CHAPTER 7

Managing oil, gas, and minerals

Africa’s natural resources belong to its people—today and in the future. How, then, can countries ensure that extracting those resources benefits more than a few? By managing everything that’s involved—well, fairly, and openly.

Africa is the least explored continent, but many African countries are endowed with abundant oil, gas, and mineral resources and have economies that depend heavily on their extraction and exports. The extractive industry in many of these countries is highly concentrated on extraction upstream, so the exports are also limited to the raw primary product, not semi-processed or processed versions. The upstream part of the value chain is often in an enclave with few links to the rest of the economy. Similarly, the concentration on unprocessed products misses opportunities to develop links with the economy to increase incomes and employment. Moreover, the exports of raw commodities can expose a country to volatile prices and thus volatile revenues. All this, coupled with the fact that extractive resources tend to be exhaustible and nonrenewable, makes sustainable development particularly challenging for countries highly dependent on them.

The goal must be to manage natural resource endowments to develop the rest of the economy—and to avoid concentrating wealth in the hands of a few, spending for current consumption rather than investing in the future, allowing the exchange rate to become overvalued to discourage other exports, and creating environmental nightmares. It must also be to avoid the curse of relying on highly volatile commodity export prices and public revenues.

The first steps to good management are getting better at geological surveys in order to know what the country has and getting better at negotiating with foreign companies to ensure fair deals. Three instruments dominate in deriving revenues from extractive industries: taxes on profits, royalties per unit of production, and equity stakes in a joint-venture subsidiary. Taxes on profits depend on keeping a close eye on revenues, costs, and transfer prices. Royalties depend on tracking the units of production. And a minority stake in a joint venture can depend on overall profitability and the dividend policy of the extractive firm. Each instrument has pluses and minuses, and each demands considerable accounting and auditing capabilities.

Because resources, once extracted, are gone forever, another step in turning oil, gas, and minerals into blessings is to see them as part of a portfolio of national assets that also includes human capital, physical capital, financial
The key for Africa is to capture value through policies that, along the value chain, generate productivity improvements and strong local links and ultimately produce inclusive growth.

capital, and institutional capital. Countries can enjoy fast growth and sizable revenues from extraction for a time, but they can end up worse off than before a boom if they do not use their share of the revenues to build those other assets—for this and future generations. Government revenues from oil, gas, and minerals can also promote technological upgrading, productivity increases, and growth in other sectors of the economy.

That is why it is important to spend today to build human, physical, and financial assets along with the institutional assets not just for regulating extraction but also for selecting and monitoring projects—and for delivering services and managing the entire economy. It is also important to separate resource revenues from other revenues—and to invest in the long term. And it is important to do more than simply extract—to refine oil, to liquefy natural gas, to process diamonds and other minerals. Also required is monitoring what companies do, investing in the transport infrastructure that also supports agriculture and other parts of the economy, reducing the social and environmental costs, and saving and investing for future generations.

Looking forward, the key for Africa is to capture value through policies that, along the value chain, generate productivity improvements and strong local links and ultimately produce inclusive growth. The oil, gas, and mineral sector does not generate much employment, unlike manufacturing industries or related services, and is unlikely to absorb surplus labor from agriculture. So the challenge is how to use the oil, gas, and minerals to leverage structural change from low- to high-productivity sectors and activities in the economy. Africa is the world’s top producer of numerous minerals and has the world’s greatest reserves of many more. It can use them strategically as a platform for transformation and help accelerate growth.

This chapter does not provide a comprehensive analysis of natural resources in Africa. Such analysis is readily available in African Mining Vision (2009), Oil and Gas in Africa (2009), and Minerals and Africa’s Development (2011), initiated separately or jointly by the African Union, African Development Bank, and the UN Economic Commission for Africa. Nor does it discuss the macroeconomics of overall expenditure control to avoid excessive inflation, exchange rate overvaluation, and the attendant Dutch disease that can wipe out non-resource-based exports. These issues have received widespread attention elsewhere and are covered to some extent in the discussion of macroeconomic and exchange rate policies in chapters 2 and 3. Instead, this chapter focuses on governance issues within the ambit of direct government action.

• Improving governance and management of the extractive sector.
• Designing and executing fiscal regimes.
• Linking resource extraction to the rest of the economy.
• Adding local content and finding opportunities in the extractive value chain.
• Managing artisanal mining.

But first, an overview of Africa’s reserves and revenue potential.

Reserves and revenues

Africa’s known reserves of oil, gas, and minerals are enormous. South Africa alone has 80% of the world’s high-grade manganese deposits, and South Africa and Zimbabwe have 80% of the platinum-group metals. Guinea has the largest bauxite reserves. Africa’s two major iron ore producers today, South Africa and Mauritania, together account for about 2% of world reserves. For gold South Africa and Ghana together account for about 15% of 2012 world reserves. For copper the Democratic Republic of Congo and Zambia together have about 6% of world reserves, and for cobalt the Democratic Republic of Congo has about 45% of world reserves. Africa’s unknown reserves are likely many times more. Witness the recent discoveries: oil in Ghana, high-grade iron ore in Guinea, oil and gas in East Africa, gas and coal in Mozambique.

And thanks to high global demand, Africa’s share of global production is significant for many minerals: South Africa at 77% for platinum and 46% for chrome, Democratic Republic of Congo at 53% for cobalt and 21% for industrial diamonds, and Namibia and Niger at 16% for uranium (figure 7.1).

In 2010 mineral rents—the difference between the value of output of several minerals at world prices and their total cost of production—were about 2.7% of GDP for Sub-Saharan Africa—and more than 1% for 19 countries. Mauritania had the highest at about 54%, followed by Zambia at 27%, Democratic Republic of Congo at 16%, Ghana at 9%, Botswana at 5%, and South Africa at 4%. In 2010 oil rents were nearly 30% of GDP in Nigeria. Petroleum’s share in export revenues was 96% in Angola and 86% in Nigeria.

The enlarged fiscal space from natural resource extraction can generate large revenues for governments, which in turn can finance the provision of public goods and services that benefit sustainable development and poverty reduction. Managed properly, windfall revenues can be an important source of financing for development. Well designed and implemented, resource extraction can also be a catalyst for job creation and service provision through backward and
Figure 7.1 Examples of Africa’s natural resource wealth

PERCENTAGE OF WORLD’S PRODUCTION

GOLD
Ghana, Tanzania, Mali, Guinea, and Burkina Faso

BAUXITE
Guinea

COBALT
Democratic Republic of Congo

URANIUM
Namibia and Niger

INDUSTRIAL DIAMONDS
Democratic Republic of Congo

DIAMONDS
Botswana

PLATINUM
South Africa

CHROMITE
South Africa

MANGANESE

ESTIMATED ANNUAL EXPORT REVENUES

Nigeria
$100 billion a year

Angola
$70 billion a year

AVERAGE ANNUAL REVENUE POTENTIAL FROM NEW PROJECTS

2011 $% of 2011 GDP

Nigeria
$1.6 billion
30.7%

Angola
$850 million
2.3%

Ghana
$1.7 billion
147.8%

Liberia
$3.5 billion
15.0%

Botswana
$3.5 billion
27.3%

Democratic Republic of Congo
$850 million

Note: The estimates show orders of magnitude. Revenue projections are highly sensitive to assumptions about prices, production phasing, and underlying production and capital costs.

a. Data represent annual revenue at peak production.

forward links that generate additional economic activity.

**Governance and management**

Not using natural resource wealth to transform economies and enrich the lives of citizens remains the failure of many resource-rich African countries. Extracting wealth has provoked conflicts and inflicted deleterious social and economic impacts, as in Angola, Chad, Democratic Republic of Congo, Liberia, Nigeria, Sierra Leone, and recently South Sudan. For those that have averted open conflicts over their natural wealth, the beneficial impacts have been modest or contestable (Ghana and Zambia, despite their long histories of mineral development).

Africa’s resource-based development and industrialization have fallen behind. And dependency on the initial resource endowment remains high. Nigeria with its abundant oil and gas reserves (the world’s fourth largest oil exporter) has for nearly five decades failed to build a sustainable competitive and diversified economy. And after a century of gold mining, Ghana’s share of resource rents is small, its employment generation low, and the links with the rest of the economy very limited. The same is true for Zambia’s copper, Democratic Republic of Congo’s cobalt, Namibia’s and Niger’s uranium, Guinea’s bauxite, and until recently Botswana’s diamonds.

Governments are failing on two fronts: in the commercial exploitation of the resource and in the judicious use of revenues for greater public benefit, the two ends of the chain of required government actions.

Government action begins with controlling the resource. First is setting the policy and rule of law for commercial arrangements to exploit the resource, the regulations and institutional arrangements, and the sharing of benefits between the government and private firms. Next are the institutional and operational arrangements for assessing, collecting, and managing the revenues—and linking with the rest of the economy through local content and value addition. Third is delivering on the social contract between government and citizens by using the enlarged fiscal space to accelerate growth and make inroads into poverty reduction and economic transformation.

The key element determining whether a resource will be a curse or blessing, according to *African Mining Vision*, is the capacity for governance and the functioning of institutions. Governance refers to the legal and institutional environment for various actors to promote resource control, transparency, and accountability. According to the World Bank’s Worldwide Governance Indicators, good governance is about government effectiveness, regulatory quality, the rule of law, the control of corruption, political stability, and voice and accountability.

A recent study, *Oil and Gas in Africa*, identified the critical ingredients to be embedded in any coherent strategy aimed at harnessing a country’s resource wealth to include resource control, preserving and optimizing the resource base, protecting the environment, and securing equitable and intergenerational long-term benefits. Governance thus goes beyond laws and regulations. And capable institutions are critical in the administration of the laws and regulations. No less critical is the free flow of information among institutions charged with regulatory oversight and between government and the public.

Botswana shows that the resource curse is not inevitable, that good resource control is possible without deterring private interests, and that dedicated leadership can create the right environment and incentives to exploit natural resources without destroying the environment (box 7.1). The risks of rent-based economies can also be mitigated by paying attention to the links among policy, laws, and institutions. And to prevent possible conflicts of interest and vulnerabilities to bad governance and corruption, there needs to be a clear separation of political and regulatory powers in the country’s public management structure.

Long-term economic planning and good fiscal discipline can ensure the best use of resource revenues. Financial assets can be invested for the long term with transparent rules and regulations and accountable structures to manage the fund. The responsibilities for regulating and managing natural resources can be clearly defined and followed. And the institutions in charge of regulating and managing the sector can be insulated from undue pressure and influence, with their operations monitored regularly by the relevant oversight institutions.

**Designing and executing the fiscal regime and getting a fair deal**

The fiscal regime in a resource-rich country is the main instrument for turning natural wealth into financial wealth that can fund government investments and activities in development. Countries want revenues, companies want profits, and citizens want visible benefits. There is tension between an oil, gas, and mineral company’s profit motives and a government’s desires for revenues from the exploitation of natural resources. This can be particularly acute in frontier countries with newly discovered resources that need to attract foreign direct investment.
Countries want revenues, companies want profits, and citizens want visible benefits.

In the global competition to attract foreign direct investment for the development of natural resources, countries use their fiscal regimes and policies to enhance their chances. The question of how much the investor captures and how much the nation retains is continually examined.

The fiscal regime encompasses the policies and the arrangements that determine the sharing of benefits between the resource companies and the government as the resource owner. The key questions include:

- Does the fiscal regime balance fairly the long-term interest of the country and the risks and market uncertainties of investors that provide capital?

  - Can the existing fiscal system flexibly accommodate changing circumstances to guard against unintended asymmetric distributions of rewards and risks?

  - Will the domestic tax system encourage proper cost controls and the use of new technologies for the most efficient extraction?

  - How can the net impact of extractive resources improve with appropriate reforms?

These questions should be at the heart of government concerns, and the answers are usually context-specific, so it is seldom helpful to make general prescriptions. But some design and implementation features are common.

Design features encompass how blocks or concessions are assigned as well as the contractual framework, the bonus system, the royalty and taxation instruments, the incentives to control costs, the repatriation of profits, and the state’s participation over the life of the project.

Good design should guard against giving away too much while at the
same time enabling companies to earn good returns on their investments. The 2007 Big Table on Managing African Natural Resources for Growth and Poverty Reduction stressed the need to exact better terms from natural resource exploitation, sentiments echoed by the African Mining Vision in 2009. Several governments are taking fresh steps to capture a bigger share of the resource rents in different forms.

- Zimbabwe introduced a new indigenization law that requires foreign companies to cede 51% of their equity to black Zimbabweans.
- South Africa appears to be considering a 50% windfall tax on mining “super profits” and a 50% capital gains tax on the sale of prospecting rights.
- Ghana announced a review and possible renegotiation of all mining contracts in 2010 to ensure that mining profits are maximized and later increased its royalties from 3% to 5%.
- Zambia recently doubled its oil, gas, and mineral royalties to 6%.
- Namibia is transferring all new mining and exploration to a state-owned company.
- Nigeria seems keen to renegotiate offshore oil contracts because today’s “unfair fiscal terms” supposedly cost the country up to $5 billion a year in lost revenue.
- Kenya, in its Mining Bill 2013, reviewed all its royalty and drilling charges. Royalty rates on valuable rare earths (niobium, titanium ores) increased to 10%, gold to 5%, and metallic ores such as iron, manganese, chromium, and bauxite to 8%.

Such measures, often prompted by rising resource prices, can be justifiable in some circumstances. But they can also mark the reputation of governments for fiscal and contract instability. And there are concerns whether changing the fiscal regime’s design will be enough to generate the desired fiscal outcomes.

Whatever the fiscal terms, much more can be done about things that affect the overall fiscal benefits to the state and the effectiveness of implementation, especially in awarding licenses and contracts and administering revenues.

**Awarding rights, licenses, and contracts**

Mining companies bidding for exploration rights always know more about the real prospects than the governments issuing the rights. They also have a world to explore and decades of experience in acquiring and exercising rights. And they have patience, often preferring to let others improve their prospects and proceeding with exploration only when other discoveries near their parcels are confirmed.

To learn more about what natural assets they have, governments should invest more in geological surveys, starting with aerial photographs and satellite images.

Auctions and bonus bidding, in addition to royalty taxes, can secure for governments a higher share of revenues over the life of projects. Witness Kenya’s attempt to increase transparency and maximize revenue flows in auctioning petroleum exploration blocks (box 7.3).

Open tender is also the means of petroleum licensing in Angola’s Petroleum Activities Law to maximize transparency and benefits to the state and to set the incentives for open tender (box 7.4).

**Administering revenues**

Because of the weak links of resource activities to the rest of the economy, most resource-rich Sub-Saharan economies have relied almost exclusively on direct fiscal terms (South Africa is the exception). So the clarity of those fiscal terms and the effectiveness of resource revenue administration are critical. As noted earlier, the fiscal terms include all the tax (including downstream taxes) and cost-recovery elements. Models of good fiscal terms, with regard to their effects on exploration, development, and extraction, and best practices abound and can be adapted to suit country-specific circumstances. But many resource-producing countries lack the capacity to fully
Good resource revenue management presumes effective resource administration. Having several ministries and agencies assessing and collecting revenues can undermine collection. Poor institutional coordination, poor information technology and management information systems, and the absence of an information technology network assess and collect the revenues due to the state. And different filing and payment rules and ill-constructed procedures and tax instruments increase the complexity.9

Box 7.2 Executive control and parliamentary oversight in Ghana’s mineral licensing

Ghana’s Minerals and Mining Act (Act 703) stipulates that companies apply for a mining right, which the sector minister, on the recommendations of the Mineral Commission, may grant or reject with cause. The final outcome is the result of negotiations between government through the sector minister and Mineral Commission and the mining companies.

Act 703 also requires that any contract or undertaking for the exploitation of minerals in Ghana should be ratified by parliament, and this includes a stability agreement and a development agreement. But more often than not, agreements are “ratified” by a parliamentary subcommittee on mines (chaired by a member of the majority ruling party) rather than the whole body.

That aside, section 5.5 of Act 703 states that some class of transactions, contracts, or undertakings—supported by the votes of not less than two-thirds of all members of parliament—may be exempted from parliamentary ratification. By not spelling out the triggers for this waiver, section 5.5 inadvertently undermines accountability. And it further strengthens executive dominance over licenses and concessions, arguably creating opportunities for opaque transactions on a company-by-company basis.

In the parliamentary debates of October 20, 2008, it came to light that mining leases granted to 21 companies between 1994 and 2007 were operational even without parliament’s ratification. The fiscal provisions of the agreements, never debated, were ratified ex post. Indeed, the role of parliament in the overall governance of the mining regime raises concerns about transparency, accountability, and the power of the executive over parliamentary scrutiny. Strong executive dominance and the weak oversight role of parliament greatly compromise the fiscal benefits to the primary resources owners.

Source: ACET 2013b.

Box 7.3 Auctioning Kenya’s exploration blocks

Thanks to an airborne gradiometry survey and geochemical modeling, Taipan Resources, based in Vancouver and Nairobi, thinks it will find a few billion barrels of oil in Kenya’s Anza block, where it has exploration rights. Adding to the outlook, recent discoveries by Tullow in western Kenya and Uganda are in similar geological settings. Across its northern border, South Sudan, southern Somalia, and Ethiopia have fields very similar geologically to those in Kenya.

Kenya now auctions the licensing of blocks, having previously issued them to first comers. It also sets deadlines for surveys and offers additional exploration periods. And in line with the good management practice of staggering the issue of licenses, rather than all at once, Kenya is rolling out eight new blocks after the new government is in place, following the recent elections.

Energy Ministry official Patrick Nyoike said, “Some of the new blocks had been relinquished by explorers and will be repackaged for the auctions. Many companies have shown interest, Chevron and Eni among them.”

Countries have to put in place systems to ensure that they are earning a fair share from its resources—and to promote local content and linkages to the rest of the economy. Connecting different agencies can make coordination and collaboration even more difficult. And the absence of clearly delineated responsibilities and accountabilities for ministries can produce confusion in implementing the fiscal regime. Consider the varying arrangements for assessing and collecting different sources of resource revenues—from a single institution in Equatorial Guinea, Gabon, and Guinea to three institutions in Nigeria (table 7.1).

No matter how well a country designs its fiscal regime, if the institutional and administrative ability of the government is not well developed, it is likely that fewer revenues will be collected and fewer benefits created.

Many resource-rich countries lack the institutional capacity to fully assess and collect the government’s share of profits from all income sources, including bonuses, royalties, oil taxes, and government’s participating interest—for many reasons. The number of taxes can cause excess complexity with different filing and payment rules, procedures, and forms. The number of ministries and agencies responsible for assessing the different income streams to government can also impair the ability to collect revenues, as can the weak government accounting systems. Poor information technology and management information systems connecting different agencies make coordination and collaboration in assessing revenues even more difficult.

These agencies need the skills and resources to create a clear, comprehensive tax and fiscal regime that can be managed to collect revenue for the state. Where skills are not available domestically, countries should engage qualified international audit, legal, and commercial consultants—and twin their support to develop local capability.

Countries have to put in place systems to ensure that they are earning a fair share from its resources—and to promote local content and linkages to the rest of the economy. Governments should not allow the revenues from the resource extraction to lead to uncontrolled public spending that contributes to high inflation, wage hikes, and exchange rate appreciations, discouraging other exports. Prudent macroeconomic and exchange rate management is thus critical in avoiding the resource curse.

**Assessing the risks and benefits of state equity participation**

Resource extractive industries have largely been shaped by privately owned companies. In petroleum state participation in one form or the other began in the 1920s. Direct state participation gained traction worldwide in the 1970s led by OPEC countries—to control resources and to gain revenues from the private international oil companies. In mining privatization was in vogue in the mid-1990s as part of the world-wide reforms of the sector under...
Production sharing, a popular form of state participation in the oil and gas sector, provides the state with a share of income or physical production after cost recovery by the private investor.

State equity participation can take three forms: full equity, free equity, and production sharing. Full equity participation can range from a state-owned national company responsible for funding the enterprise—to the state acquiring an interest in an incorporated joint enterprise or a share in an unincorporated joint venture. The former is common in mining projects, and the latter in oil and gas projects. In 2011 there were 17 national oil companies in Africa, including some of the world’s largest producers: Algeria, Libya, and Nigeria.\textsuperscript{10}

Free equity participation—the grant of an equity interest to the state with no financial obligation—is common in West Africa. Ghana’s mining fiscal regime requires a 10% free equity share in projects but, at least on the books, also allows for the state to purchase an additional 20% at fair market value. Côte d’Ivoire and Guinea have similar arrangements but with variants for the mineral being extracted.

Table 7.1 Institutions for collecting resource revenue

<table>
<thead>
<tr>
<th>Country</th>
<th>Resource</th>
<th>Government revenue collection agency or body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angola</td>
<td>Hydrocarbons</td>
<td>Ministry of finance or directorate under this ministry: Finance ministry collects income taxes from companies. State natural resource company: Sonangol determines and collects the petroleum profits.</td>
</tr>
<tr>
<td>Botswana</td>
<td>Minerals</td>
<td>Sector ministry or directorate under ministry: The Botswana Unified Revenue Service collects taxes.</td>
</tr>
<tr>
<td>Cameroon</td>
<td>Hydrocarbons</td>
<td>Tax department of the finance ministry collects corporate taxes from private oil companies and the national oil company.</td>
</tr>
<tr>
<td>Congo, Rep.</td>
<td>Hydrocarbons and minerals</td>
<td>The finance ministry collects all taxes from resource companies. In joint ventures signing bonuses, royalties, and proceeds from asset sales go directly to the natural resource company.</td>
</tr>
<tr>
<td>Equatorial Guinea, Ghana, Guinea, Liberia, Mozambique, South Africa, Zambia</td>
<td>Hydrocarbons and minerals</td>
<td>Finance ministry or central finance agencies (revenue authorities) under the ministry collect all payments from extractive industry companies. In Ghana the Ghana Revenue Authority under the finance ministry collects income from all sources. In Mozambique the general tax directorate of the finance ministry collects royalties, taxes, and profit shares from companies. Signing bonuses may accrue to the natural resource company, as in Liberia.</td>
</tr>
<tr>
<td>Nigeria</td>
<td>Hydrocarbons</td>
<td>Federal internal revenue service collects petroleum profit tax.</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>Diamonds</td>
<td>National revenue authority collects taxes on mining activities. Mines and mineral resources ministry collects other payments (including royalties and bonuses).</td>
</tr>
<tr>
<td>Tanzania</td>
<td>Minerals</td>
<td>The revenue authority collects tax payments from mining companies. The energy and minerals ministry collects other nontax payments from mining companies.</td>
</tr>
</tbody>
</table>

Source: ACET research.

African Transformation Report 2014 | Managing oil, gas, and minerals

Production sharing, a popular form of state participation in the oil and gas sector, provides the state with a share of income or physical production after cost recovery by the private investor.

State equity participation can take three forms: full equity, free equity, and production sharing. Full equity participation can range from a state-owned national company responsible for funding the enterprise—to the state acquiring an interest in an incorporated joint enterprise or a share in an unincorporated joint venture. The former is common in mining projects, and the latter in oil and gas projects. In 2011 there were 17 national oil companies in Africa, including some of the world’s largest producers: Algeria, Libya, and Nigeria.\textsuperscript{10}

Free equity participation—the grant of an equity interest to the state with no financial obligation—is common in West Africa. Ghana’s mining fiscal regime requires a 10% free equity share in projects but, at least on the books, also allows for the state to purchase an additional 20% at fair market value. Côte d’Ivoire and Guinea have similar arrangements but with variants for the mineral being extracted.
Many governments see equity participation as both a vehicle for extracting greater value and an integral part of their responsibility to manage resources.

Many governments manage resources in ways that support the exploitation of the resources. Resource development and the infrastructure component of the development are often separated and structured as different entities to increase efficiency and attract investment finance. For its coal project in Mozambique’s Tete province, Vale operates a mine and a railway. In Guinea the 2011 Settlement Agreement between Rio Tinto and the government for the Simandou iron ore deposit spells out the framework for the development of the mine as separate from the construction and operation of rail and port infrastructure. But the state has a carried interest in the mining project and an option for additional equity in both investments.

Common trends and perceptions

Most laws directly link state ownership of the resource with the right to acquire equity in the operating entities. In Guinea the minimum stake by the government is a 10% carried interest, but this can increase to 35%, subject to a negotiated settlement with the developer. In Ghana the state is entitled to a 10% carried interest for oil deposits (with provisions for additional participating interest). And in Botswana the state can purchase 15%, with an option to increase or decrease the shareholding, subject to negotiation with the investor. In Mozambique the state reserves the right to participate in petroleum operations.

Many governments see equity participation as both a vehicle for extracting greater value and an integral part of their responsibility to manage resources, even if their investor partners are wary of the state as an investor and a regulator. Citizens may also see state participation as a legitimate extension of the government’s custodial role, given the public ownership of the resources.

But investors, industry observers, and others see the matter differently. Investors comply with the laws as a precondition to acquiring resources extraction rights but would prefer wholly owned investor-operated entities. Industry observers see it as a form of “resource nationalism” and therefore a risk to their investments. A 2011 study by Ernst & Young reveals that resource nationalism is considered the top risk for mining companies contemplating investment in Africa.

As with most questions on appropriate policy directions, there is no single solution. Instead, the policy choice should be context-specific. A more useful approach is to help policymakers come to terms with the tradeoffs and to use this knowledge to design appropriate policies that meet specific conditions.

Tradeoffs

As shareholders, governments forfeit the advantage of not incurring investment risk while enjoying the benefits of fiscal receipts, employment generation, and foreign earnings. Once a government acquires a stake, it also inherits commercial risk. Where governments are required to raise equity finance, there is an opportunity cost for using public funds. Even with its carried interest, the state must provide the human, institutional, and other resources to manage the investment—another opportunity cost.

Since investors prefer to develop projects alone, governments that promote state equity participation are less likely to be competitive. The tradeoffs here are reduced attractiveness to foreign investment in the resource sector. To the extent that investors see carried interest as a cost of doing business, it is reasonable to assume that they will revise the initial development costs upward and thus reduce revenues, taxes, and ultimately dividends. So in the medium term the main tradeoff may be to lower financial receipts.

Risks

The reality: all forms of ownership in a private company operating in the unpredictable environment like the global commodity and financial markets carry some risk for the shareholders. While governments may not be burdened with the need to raise equity finance when setting up the company, this does not mean that future shareholder liabilities will never arise.

For example, De Beers Group called on its partners to inject cash into the company as a more cost-efficient way of raising finance and reducing debt during the financial crisis in 2009. But Botswana’s leaders and public did not take the call for a liquidity injection kindly. The public was enraged that, at a time when public projects were suspended and jobs lost, the government was putting in money to strengthen the company’s balance sheet. After the announcement, a local newspaper reflected the national sentiment and reported that “The decision to bail out De Beers comes at a time when government itself is heavily in debt, having posted a P13.39 billion budget deficit last year, and expects to borrow a further P12 billion this year to finance both its recurrent and capital obligations. The P1 billion rights issue comes after government again gave a P570 million shareholder loan to De Beers, according to the 2010/11 national budget statement presented by Finance Minister Kenneth Matambo to parliament last month.”


12 Kenneth Matambo’s speech to the parliament on April 9, 2010, reports that a P725 million loan to De Beers was given in 2007 to purchase a 55% share in the Orapa mine. The loan was given in the hope that the mine would recover from the financial crisis. The mine has since recovered, but the government has not been reimbursed for the loan. The government has also given a P570 million shareholding loan to De Beers, according to the 2010/11 national budget statement presented by Finance Minister Kenneth Matambo to parliament last month.
But suggesting that the government was bailing out De Beers missed the point that this is a shareholder responsibility. By not factoring this contingent liability into the expenditure budget, the state underestimated the state’s liabilities and fiscal risk as a shareholder.

Other challenges relate to the capacity of the state to be an active and meaningful investor. Power imbalances in the boardrooms of the joint-venture company can erode shareholder value, so finding the right people to protect government interests is vital. Joint ventures are time consuming and very difficult to manage because of the divergent goals and perspectives of the shareholders.

Government dual roles as regulator and investor also present conflicts of interest. Designing institutions and policies to minimize these conflicts is essential for the effectiveness of public and private institutions.

**Rewards**

But there can be rewards. A lack of industry expertise limits the ability of resource-rich governments to manage oil, gas, and mineral resources. And information is asymmetrical between governments and investors. Both parties can be rewarded if government is a shareholder in the operating entities. One important right of shareholders is access to information and to the expertise of the executive team. Leveraged properly and systematically through nonexecutive directors, state equity participation can be a source of strategic knowledge. It can also be a very effective conduit for skill transfers.

If a government wishes to establish its own natural resource company, shareholding in a joint venture can be a first step. Increasing the holding progressively from a minority to a majority position can manage risk and reduce initial capital outlays. Shareholding also enables the state to influence major decisions on the exploitation of what for many countries is their single most economically valuable national asset. Governments can influence expenditure by the entities on strategic matters such as human capital development to improve national skills development in the sector. They can use their understanding of industry needs to influence the structure of public-private partnerships and promote links with the rest of the economy. In Guinea the state has an option to acquire a majority stake in the infrastructure company and the rail and port facilities, which will also service third parties.

**Adding local content and linking to the rest of the economy**

For extractive resources to be a pathway to transform African economies and drive industrialization requires more than attracting investors to extract the resource. It also requires developing local backward and lateral links, strengthening links between the extractive industry and the rest of the economy, and developing forward links to add value to the commodities in the industry value chain.

Resource industries are heavy on capital investments but light on direct employment. In Botswana the share of mining in employment was 3% in 2011. In Uganda the oil and gas sector will probably provide no more than 0.2% of the total jobs needed in the country.

For most resource-rich countries, governments’ greatest undoing has been the inability to effectively communicate this reality to citizens, especially the youth.

Promoting and requiring local content have become ways to capture more value from extractives, spur local entrepreneurship, and stimulate local employment. Local content provisions are now the norm. But specifying what content is local is not simple. Local content can be described as the composite volume and value of all material inputs supplied by locally delivered resource projects, whether in project finance, capital goods, human resources, or other support services.

Well formulated and implemented, local content policies can boost national economic growth by providing the platform for promoting links between resource projects and the broader domestic economy. They can also be vehicles for robust industrial development policies, spearheading the manufacturing sector, developing entrepreneurial skills, and meeting (the often unfulfilled) citizen expectations about the benefits of resource extraction.

One issue of contention is defining a local company. Should it be by registration, by ownership, or by employment size? Another is whether local content provisions should be in legislation to enforce compliance or in administrative measures and incentives to encourage voluntary compliance. A third is whether the state has to correctly apply and implement local content measures.

Nigeria’s local content policy recognizes that local content—the volume or percentage of spending on the domestic market to purchase material inputs from locals is not the same as local value added and emphasizes that it is the second notion (the depth) that matters, not the first (the breadth) (box 7.5).

Perhaps the more popular focus of local content is in numbers of citizens employed, engagements of local communities for the supply of inputs, and the development of nationwide entrepreneurial small and medium-size enterprises. Ultimately, though, what matters most
Well formulated and implemented, local content policies can boost national economic growth by providing the platform for promoting links between resource projects and the broader domestic economy.

Nigeria has a long history of local content policy designed to deepen backward links. The Petroleum Act of 1969 contained a section on the protection of indigenous Nigerian firms. The 1991 Joint Operating Agreements and the 1993 Production Sharing Contracts contained provisions to promote local content even if meeting those provisions meant that firms would pay a bit more for local inputs.

In 2005 the federal government issued 23 directives mandating the use of local services and the sourcing of low-technology goods and services to local firms. The directives set a local content target of 49% by 2009 and 70% by 2010. Estimates of local content in Nigeria’s oil and gas industry have risen in the past decade, but not nearly as much as wished for. According to the United Nations Conference on Trade and Development, local content rose from 3–5% in the 1970s to 20% in 2004 and to only 39% in 2009. Nigeria’s local sourcing is much lower than in Brazil, Malaysia, Venezuela, and Norway, which have local content between 45% and 75%.

The lack of progress raises questions about the depth of local content provisions. High local sourcing does not always translate into desired backward links. Are local sources merely a front for the import of goods and services, or local in the sense of depth to backward links by way of value addition? The first sense of local cannot create links with the rest of the economy since local suppliers become mere conduits for importing goods and services. The second sense reflects beneficial outcomes because of the value addition along the value chain.

Nigerian policy recognizes that the percentage of goods and services procured domestically is not the same as local value added. So the Nigeria definition of local content is instructive and worth quoting here:

“The quantum of composite value added to, or created in, the Nigerian economy through the utilization of Nigerian human and material resources and services in the exploration, development, exploitation, transportation, sale, and processing of Nigerian crude oil and gas resources resulting in the development of indigenous capabilities, while encouraging foreign investment and participation without compromising quality, health and safety, and environmental standards.”


Box 7.5  Nigeria’s backward links and local content

Nigeria has a long history of local content policy designed to deepen backward links. The Petroleum Act of 1969 contained a section on the protection of indigenous Nigerian firms. The 1991 Joint Operating Agreements and the 1993 Production Sharing Contracts contained provisions to promote local content even if meeting those provisions meant that firms would pay a bit more for local inputs.

In 2005 the federal government issued 23 directives mandating the use of local services and the sourcing of low-technology goods and services to local firms. The directives set a local content target of 49% by 2009 and 70% by 2010. Estimates of local content in Nigeria’s oil and gas industry have risen in the past decade, but not nearly as much as wished for. According to the United Nations Conference on Trade and Development, local content rose from 3–5% in the 1970s to 20% in 2004 and to only 39% in 2009. Nigeria’s local sourcing is much lower than in Brazil, Malaysia, Venezuela, and Norway, which have local content between 45% and 75%.

The lack of progress raises questions about the depth of local content provisions. High local sourcing does not always translate into desired backward links. Are local sources merely a front for the import of goods and services, or local in the sense of depth to backward links by way of value addition? The first sense of local cannot create links with the rest of the economy since local suppliers become mere conduits for importing goods and services. The second sense reflects beneficial outcomes because of the value addition along the value chain.

Nigerian policy recognizes that the percentage of goods and services procured domestically is not the same as local value added. So the Nigeria definition of local content is instructive and worth quoting here:

“The quantum of composite value added to, or created in, the Nigerian economy through the utilization of Nigerian human and material resources and services in the exploration, development, exploitation, transportation, sale, and processing of Nigerian crude oil and gas resources resulting in the development of indigenous capabilities, while encouraging foreign investment and participation without compromising quality, health and safety, and environmental standards.”


is the shares of income to locals, the revenues accruing to land and resource owners, and the income streams to local shareholders and creditors.

Nigeria’s linkage development through local content dates to the 1970s. The Nigerian Content Policy of 2005, revised in 2010, has directives to promote local value addition, build local capacity, support domestic procurement, and improve links between the oil and gas industry and the rest of the economy. Its model leans more toward prescription backed by a dedicated oversight board.

Ghana’s policy for petroleum is also a prescriptive approach backed by a local content committee. Local sourcing can make good business sense, but from the perspective of investors, prescriptive policies, as in Ghana, can counter corporate strategies that favor capitalizing on global trade networks and economies of scale made possible through centralized supply chains. Compelled to comply, investors can see local content policies as pushing up project and operating costs, eroding investment returns, and rendering prospective projects uncompetitive.

Local content can make a difference, however. Nigeria’s local engineering man-hours increased from about 250,000 in 2004 to 3.5 million in 2008, and the number of local engineering companies from 5 to 60. Fabrication increased from about 12,000 tons to 100,000, and vessel fabrication from one to three, with another in progress. For pipe manufacturing, previously thought infeasible locally, there is now one functional local mill, and two are under way. There are new skills development and training programs and access to funds has improved.

In Angola the government arranged to provide training and certification for small and medium-size enterprises that plan to service the oil industry. More than 1,500 Angolan-owned businesses took part, with 124 certified as suppliers for the oil industry. Three hundred contracts and contract extensions resulted, $214 million in oil industry contracts generated, and 2,700 Angolan jobs were
created. One certified firm supplies safety shoes and coveralls to the oil industry under contracts exceeding $5 million. Another smaller enterprise won a $680,000 contract with an oil company for the repair and maintenance of stairway lights in a modern high-rise building.\textsuperscript{17}

But in other areas local content remains limited. In Nigeria, despite the efforts to raise local participation and improve links between oil and gas and other sectors, success has been mixed.\textsuperscript{18} As just seen, local content has increased—but not as fast or as much as hoped. The local sourcing of inputs servicing control systems and information and communication technologies is less than that in the other subsectors, rising from 3–5% in the 1990s to 20% in 2004 and 39% in 2009, better but still below the 45–75% for Brazil, Malaysia, and Venezuela. The links between first-tier and second-tier suppliers are also weak. In Burkina Faso, Ghana, Guinea, Mali, and Senegal provisions in regional and national mining policy, such as a preference for local companies that can match the cost and technical aspects of imported products, have often been insufficiently developed, disseminated, monitored, or enforced.\textsuperscript{19}

Nigeria’s local content has suffered from a lack of comprehensive legislation and from the poor monitoring and weak capacity of the national oil company.\textsuperscript{20} For Ghana the concessionary and ownership structure of the mining companies largely accounts for the weak local content. In 2001, 12 of the 16 operating mines were at least 90% foreign owned. In 2011, 7 of the top 9 mining companies had 90% foreign ownership. AngloGold Ashanti had 99.6% foreign ownership and Newmont 100%. Intensive in capital and technology and high in skills, mining companies have relied more on their multinational supply chain and less on promoting local participation and building domestic links. Nor have successive governments done much to foster backward links. Indeed, six years after the Mining and Minerals Act of 2006 (Act 703) was enacted, the passing of regulations in 2012 holds little prospects of strengthening the desired backward links. Nor does Ghana have an indicative industrial policy about how it plans to leverage mining activities to build related spinoffs and advance economic development. The story is nearly the same in Tanzania gold mining (box 7.6).

Going forward, any local ownership requirements should in principle target activities that have the highest potential to add value. But for most major resource companies, procurement is a specialized function generally managed from corporate headquarters rather than from their country offices. Local firms have difficulty meeting the procurement needs due to the high standards and quality requirements, so partnering with international suppliers should be considered for global supply contracts.

It makes sense to define national content in terms of value addition in the locale, by locals, and using local materials or facilities. Local entrepreneurs seem eager and ready if they are given the opportunity, as in Uganda. In the Nigerian oil industry, local content could increase if there were more communication and awareness of the opportunities.\textsuperscript{21} Despite the local content policy, the capacity of indigenous firms remains hugely underused, and the industry is still dominated by foreign firms handling projects that local firms could easily undertake.

Local content policies should focus on reconciling the divergent interests and long-term goals of investors and governments. The goal should be to ensure that

Box 7.6 Local content and links in Tanzania gold mining

While government policy recognizes the need to develop links into and out of the mining sector, no elements in legislation or directives specifically target local content or restrict the mining companies from importing inputs. Local provision of inputs is weak. Local content is limited largely to local labor inputs. Local value addition is nil.

Even when foreign firms establish subsidiaries in Tanzania, they serve as conduits to source inputs from global suppliers. The maintenance and repair of heavy equipment are also generally outsourced—to global firms that supply equipment for the global operations of mining companies. All the major active gold mines are 100% foreign owned. And with two exceptions all the junior exploration companies draw all their inputs from abroad.

Public-private partnerships can enhance the capacity to build infrastructure within a country by using proceeds from resource activities to directly fund the construction of roads, schools, and medical facilities.

governments can use resource projects to nurture national development, give a fair return on investment to investors, maintain country competitiveness, manage expectations, and bridge the divide between local and foreign firms. But such policies cannot be in place forever. Countries must thus have a strategy to nurture local enterprises in the early stages and gradually expose them to competition. Only those that can survive in a competitive market situation will have a future.

Another way to create greater benefits in other businesses outside extractives is to use public-private partnerships, which can enhance the capacity to build infrastructure within a country by using proceeds from resource activities to directly fund the construction of roads, schools, and medical facilities. The funding can come either directly from the resource project as part of, or as an adjunct to, its fiscal agreement or indirectly from government tax revenues (box 7.7).

**Finding opportunities in the oil and gas value chain**

The oil and gas value chain has upstream exploration, development, and production—and downstream refining, petrochemicals, and marketing.22 It is supported by general management, human resources, technology, and procurement. Of the three main industry segments, the bulk of the value, 77%, tends to be upstream (exploration and production) with 14% downstream (refining and marketing) and 9% midstream (transportation and distribution) (figure 7.2).23 Upstream requires the biggest investments and has the highest profits, and downstream is both capital intensive and highly volatile (box 7.8).

**Box 7.7 Zimele: Anglo American in South Africa**

Anglo American established Zimele in 1989. The word zimele, derived from the Zulu and Xhosa languages, means “to be independent” or “to stand on one’s own feet.” Its business model is to provide a comprehensive incubator approach to startups with funding and mentoring for entrepreneurs. This strategy, and a commitment to provide support for a predetermined period, allows the investee company to stand on its own feet, fostering long-term commercial viability.

An enterprise development and investment fund helps create and support commercially viable small and medium-size enterprises by providing opportunities to participate in Anglo American’s supply chain, to meet the needs of local communities, or to mitigate environmental risks and improve the long-term environmental welfare of communities. For mining-related investments the Anglo American Khula Mining Fund works with Khula Enterprise Finance Limited, a South African government-owned entity that promotes small and medium-size enterprises.

The Zimele model of promoting small and medium-size enterprises has achieved widespread success over the past two decades—with investments in more than 150 supply chain–related companies and cumulative procurement spending and enterprise development investment of $7.2 billion from 1993 to 2007.

In 2010 Anglo American announced plans to establish 12 enterprise development hubs in high unemployment areas in South Africa through Zimele. This expansion was expected to create 25,000 new jobs in up to 1,500 new businesses across South Africa within seven years. Other local and global firms have adopted the Zimele model, including the International Finance Corporation, Mondi, De Beers, and Barloworld. The International Finance Corporation promotes dissemination of the model to companies around the world desiring to integrate local small and medium-size enterprises into their supply chains.

Source: Anglo American and IFC 2008.
iron ore is about one-tenth of the export price of construction steel, hot rolled coils, cold rolled coils, or galvanized and colored steel. The retail value at the end of the diamond chain tends to be more than three times the producer-selling value at the start. The largest value added margins are in retail, the smallest in cutting and polishing.

Players across the value chain include equipment suppliers, engineering consultants, environmental specialists, ship owners, and insurers. So many local business and job opportunities are associated with a mining project, such as digging and trenching with heavy equipment, tree planting, camp construction, vehicle rental, laboratory services, road maintenance, drainage systems, water analysis, water treatment, and site security.

Under Botswana’s strategy, cutting and polishing diamonds are done locally to further local economic development, to capture for Botswana a greater proportion of value derived from diamond exploitation, and to benefit local communities through an increase in skills and employment (box 7.9). Cutting and polishing factories recruit locals to train for technical and skilled jobs, which are involved directly in the production of polished diamonds in the factory and represent the majority of employment in the industry.

Technical and skilled jobs require a low-level education, good English communication skills, good eyesight, good dexterity, and a basic knowledge of mathematics, physics, and computers. Training for technical and skilled jobs in cutting and polishing factories is generally conducted on-the-job and can involve practical training in the use of machinery and tools.

Box 7.8 Uganda’s new oil refinery

Landlocked Uganda is about to join the list of oil-producing nations in Sub-Saharan Africa. New oil reserves, now estimated at 3.5 million barrels, were discovered in Uganda in 2006 and production is expected to begin in 2015.

Today, Uganda imports most of its oil through Kenya—almost 30,000 barrels daily, roughly the same amount that it now plans to refine locally. Though competitors, Uganda and Kenya will collaborate in the construction of a new pipeline so that both nations can start exporting their newfound crude through Kenyan ports on the Indian Ocean.

Uganda plans to construct a refinery in Hoima District. The government has purchased a 30 square kilometer plot of sparsely settled land and is developing a resettlement program for the people there. The new refinery, to serve both the internal and export markets, is expected to cost $2 billion. Uganda is approaching foreign investors to finance the construction, but will retain a 40% ownership stake.

“We have been receiving a lot of interest from prospective investors in the project, but we couldn’t start on any negotiations because there was no legal framework,” energy minister Peter Lokeris told Reuters in February 2013. “Now we’ll proceed very fast.”

A country does not have to wait for perfect institutions. To the contrary, creating the structures to manage oil, gas, and mineral resources can strengthen the institutions for broader governance.

Box 7.9 Diamonds—adding value beyond sorting in Gaborone

More than $3 billion worth of De Beers diamonds have been sorted in Gaborone in the first eight months since the industry leader recently relocated its diamond aggregation and distribution activities after some 80 years in London.

The move is part of a comprehensive 10-year deal that started with the 2006 renewal of the lease of the mines and was completed with the government of Botswana in September 2011. Also emerging from the negotiations was an agreement for De Beers to sell at least 10% of the rough diamonds it mines to a state-owned company in Botswana, rising to 20% by the end of the 10-year agreement. With that provision the world’s biggest diamond-producing country by value can market more of its own diamonds and create incentives for more value addition in-country.

Previously all of Botswana’s rough diamond production went to the trading arm of De Beers in London, which then aggregated the Botswana stones with its stock from around the world and sold most of them to its dealers (sight-holders) in Antwerp, Mumbai, New York, and Tel Aviv (with China and Thailand growing in importance). With that arrangement, Botswana was not much different from most other resource-rich African countries: extracting the minerals and exporting them for value addition elsewhere; this, in an industry where only $15 billion of the $71 billion final value is captured before cutting.

But the government has long aspired to move from mere extraction to the more profitable stages of the value chain. Its strategy has been to become a diamond hub, one that creates high-value services, such as cutting, polishing, jewelry making, retailing, logistics, and information technology, and sophisticated security services. If successful, it would create jobs, diversify the economy, and make it resilient in the post-diamond mining world.

On full execution of the program, an estimated $6 billion worth of diamonds will be processed through the country each year, with $1.2 billion available for local processing, up from $800 million before. Dozens of the world’s top diamantaires will converge on Botswana to buy diamonds (and, no doubt, stay at a hotel, eat local food, perhaps sneak in a safari, and identify other business opportunities). That is certain to raise Botswana’s global profile and help it attract additional foreign investors in copper, nickel, iron ore, and nonmineral sectors.

Source: ACET research.

and polishing factories is on-the-job, cutting and polishing skills are largely firm-specific, and the basic skills are industry-specific. Some inputs sourced locally are catering, security, and cleaning. Telecommunications, water, and electricity are more complex. Sight brokering, gem certification, financial services, legal services, insurance, rough diamonds, and transport are even more so.

Can other African countries replicate Botswana’s deal? Probably not, because diamonds are unique: few minerals have such dependence on one country or on one company. And Botswana is unique for its history of peace or political stability, with a democracy since independence in 1966. Its civil service and public institutions are known for discipline and good governance.

But Botswana is not unique in using what it has to get what it wants. The deal makes De Beers want to transform Botswana as much as the government and people do. In the words of industry analyst Chaim Even-Zohar, “The Botswana government used its leverage skilfully.” And as Nobel laureate Joe Stiglitz puts it, “The value of strong, mutually beneficial relationships between governments and investors is key.”

The lessons for other African countries:

- **Build incremental value.** Whether it is shareholding or marketing arrangements or revenue splitting, Botswana’s use of leverage has been progressive and considered.

- **Know what you have.** The government has educated itself enough about the industry (and more important, the resource base) to know what the deal was worth to its partners. It staked its position and demonstrated the patience and perseverance to wait. Countries sometimes run the risk of overestimating the worth or overestimating what the investor is capable of.

- **Know what your potential partner brings.** You want a partner that can bring the best out of you, be it technical expertise, marketing muscle, or corporate citizenship.
- Get help. In industry expertise and negotiating skills.
- Be transparent. Elements of any business negotiation process can justifiably be concealed, but the main terms of final agreements and the responsibilities of the parties should be available to citizens.
- Build strong relationships. Despite occasional speculation, the government has not entertained the prospect of another partner.
- Give fair value. Botswana’s policy of the investor’s right to receive fair value to recoup investments and make profits is a matter of record.

A country does not have to wait for perfect institutions. To the contrary, creating the structures to manage oil, gas, and mineral resources can strengthen the institutions for broader governance.

Managing artisanal and small-scale mining

The discourse on mining sector governance typically pits large-scale mining against artisanal and small-scale mining as if they are always in conflict. Formal and capital intensive, large-scale mining contributes to development through tax payments and direct and indirect employment and generally is responsive to social and environmental concerns. Informal and unregulated, small-scale mining tends to be difficult to tax and often fraught with health, safety, and environmental hazards. But because it is labor intensive, it offers many more direct and indirect job opportunities.

About 3.7 million Africans are directly engaged in artisanal and small-scale mining, and about 30 million depend on it. The revenues it generates can boost local economies, stimulating further sources of livelihoods. Indeed, in many countries it is expanding and contributing a growing share of mining output. Between the health, safety, and environmental hazards and the provision of livelihoods for large numbers of rural people lies the ambivalence of many policymakers (and citizens) about what the right policy should be for managing it.

Artisanal mining has both preceded and survived large-scale mining. In Ghana it is more than 2,000 years old. An estimated million artisans work mainly in gold and diamond mines, and in 2012 artisanal and small-scale mines produced 1.5 million ounces of gold and large-scale 2.8 million ounces. In Democratic Republic of Congo an estimated 2 million people worked in artisanal mining in 2008. Operations are also significant in Liberia, Sierra Leone, Tanzania, and Zimbabwe. Mali’s gold production from artisanal mining is reportedly considerable. The rising commodity prices and the lagging alternative sources of livelihood, especially in agriculture, increase the urgency for action by governments and proactive steps by large mines.

The 2012 conference, Investing in Africa Mining Indaba, highlighted the urgency of addressing artisanal opportunities and challenges. But there are no simple solutions because of big differences in institutional traditions and regulatory cultures. And for most of Sub-Saharan Africa local politics can be complex and far more involved than what is apparent. Contrast the clarity and formal recognition of artisanal mining in the legal framework in Ethiopia (box 7.10) with the ambiguity and regulatory challenges in Ghana (box 7.11). Ethiopia shows what can be done. Ghana shows how problems can be intractable when traditional landholdings and traditional authorities meet a weak regulatory system.

Addressing the policy challenges of artisanal mining begins with some basic questions. How to define it and set a borderline between it and small-scale mining operations.

### Box 7.10 Ethiopia’s classification of artisanal and small-scale mining

Ethiopia’s Mining Proclamation 678/2010, issued in August 2010, provides a clear classification of artisanal mining based on the volume of minerals produced and the mechanization in mining operations. Artisanal mining is defined as nonmechanized mining (mainly manual) that does not involve the engagement of employed workers. Financial resources, technical competence, and professional skill and experience are not required to acquire an artisanal mining license. Small-scale mining is mechanized and requires the applicant to have access to financial resources and technical ability to conduct mining operations. Mining licenses for artisanal, small-scale, and large-scale operations are for 3, 10, or 20 years respectively, with renewal periods of 3, 5, or 10 years each.

Source: ACET research.
Perhaps most important for transforming resource-rich economies is adding local content and linking to rest of the economy.

Box 7.11  Not coping with artisanal mining in Ghana

The regulatory frameworks in Ghana have not integrated artisanal mining activities into the mainstream economy. As a result, artisanal mining coexists, often in conflict, with large-scale mining. Many aspects of the artisanal mining value chain are unregulated, and legitimate traditional activities are often confused with “illegal mining.”

The land tenure system vests much of the administration of land rights in traditional leaders, while mineral rights are vested in the state. The separation poses a challenge for state institutions seeking to regulate artisanal mining because access to land is the first regulatory gateway.

Reconciling the role of traditional leaders and the state may require establishing a single and final authority for artisanal mining. This could resolve the licensing of exploitation; the setting of health, safety, and environmental standards; and the monitoring of production, sales, and exports.

Revenue collection is complicated by the formal and informal structures that regulate artisanal mining, by the informality of artisanal mining, by the large numbers of miners involved, and by the structure of the artisanal value chain. Informality means that miners cannot be easily identified and traced for tax purposes. Many Ghanaian traders in the artisanal value chain are merely agents of foreign buyers that have links to global commodity markets. So the prices paid in Ghana do not reflect the true market value, and the state and citizens do not receive fair value.

Social and physical environmental challenges receive inadequate regulatory control and monitoring. The Obuasi gold areas show how artisanal mining can destroy the environment. The use of mercury persists despite the well known negative environmental impacts. And health and work conditions defy global conventions for labor and industrial relations.

Source: ACET research.

How to harmonize the land tenure systems with the need to regulate access to minerals. How to ensure that artisanal mining and large-scale mining coexist in a mutually beneficial arrangement. And how best to regulate it to protect workers’ rights and deliver fair value to citizen traders and to the state.

* * *

Again, because such macroeconomic issues as inflation, exchange rates, and Dutch disease have received widespread attention, the focus here has been on governance issues within the ambit of direct government action. That action begins with controlling the resource and securing equitable and intergenerational long-term benefits. Next is designing the fiscal regime to accommodate changing circumstances and guard against unintended distributions of risks and rewards—and to ensure that the domestic tax system encourages cost controls and efficient extraction. And regardless of the fiscal regime, it is essential to develop the institutional and administrative ability to collect the most revenues and deliver the greatest benefits. Perhaps most important for transforming resource-rich economies is adding local content and linking to rest of the economy.

Notes
1. Recent works in this direction include the AU and others (2009), AfDB and AU (2009), and UNECA and AU (2011).
2. ACET 2013a.
4. ACET 2013a.
5. AU and others 2009.
7. Nakhlé 2010. For details on tax types and reasoning, see Commonwealth Secretariat and ICMM (2009) and more recently IMF (2012).
15. UNECA 2013.
18. UNECA 2013.
20. UNECA 2013.
23. UNCTAD 2012.
References


Morris, Mike, Raphael Kaplinsky, and David Kaplan. 2012. One Thing Leads to the Another: Promoting Industrialization by Making the Most of the Commodity Boom in Sub-Saharan Africa. Lulu.


