of mineral rents—in particular, disclosure to the public—have helped Chile avoid governance issues.

Mineral Resource Development and Megaprojects in Mozambique

Most of Mozambique's abundant natural resources are untapped, and the country has a favorable geology for exploration and mining activities. It has world-class deposits of minerals, sands, and coal as well as other identified resources, including bauxite, bentonite, beryl, brick clay, diatomite, gold, granite, graphite, kaolin, limestone, marble, nickel, semi-precious stones (amethyst, aquamarine, emerald, garnet, rose quartz, tourmaline), tantalite, tin, uranium, natural gas, and oil. There is substantial undeveloped hydropower potential in addition to the existing Cahora Bassa Dam, which produces most of Mozambique's electricity. Moreover, the country benefits from a good geographical location and is well served by major rivers and several deep sea ports.

Since independence, Mozambique has gone through two phases, and is about to enter a third phase, with respect to its strategy for investment in the mineral sector. The first phase, from 1979 to 1985, focused on state ownership of mines in line with the socialist political regime at the time, resulting in declining production and low investment. The second phase, from 1986 to 2006, aimed at private ownership with generous fiscal exemptions. After years of isolation from the rest of the world, Mozambique's main goal during this phase was to attract foreign investment through case-by-case negotia-

tion of fiscal terms. Initially, this led to a complex and opaque fiscal regime with considerable discretion. In 2002, Mozambique enacted a series of new laws aimed at simplifying and rationalizing the tax code. Mozambique was indeed successful, judging by the volume of foreign investment it was able to attract in a relatively short time. The trade-off, however, has been negligible or low tax revenue generation. This situation will change during the third phase, following the enactment of the new mining fiscal regime in 2007 and the development of a new model mining agreement, as the country adopts a comprehensive fiscal regime similar to that of other mineral-producing countries and encourages private ownership of mines.

Aside from the extraction of gas and the processing of imported alumina, mineral production is presently at a low level but is expected to increase rapidly as projects in the feasibility and development phase commence production. These projects will exploit deposits that have been known for decades, but the high level of current exploration bodes well for the discovery of new resources.

State Ownership and the Socialist Experience, 1979–85

After independence Mozambique had a government with Marxist leanings, which nationalized most of the privately held mines. Between 1979 and 1985, the production of most minerals declined (see Table 8.2). This was attributable to the deterioration of both the security situation and other operating conditions.

The state enterprises attempted to operate but faced increasingly difficult structural issues, including a highly regulated, centrally planned economy with little scope for planning at the enterprise level, little or no reward for entrepreneurship, and a low priority on profitability; an overvalued currency that discouraged exports and reduced export earnings; foreign exchange reserves that were insufficient for purchasing the equipment and spares necessary not only for expansion and modernization but even for maintenance of capacity; and an inflexible labor and wage system that set wages and levels of employment and did not reward efficiency.

From independence to 1983, two-thirds of the country was systematically investigated and geological, geophysical, and geochemical maps became available. During the mid-1980s the ministry responsible for mines, which was cut off from most field operations by the country's civil war, began targeted marketing and published and distributed a number of specialized reports with the intention of attracting investors from specific countries, such as Japan and the United States. Given the security situation at the time, the marketing effort was unsuccessful. The devastating

Table 8.2. Production of Mineral Commodities, 1973–85*(Metric tons unless otherwise specified)*

	1973	1975	1977	1979	1981	1983	1985
Asbestos	150	191	0	789	1,424	0	55
Bentonite	2,990	1,400	2,643	1,657	716	1,455	361
Coal	394,000	575,000	288,000	320,000	535,000	59,000	20,000
Coking	216,000	316,000	178,000	105,000	167,000	30,000	n.a.
Steam	178,000	259,000	147,000	95,000	163,000	28,000	n.a.
Copper ¹	3,175	3,224	0	1,125	880	1,189	590
Feldspar	830	0	815	585	775	696	67
Garnets							
Gem	4	2	2	1	2	1	1
Waste	7	7	6	8	11	10	7
Kaolin	100	119	201	139	297	292	152
Marble (m ³)	368	0	0	304	167	406	714
Mica, waste	280	900	432	101	300	309	n.a.
Microlite	54	51	41	35	49	23	6
Stone (m ³)	200	197	200	192	579	417	n.a.
Tantalite ²	30	51	38	24	34	22	4
Ta ² O ⁵	33	40	32	29	46	21	n.a.

Source: Jordan (1986).

¹Concentrate, 20 percent Cu.²Concentrate.

civil war that began in earnest in 1981 resulted in a collapse of production and the destruction of physical infrastructure.

Attracting Foreign Direct Investment and Shifting to Private Ownership, 1986–2006

After the civil war, Mozambique attempted to attract investment by granting generous tax benefits to compensate investors on an ad hoc basis for the risks arising from the high degree of uncertainty resulting from years of central planning, state ownership, and civil war. Then, as Mozambique became a new player in southern Africa, the country progressively improved its fiscal regime in line with that of countries with competing mineral and gas deposits. Significant progress was achieved in simplifying and modernizing the tax system. In particular, investment tax incentives, which were previously provided through a plethora of different laws and regulations and other means, were rationalized in 2002 with the adoption of a comprehensive Code of Tax Benefits for Investment and the Corporate Income Tax code (IRPC).²

²Decree 16/2002. For a comprehensive description of the changes in the fiscal regime, see International Monetary Fund, "Tax and Customs Reforms in Mozambique: An Overview,"

In 1987 the government embarked on a comprehensive and well-sequenced set of reforms to create a socioeconomic environment that would open the country to foreign direct investment (FDI) and promote the development of the private sector. A strong motivation in attracting FDI was to put Mozambique back on the map and showcase the country to other potential investors in the hope of significantly accelerating economic growth. Of critical importance to potential investors was the decision by the ruling party, Front for the Liberation of Mozambique (FRELIMO), to formally abandon Marxism in 1989 and embrace the role of the private sector. The new constitution adopted in 1990 provided for multiparty elections and a free market economy.³

In line with this strategy, the government considered that foreign investors would bring not only capital but also knowledge and would contribute to learning by doing as the country recovered from the civil war, which had isolated it from the rest of the world. In addition, the government believed that megaprojects would develop backward and forward linkages as well as positive labor externalities, creating jobs for the local labor force. However, until the civil war ended in 1989, the mineral sector remained unattractive to investors.

The government adopted its first mining law in 1986.⁴ The licensing authority was granted the power to enter into exploration and mining agreements that could supplement, but not conflict with, the mining law. The mining law was mainly a framework that provided basic licensing rights and assorted fiscal incentives; the intent was that details would be negotiated case by case. The law provided the state with the option of reserving areas for operation only by state enterprises or ventures with state participation.

In 1993 a new Investment Act was passed, and in 1997 the Investment Promotion Center (CPI) was created with the mandate of promoting and facilitating national and foreign investment in Mozambique. With the assistance of the Commonwealth Secretariat during 1992–94, a model contract and general fiscal system for mining were proposed but never implemented. In 1999 legislation on industrial free zones (IFZs) was adopted. A tax benefit code was approved that remained in effect with few changes until 2002.

in *Mozambique: Selected Issues and Statistical Appendix*, IMF Country Report No. 05/311. Available via the Internet: www.imf.org/external/pubs/cat/longres.cfm?sk=18529.0

³United States Department of State, *Background Note: Mozambique*, <https://www.state.gov/r/pa/ei/bgn/7035.htm>, accessed May 14, 2007.

⁴Mining Law No. 2/86 of April 16, 1986.

The ministry responsible for mining commissioned a detailed mineral sector fiscal study (Otto, 2002), which provided the basis for detailed draft mineral sector tax regulations. The draft regulations were completed in 2002 and revised in 2004, but they were not promulgated. This created a challenge for Mozambique's government, as each major new investor sought to negotiate an agreement advantageous to its project with terms that were at least as favorable as those granted to prior investors. As a result, during this period fiscal systems were negotiated case by case within the context of mining agreements subject to general tax law and special incentives. These laws provided incentives unlike those in other mining nations and, lacking sufficient detail and protective provisions, led to some agreements that were arguably unbalanced in favor of investors—for example, agreements that allowed mining companies to sell mine output to affiliated processing companies located in free trade zones not subject to income tax. Under such agreements, sales between affiliates were specifically allowed to be valued at transfer prices resulting in low or no profits subject to income tax. Unfortunately, fiscal models were not available to guide policymakers in these negotiations.

Two major pieces of legislation were adopted in 2002: a new mining law⁵ and a new tax benefit code designed to attract foreign investment and which provided tax incentives to qualifying investors.⁶ Subsequently, in 2003 mining licensing regulations were promulgated.

The new mining law was well timed—it took effect just as a worldwide boom in mineral exploration was beginning. The law considerably improved governance in the sector with a nondiscretionary and transparent system for managing mining licenses and created the Mining Cadastre based on a “first come, first served” basis (see Table 8.3). As a result, it considerably reduced the discretionary power of the government and, by increasing transparency, improved security for potential investors. By 2006, Mozambique's known world-class deposits of mineral sands and coal were under license for mining development, and almost all geologically attractive ground was licensed for exploration (see Table 8.4).

Mozambique's main policy following its socialist phase was to establish an attractive socioeconomic environment favorable to the development of the domestic private sector and to foreign direct investment. One of the main vehicles for implementing this policy was the use of negotiated agreements and fiscal incentives. In contrast to some other mining

⁵Mining Law No. 14/2002 of 26 June 2002; and Mining Law Regulations, Decree No. 28/2003 of 17 June 2003.

⁶Fiscal Benefits Code, Decree No. 16/2002 of 27 June 2002.

Table 8.3. Number of Mining Titles by Type, 2002–07

	2002/03	2003/04	2004/05	2005/06	2006/07
Reconnaissance license	0	3	5	43	38
Exploration license	69	127	172	362	312
Mining license	25	19	30	22	18
Mining certificate	4	42	24	27	20

Source: Mozambique, Ministry of Mineral Resources.

countries—such as Indonesia, Papua New Guinea, and the Philippines—there was no application before 2007 of a uniform model mining agreement. An important purpose of a model agreement is to reduce, to the greatest extent possible, the number of clauses subject to negotiation so as to avoid case-by-case negotiations and derogations to the common law. Although such a model agreement was drafted by the government in 2000, individual agreements did not conform to it.

Special exemptions and tax reductions were negotiated for each project, and, as a result, the government will receive less in fiscal revenues from these projects than is typical in most other countries. Negotiations were hampered by the government's lack of capacity to use financial models to measure and understand the implications of fiscal incentives. The 2000 model mining agreement was originally envisaged as a means to supplement, not supersede, existing laws, including the mining law, but the final version of the 2002 mining law that emerged from parliament removed restrictions on subject matter, thus opening the way for the minister responsible for mines to exercise a great deal of control over the fiscal content of the agreements. Additionally, Mozambique's Council of Ministers had wide latitude with regard to mineral sector tax matters. All investors in large-scale mineral projects before 2007 (Mozal, Corridor Sands, Moma) negotiated agreements containing substantial fiscal incentives.

The 2002 tax benefit code consolidated in a single piece of legislation the rules on tax incentives that had been enacted by several different decrees as well as generic tax benefits and special regimes (see Box 8.3).⁷ The code was drafted when there was little or no foreign investment in Mozambique's mineral resources sector and risks were perceived by potential investors to be high. In addition, there was an expectation that fiscal regulations under the mining law, which were not yet promulgated, would

⁷Tax Benefits Code, Decree No. 16/2002.

Table 8.4. Production of Mineral Commodities, 2001–05*(Metric tons unless otherwise specified)*

	2001	2002	2003	2004	2005
Aluminum:					
Bauxite	8,592	9,119	11,793	6,723	9,518
Aluminum, refined	266,000	273,000	407,000	549,000	555,000
Coal, bituminous	27,600	43,512	36,742	16,525	3,417
Columbium (niobium) and tantalum, columbite-tantalite, ore and concentrate:					
Gross weight (<i>kilograms</i>)	27,000	46,900	188,695	712,095	281,212
Nb content ¹ (<i>kilograms</i>)	3,300	5,500	23,000	87,000	34,000
Ta content ¹ (<i>kilograms</i>)	7,700	13,000	54,000	205,000	81,000
Gold ² (<i>kilograms</i>)	22	17	63	56	63
Natural gas (<i>million cubic meters</i>)	1	2	1	1,295	2,316
Quartz (<i>kilograms</i>)	24,765	31,363	30,985	173,478	n.a.

Source: U.S. Geological Survey.

¹Estimated; estimated data are rounded to no more than three significant digits.²Does not include unreported production; total output of gold was estimated to be roughly 600 to 900 kilograms per year.

act as a stand-alone fiscal system for the mineral sector. Therefore, the tax benefit code did not cover mining fiscal issues comprehensively.

Under the tax benefits code, investment tax incentives could be granted, at the government's discretion, for specific schemes for large-scale projects, rapid development zones, mining projects, petroleum projects, and industrial free zones (IFZs). Investors could apply to the Minister of Planning and Finance for exceptional incentives, which could be granted under a contractual (mining agreement) regime by the Council of Ministers. Incentives are wide-ranging and include exemptions or reductions from most taxes on inputs (value-added tax (VAT), import duties, excise taxes); accelerated capital recovery; reduced income tax rates for defined periods; investment tax credits; special treatment for withholding taxes; and so forth.

To understand the current fiscal system with regard to megaprojects for which agreements were negotiated before 2007, it is critically important to consider the special fiscal treatment of projects that have IFZ status. These projects can be exempted from the VAT, excise duties, customs duties on capital goods, and real property transfer tax and benefit from a reduced corporate income tax rate (12.8 percent). In most countries, free trade zones are set up for a specific activity: the transformation of imported raw materials or intermediate goods into intermediate goods or finished products for export—for example, a garment factory in the tropics importing nylon cloth for the production of ski clothing for export. Countries see these zones, often mistakenly, as a means to foster employment or attract

seed investment. They are not typically intended or used to transform locally produced raw materials, such as output from direct mineral extraction, for domestic use or export.

There are three IFZs in Mozambique linked to megaprojects: Mozal, Moma, and Limpopo Corridor Sands. Mozal, like projects in free trade zones elsewhere in the world, imports raw material for transformation into a product that will be exported (imported alumina is transformed into exported aluminum). Moma and Corridor Sands are different. Both transform locally sourced raw materials for export, and it is likely that IFZ status for this use was not originally intended at the time the IFZ legislation was drafted. Beyond the IFZ exemptions listed above, for Mozal, a 1 percent substitute corporate income tax has been levied on net turnover. Deductions have also been granted for expenses related to staff training and improvement of infrastructure in the free zone.

In addition, taxation in these IFZs leaves open the possibility of abusive transfer pricing between the two stages of production—mining and processing. For example, in some of Mozambique’s mineral sands agreements, mine output can be sold to the processing affiliate that enjoys IFZ status. Oddly, the negotiated agreements do not bar transfer pricing as is common in most such agreements in other nations but instead embrace and specifically allow it. The expected outcome is that the profits of the mining affiliate may be minimal because it will sell its output at an artificially low price to its processing affiliate, and the latter will enjoy higher profits and a much lighter fiscal burden. Accordingly, with these incentives, net tax payments from the megaprojects are extremely low and are likely to remain so, since these zones were created for periods of between 20 and 50 years. Hence, the Mozambican authorities should not grant IFZ status to any mineral project in the future.

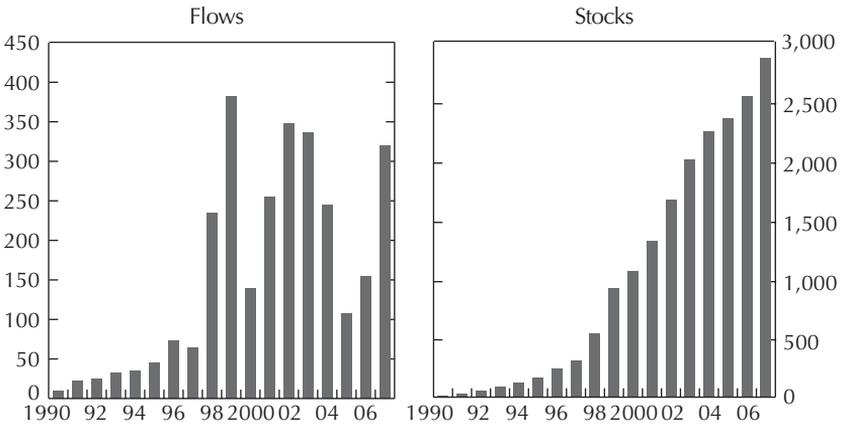
These agreements highlight the need for fiscal models to be used in mineral projects whenever discretionary fiscal incentives are being negotiated. Such models would have identified the magnitude of forgone fiscal revenues from the mineral sands projects. The development of large-scale extractive industries has been fairly recent in Mozambique and capacity building at the governmental level has been progressing slowly. In particular, in regard to negotiating the megaproject agreements, government officials had very little training and knowledge of the industry. This shortcoming impeded the ability of official negotiators to maximize nontax benefits, such as local community development obligations and forward and backward input and output linkages; minimize tax losses that could result from transfer pricing; and fully understand which terms should be negotiated and which ones should be rigidly defined in law or in a model

Box 8.3. Tax Benefits Code, Decree No. 16/2002

Type of tax benefit	Tax rate	Ceiling
Exemptions		
1. Import duties on Class K equipment goods.	0%	Up to 100% of the tax base
2. Value-added tax (VAT) on imports of Class K equipment goods.	0%	Up to 100% of the tax base
3. Stamp tax on formal acts related to the establishment of the mining company and to changes in its capital and Articles of Association during the first five years after investment or the start of operations.	0%	Up to 100% of the tax base
Reductions		
SISA tax on purchase of real estate for industrial, agroindustrial, or hotel use, provided real estate is acquired within three years of the date the investment is authorized or operations begin.	50%	
Deductions from income tax		
1. Investment tax credit (CFI) on total investment during the first five fiscal years.	5%	Up to 100% of the tax base
2. In Gaza, Sofala, Tete, and Zambézia provinces, a special CFI rate applies to the total investment made during the first five fiscal years.	10%	Up to 100% of the tax base
3. In Cabo Delgado, Inhambane, and Niassa provinces, a special CFI rate applies to the total investment made during the first five fiscal years.	15%	Up to 100% of the tax base
4. Deduction on sums invested in specialized equipment intended for modernization and introduction of new technologies during the first five years after the start of the investment or operations.	100%	Up to 15% of the tax base

5. Deduction on sums spent on vocational training for Mozambican workers during the first five years after investment or the start of operations.	100%	Up to 5% of the tax base
6. Deduction on the sums spent on vocational training in the use of equipment considered high-tech by Mozambican workers during the first five years after investment or the start of operations.	100%	Up to 10% of the tax base
Accelerated amortization and reinvestment in fixed assets		
Deduction of up to double the normal tax rate legally stipulated for calculation of the amortization of, and reinvestment in , new buildings used in authorized undertakings.		Up to 100% of the tax base
Fiscal costs		
1. Expenses related to the construction of works of public utility in Maputo during the first 10 years.	120%	Up to 100% of the tax base
2. Expenses related to the construction of works of public utility in other provinces during the first 10 years.	150%	Up to 100% of the tax base
3. Purchases of Mozambican art works.	50%	Up to 100% of the tax base
Source: Mozambican authorities.		

Figure 8.2. Mozambique: FDI Flows, 1990–2007
(In millions of U.S. dollars)



Source: UNCTAD, FDI/TNC database, Banco de Moçambique.

agreement. In addition, the capacity to undertake fiscal modeling in order to examine the fiscal impact of incentives on revenue generation has been lacking. The ministry responsible for mining did not employ a mineral economist during the period when the existing megaproject agreements were negotiated. The World Bank provided support under its Mineral Resources Management Capacity Building Project, and many of the technical departments, such as the Cadastre, have benefited greatly from this project, but capacity shortfalls remain a challenge.

The second-phase strategy certainly attracted foreign direct investment, which has been growing since 1998 (Figure 8.2). One of the early successes of Mozambique in attracting FDI was the development of the two main capital-intensive export-oriented megaprojects, Mozal and Sasol. Although other mineral megaprojects have since come into existence, Mozal and Sasol still dominate the sector.

Mozal. The first megaproject was the Mozal aluminum project, a joint venture led by the Australian–South African firm BHP Billiton, the sixth largest producer of primary aluminum.⁸ The project consists of a

⁸BHP-Billiton holds 48 percent of Mozal’s equity; Mitsubishi of Japan, 24 percent; South Africa’s Industrial Development Corporation, 24 percent; and the government of Mozambique, 4 percent.

smelter using alumina imported from western Australia as raw material. Construction started in 1998, was completed in 2000, and was followed by an expansion completed in 2002 that doubled its capacity. Total FDI comes to about US\$2 billion. The expansion raised Mozal's capacity to 549,000 tons, making it one of the largest aluminum plants in the world. BHP Billiton recently completed feasibility studies for the expansion of the Mozal smelter, which would increase its rated capacity by an additional 250,000 tons a year by 2009. However, final approval of the expansion project depends on the outcome of negotiations on long-term power supply contracts.

The impact of Mozal on the Mozambican economy cannot be understated. It positioned Mozambique as one of the top aluminum producers in the world. Mozal remains the most important megaproject in Mozambique by far, and it continues to dominate the country's macroeconomic statistics as the most important investment to date and the largest industrial concern. In 2004, aluminum represented 64 percent of Mozambique's total exports of goods, and aluminum accounted for 75 percent of total growth in the country's exports from 2000 to 2004.

Mozal has benefited from its preferential industrial free zone status. At the time it was conceived and built, after the end of the civil war, Mozal faced a high degree of uncertainty and sovereign (political) and project (commercial) risks. No project of that magnitude had been attracted to Mozambique for some time, and FDI was still very limited. Eager to establish a track record of FDI, the government offered generous fiscal benefits. In addition to extremely generous tax incentives, a key component of the project was the provision of cheap electricity by the Cahora Bassa Dam (via South Africa's Eskom, because national transmission lines between the two sites were not operational). Prices charged for electricity to Mozal under its long-term contracts have become controversial because they may be below the market price. If this is the case, the government may in fact be subsidizing the project with few offsetting benefits, either fiscal or economic. This raises a number of issues regarding the sourcing and cost of power for Mozal's planned expansion.

Pande-Temane. A significant amount of FDI has also flowed to the country's petroleum sector: after agreements negotiated in 2000, the Pande-Temane gas field installations, processing facilities, and gas export pipeline to South Africa were commissioned in 2004, with further investment due to complete the initial project (some US\$1 billion in all). Natural gas from the Pande and Temane fields in Mozambique's Inhambane province is exported through the 865-kilometer gas pipeline to South Africa. Construction by Sasol, the giant South African fuel company, was com-

pleted in 2004 at a cost of US\$600 million. The project is a joint venture in which the Mozambican state has an equity participation; it is also entitled to royalty payments, either in cash or in kind.⁹ Government revenues have thus far been modest, consisting mainly of petroleum production taxes and a small amount of corporate income tax, since the project (including the pipeline) is currently recovering its costs and making high debt-service payments. However, revenues are set to increase significantly as production ramps up and the investors recover their initial development costs. The infrastructure built for the project will probably also generate additional revenues from other users.

Moma Titanium Minerals Project. The mine is being developed by an Anglo-Irish company, Kenmare Resources PLC, and production started in mid-2007. It contains considerable reserves of the titanium minerals ilmenite and rutile. The Moma mine also has large quantities of zircon, a high-value coproduct of titanium minerals mining. In December 2000, the Mozambican government granted the project industrial free zone tax status. The mine should account for about 8 percent of the world supply of titanium. The Mineral License Agreement signed in 2001 covers an initial period of 25 years of mining, is renewable, and allows for significant future expansion. The project has been granted generous tax incentives.

Moatize coal project. The project is located in the western Tete province and is being developed by the world's largest iron-ore miner, the Brazilian Companhia do Vale do Rio Doce (CVRD). In November 2004, CVRD won the bid, for US\$123 million, for rights to explore and develop the coal deposit; undertake feasibility studies for developing a 1,500-megawatt coal-fired power plant, port facilities, and a rail link to the port; and assess other domestic industrial projects linked to the mine. In 2007 the government gave authorization to proceed with the project. The feasibility study that was submitted to the government in November 2006 indicates that, by 2010, the project will mine about 15 million tons of coal a year, of which about 6 million tons will be marketed for export and 9 million tons made available to a planned domestic power plant. The area around Moatize is considered by some to be the largest unexplored coal province in the world; reserves are estimated at 2.4 billion tons, allowing the extraction of metallurgical and thermal coals. Total investment is estimated at US\$2 billion.

⁹The joint venture partners are South Africa's gas giant, Sasol (70 percent); a Mozambican state-owned enterprise, CMH (25 percent); and the International Finance Corporation (5 percent).

Although Mozambique has been successful in attracting investment to its mineral sector, the question arises whether this investment has benefited the country. As noted previously, in many countries, the main benefit to development is through taxation, user fees, and improved infrastructure.

The macroeconomic impact of megaprojects and mineral resources extraction on the economy has been impressive. The megaprojects' contribution to GDP increased from 0 percent in 1998 to 8 percent in 2002 and 10 percent in 2006, and it should stabilize at about 8 percent as construction is completed and projects—Mozal, especially—begin to operate at full capacity.¹⁰ The megaprojects' contribution to real GDP growth in Mozambique reached a peak of 23 percent annually, on average, for 2001–03, in large part because of the construction of Mozal II and the gas pipeline. Contribution to GDP will increase substantially again with the Moma and Moatize projects.

Mozambique's balance of payments has also been considerably affected by the megaprojects, starting in 2000 with Mozal's entry into operation. Subsequently, with the completion of Mozal II and the gas pipeline, merchandise exports went from 0 in 1998 to over US\$1 billion in 2004 and are projected to be over US\$2 billion by 2010. The megaprojects also had a substantial impact on merchandise imports, especially during the construction phases of Mozal I and II and the Sasol pipeline. Capital and financial accounts have been affected as well, because financing has been in the form of foreign borrowing and direct investment. The overall impact will be more modest in the future after taking into account interest and dividends paid to foreign shareholders. Profits and dividends are expected to rise to over US\$500 million starting in 2006. Finally, megaprojects are projected to account for more than 70 percent of exports annually, on average, for 2006–10.

In contrast to these impressive macroeconomic statistics, the megaprojects' impact on central government revenues has been minimal—less than 3 percent—as shown in Table 8.5, and indirect contributions through labor and local businesses are limited as well. About half of total government expenditure is foreign-financed. In contrast, current fiscal contributions of megaprojects to the central budget are very low by any standard, compared with what might be expected from projects of this type. In 2005 Mozal, with a turnover over US\$1 billion, contributed less than 1.3 percent of Mozambique's total tax revenues. If profits repatriation, dividends,

¹⁰A doubling of Mozal's capacity has been envisaged but remains on hold because of power generation constraints.

Table 8.5. Mozambique: Taxes Deposited by the Megaprojects, 2003–05
(In millions of old meticals)

	Mozal			Sasol		
	2003	2004	2005	2003	2004	2005
Total	54,144	107,829	239,452	0.682	5.654	64.395
IRPC ¹	31,874	64,941	96,768	0.682	0.851	3.053
Final tax rate ²	22,270	42,888	142,684	0	0	0
Royalties ³	0	0	0	0	4.803	61.342

Source: Mozambique, Ministry of Finance.

¹IRPC denotes *Imposto de Rendas Colectivas* (corporate income tax).

²Final tax rate is 1 percent of gross income.

³Royalties are 5 percent of gross income from production of gas.

interest, and amortization on foreign borrowing are taken into account, the direct and indirect contributions to revenue remain limited.

The impact on local employment has varied greatly, especially during construction, but remains small. It is projected that total employment in 2010 by Mozal, Sasol, and the Cahora Bassa Dam, including indirect employment and excluding construction work, will be about 9,000 full-time positions, or under 2 percent of urban private sector employment.¹¹

Going Forward

During the past two decades, Mozambique has been put back on the investment map, mainly through its demonstrated willingness to honor its natural resources sector agreements. However, the country has forgone substantial revenue because mining projects are the beneficiaries of large fiscal benefits that are not in line with best international practices. Given the increased confidence of investors in the economic and political stability of the country, the authorities have recognized that there is a need to reduce fiscal incentives and standardize the fiscal terms of all new mining and petroleum projects. The fiscal regime has been progressively modernized. In addition, Mozambique took a major step forward in 2007 when parliament adopted new legislative frameworks that are in line with best international practices for the mining and petroleum fiscal regimes.

Under the new legislation, fiscal incentives will be reduced and fiscal terms standardized for all new mining projects. The new fiscal regime is

¹¹Benito-Spinetto and Moll (2005). This is a rough estimate—the authors admitted making “heroic assumptions.”

more balanced so as to enable Mozambique to continue attracting foreign investors while providing the country with a fair share of economic rent, taking into account the features specific to mining as described above. Indeed, now that the country is back on the investment map there is a need to maximize revenues from the mineral industries while increasing the tax base. One challenge for the government is the administrative complexity that will result from the existence of both old and new project agreements whose fiscal approaches differ substantially.

In addition to introducing a more balanced approach to taxation, Mozambique recently finalized a new model mining agreement that seeks, among other things, to enhance linkages at the local, provincial, and national levels and to require formal arrangements between mining companies and affected communities. The agreement is intended to supplement the existing statutory law and not supersede it. A model agreement for oil and gas exploration and development based on international best practices has also been prepared. Efforts are under way to enhance the government's ability to better understand and negotiate user fee agreements relating to the provision of water and power to megaprojects.

The Mozambican authorities now recognize that transparency and good governance in the mining sector are necessary to ensure that revenues derived from mineral projects will contribute to sustainable development and poverty reduction beyond the contribution they can make to the government's budget. As described above in connection with avoiding the resource curse, Mozambique has decided to manage its asset wealth and revenues in a prudent and transparent manner while pursuing economic diversification strategies and developing physical infrastructure and human capital.

Currently, mineral resource projects' net contribution to the central government budget is still not known in great detail not only because of low administrative capacity but also because of contracts negotiated on favorable and confidential terms case by case when the country first opened up to foreign investment. In addition, contrary to most resource-rich countries, whose revenues tend to come from only one or two main primary materials (oil, gas, copper, diamonds), Mozambique's potential natural endowment covers a wider range of resources (including natural gas, titanium, and coal). As a result, when all projects under consideration are in operation it will be challenging to determine the share of each project's net contribution to the budget.

The Mozambican government recognizes that improving governance remains a priority and decided to become a member of the EITI in 2008. All new mineral investments—in particular, the exploitation of coal, oil,

and natural gas—as well as any expansion of related megaprojects would follow the EITI principles.

In addition, the IMF's *Guide on Resource Revenue Transparency* (2007)¹² provides an overview of generally recognized good or best practices for transparent management of resource revenues, and government implementation of these guidelines would complement the EITI principles. These good practices of fiscal transparency are based on four pillars: (1) clarification of the division of roles and responsibilities among the government, national resource companies, and international companies; (2) application of open and transparent budget processes, similar to those recommended for other parts of the government budget, to the planning, allocation, spending, and reporting of resource revenues; (3) public availability of information on all resource-related transactions central to fiscal transparency; and (4) effective mechanisms for providing assurances of integrity.

Finally, transparency and fiscal stability are likely to be easier to achieve under a generally applicable fiscal regime than with case-by-case negotiations. In this regard, the new model mining and oil and gas agreements are intended to attract new investment into the sector by reducing investor risk in a transparent manner. The terms of the model agreements do not supersede statutory law but, rather, complement and supplement it by not allowing substantial negotiation of the fiscal system. With the recent adoption of fiscal regimes into law there is little justification for negotiating special tax incentives in such agreements, which can now simply refer to the relevant fiscal legislation, while terms in the agreements focus on other matters. As noted above, the standardized agreements improve the government's ability to maximize national benefits when dealing with sophisticated foreign investors and avoid costly, protracted, and legally questionable negotiations.

Mozambique has made a good start with the development and introduction of model agreements and standardized mineral sector fiscal regulations, but further work remains to be done. A macroeconomic fiscal model for the extractive sector could be developed as a tool to help authorities formulate policies. A variety of taxes and fees are currently levied on the industry and it is not always clear how they relate both in amounts and temporally. The ability to forecast revenues and understand how ongoing reforms will affect them can aid policymakers. Given the volatility

¹²The guide is available via the Internet at <http://www.imf.org/external/np/pp/2007/eng/051507g.pdf>

of revenue flows from the sector, it is important to forecast realistic fiscal revenues to ensure good budgeting practices.¹³

Monitoring compliance with tax regimes granted on a case-by-case basis is feasible as long as there are only a few big projects, but it may become a challenging task as expansion of the sector accelerates. Simplification and uniformity of the tax regime under a general law will undoubtedly ease the government's task.

Conclusion: Lessons for Other Developing Countries

As Mozambique enters a new phase of its mineral and oil investment strategy, it is moving away from the provision of ad hoc tax incentives to attract foreign investment toward a fair, transparent, and stable fiscal system supported by model agreements that enhance economic linkages. This new approach, which is in line with best international practices, should help Mozambique create a virtuous cycle in the management of its natural resources for the benefit of its population and the reduction of its still widespread poverty. To succeed, Mozambique will need to enforce related regulations and to adhere fully to the EITI principles.

The Mozambique experience holds several important lessons for other developing countries, including the following:

- Establishing an investment track record can assist in attracting future investment, and fiscal incentives are one way to encourage early investors.
- Honoring existing investment agreements is one means of encouraging new investors even though such agreements may look overly generous in changed circumstances.
- Previously negotiated agreements should not be used as precedents, and new agreements should reflect changes in risk perception, markets, financing, and other circumstances.
- Countries with a limited capacity to negotiate agreements are at a disadvantage when negotiating with sophisticated foreign investors, so it is to the advantage of governments to set out in law the principal taxes and incentives and to avoid deviating from these.

¹³See for instance Sohn (2005). The Ministry of Finance does not yet make tax projections for mineral resource projects. As the sector is expected to grow rapidly, with several new megaprojects beginning production, there is a need for the ministry that closely monitors these projects to do so.

- When devising mineral sector taxation policy, whether it be through legal reform or in negotiated agreements, the use of financial (fiscal) models is essential.
- Without a financial (fiscal) model to aid them in understanding the tax consequences of agreements, policymakers may make mistakes with negative implications for the country's future.
- Fiscal models are also useful for revenue forecasting and setting appropriate budgetary policy.
- National benefits from the mineral sector are not limited to fiscal revenues, and mineral sector policy and the regulatory system, which would ideally include a uniform model mining agreement, should strive to maximize economic linkages such as the provision of goods and services to the sector, and the integration of infrastructure with both project needs and broader development.
- Capacity building and institutional strengthening are important even when the sector is small because, as it develops, benefits may be needlessly forgone.
- Well-trained or expert-supported government negotiators are better able to maximize nontax benefits, minimize tax losses, and understand which terms should be negotiated.
- There is a need for sound and transparent management of government revenues, including predictability of taxation and application of the common law.
- A national mineral policy that is reviewed on a periodic basis can be a valuable aid in ensuring that a country's approach to regulating and taxing the mineral sector is kept up to date with changing investment perceptions and needs and with national expectations and aspirations.
- The potential for a developing economy dependent on mineral exports to suffer the resource curse is great but not inevitable—informed policymakers can look to the examples set by countries such as Mozambique, Botswana, and Chile, which have used the mineral sector as a springboard for development.

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