A Policy Framework For New Mineral Economies: Lessons From Botswana

Michael L. Dougherty, PhD
Illinois State University

Institute for Environmental Diplomacy & Security @ the University of Vermont

Research Series: C1-2011-2
Published October, 2011

Many developing economies have been receiving increasingly significant amounts of foreign direct investment in mining over the past two decades. As mining expands in these new mineral economies, this sector has become a significant source of social and political conflict. New mineral economies must implement savvy policies that preempt and mitigate the challenges of mineral-led economic development. This essay is divided into three principal sections. The first compiles and reviews the key social scientific literature regarding the economic, political and social problems associated with mineral-led development strategies. The second section draws from the case of Botswana, a mineral dependent country with high growth and high development indices for sub-Saharan Africa. Here, Botswana is compared with Nigeria to illustrate, in greater contrast, Botswana's policy successes. The final section returns to the economic, political and social challenges of mining and puts forward a general policy framework, drawing from the example of Botswana, for new mineral economies to leverage their mineral endowments for substantive development while limiting the potential for social conflict and negative economic outcomes.

The Author

Michael L. Dougherty is Assistant Professor of Sociology in the Department of Sociology and Anthropology at Illinois State University. His interests center broadly on the sociology of the environment, development, and rural livelihoods. Dougherty's most recent research explores the changing structures of the global gold mining industry and social dynamics around resistance to gold mining in Central America. Dougherty also conducts research on community development, rural tourism, and the architecture of local food systems in the United States. He has authored a number of journal articles and book chapters. Dougherty received his PhD from the University of Wisconsin-Madison in 2011.

The Institute for Environmental Diplomacy and Security

The Institute for Environmental Diplomacy and Security (IEDS) is a transdisciplinary research center dedicated to both the study and practice of techniques that resolve environmental conflicts, and to using ecological processes as tools of peace-building. We welcome new partnerships and encourage scholars interested in collaborating with us on any of our thematic areas (Borderlands, Pragmatic Peace, Resource Values) to contact us. Learn more at www.uvm.edu/ieds.

The IEDS Research Paper Series

The aim of the IEDS research paper series is to provide clear and timely empirical analysis on issues of relevance to our mandate that covers three broad areas: A) Borderlands, B) Pragmatic Peace and C) Resource Values. All papers are reviewed internally and externally for quality control. We are open to various disciplinary perspectives on issues and particularly encourage work that spans fields of enquiry. Submission is encouraged from scholars worldwide who want a flexible electronic venue for their work.

We encourage various citation formats and lengths of manuscripts as the goal is to disseminate knowledge as fast and freely as possible. Images and maps embedded into the text are also encouraged. Authors are allowed to retain copyright and can publish papers elsewhere so long as the Institute is acknowledged in subsequent publication venues. As an open-source publication that distributes content online, we are also amenable to updating papers that have been placed online with a note on the date of revisions provided as research progresses. The numbering of the series is coded as follows: The letters “A, B, and C”, referring to one of the three aforementioned thematic areas, followed by the sequence of publication for that theme in the year of publication, followed by the version that is being downloaded in parentheses since the first upload to the IEDS website.

To submit an idea for a research paper in the series, please email ieds@uvm.edu with the subject heading “Research paper submission”.

The James Jeffords Center at the University of Vermont

As an American land grant university, the University of Vermont has the obligation to play a significant role in fundamental research, as well as evaluation and analysis of policies and programs that affect the public at large in a variety of disciplines critical to global policy-makers. In recognition of this, the University established the James M. Jeffords Center in 2009, so named to honor former United States Senator James M. Jeffords for his long and distinguished service to Vermont and the nation. The center is, however, a nonpartisan organization and works in the spirit of independence that Senator Jeffords championed during his career. The Institute for Environmental Diplomacy and Security is a signature project of the James M. Jeffords Center.

Introduction

Since the late 1980s, foreign direct investment (FDI) flows have grown by several hundred percent. FDI flows from the global north southward have increased at a much higher rate than volume of trade during that same period. Foreign direct investment, therefore, has become the primary vector for economic globalization over the last twenty years. Mineral investment is a small percentage of total FDI flows, but has become significant for many developing countries which have been unable to attract FDI in other sectors. In some cases, extractive industries serve as the primary vehicle through which developing economies interact with world markets.

Since the 1990s, there has been a significant shift in the investment practices of mining companies across the world from older reserves, largely in the global north, to a dispersed array of developing countries. These trends have become particularly pronounced in parts of Africa. This massive influx of mining capital into the developed world is a product of newly liberalized foreign direct investment policy regimes in many of these countries (Bridge 2004, Dougherty 2011). In many cases, these policy regimes include specific mining laws geared towards attracting mineral investment as the leading edge of a larger development agenda. In sub-Saharan Africa this new resource boom is driven by these changing patterns in global mineral investment as well as unprecedentedly high world prices for oil and minerals. The current resource boom began in 2003, and as prices have continued to climb, shows no signs of abating. Australian mineral investment in sub-Saharan Africa for example, has grown from virtually nothing in the first years of this decade to $20 billion today. In fact, the vast majority of Australian mineral capital in the world today is located in sub-Saharan Africa (Donnelly and Ford 2008). This has led to increasing mineral production, and Botswana is leading the pack (Figure 1).

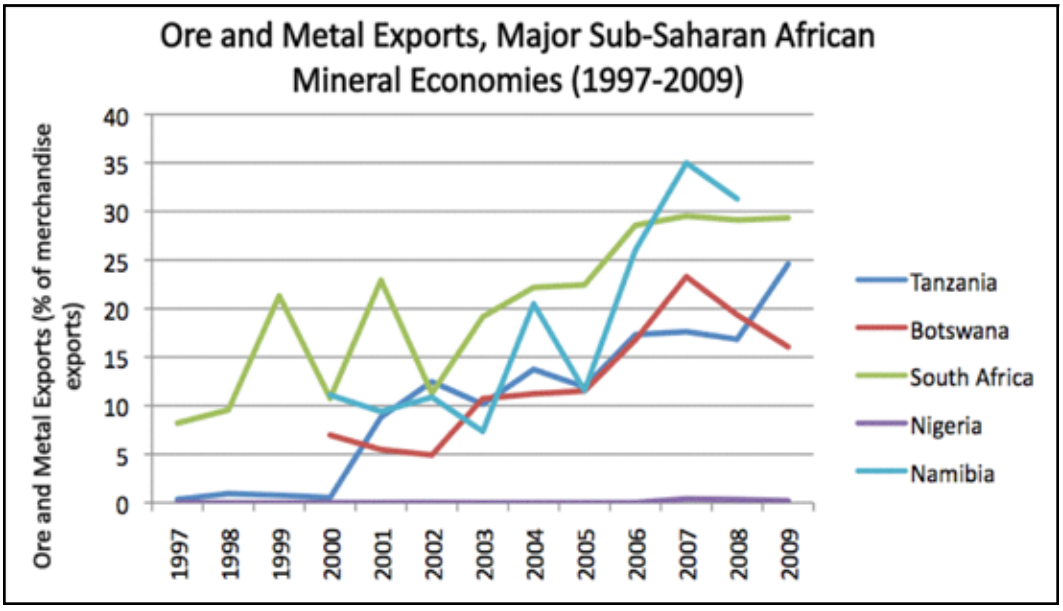


Figure 1. Source: World Bank (2011) World Development Indicators [on-line].

This newfound investment income is footloose and highly mobile—only seeking new sites where cost structures and world prices facilitate higher risk investments—and pulling out when the climate shifts (Bridge 2004; Ferguson 2006, Dougherty 2011). This new set of global investment patterns in the mineral sector poses opportunities and risks for developing economies. James Ferguson has argued, for example, that there is a connection in Africa between political institutional weakness, and the appeal of an economy to foreign investment in oil and gold (2006). This essay is concerned with addressing these risks. Through an analysis of the Botswana success story and a brief comparison with Nigeria, this essay offers a policy framework to mitigate those risks. The first section of this essay delineates the contours and contradictions of these new investment patterns in terms of economic, political and social impacts. The second section briefly reviews the development experience of Botswana and compares it to the distinct experience of Nigeria, extracting policy lessons from these cases. The third section of this essay sets forth a conceptual framework that may guide countries in their thinking as they consider taking advantage of the African resource boom without sacrificing development prospects. The fourth section briefly concludes and reflects.

The Resource Curse Story

There is considerable literature documenting the various dimensions of the so-called "resource curse" thesis in mineral production (Auty 1993; Auty and Mikesell 1998; Ross 1999; Power 1996; Freudenberg and Wilson 2002). States for which exploitation of mineral wealth is a significant percentage of their total economic production tend to underperform economically and politically. Furthermore, the mining industry is traditionally among the "dirtiest" industries. It is responsible for major environmental degradation, negative health impacts in mining communities, and often has negative social consequences for host communities. Nevertheless, mineral extraction generates significant tax and multiplier effect revenue, and mining projects are a source for capital introduction, job creation, and learning and technology spillovers in poor economies. Despite the ubiquity of the resource curse admonition, some countries have successfully leveraged their mineral wealth for sustained and substantive economic development. Mining was a significant contributor to the early development of the US, Canada and Australia, for example, and nations like Indonesia, Chile, Tanzania and Botswana have mitigated the resource curse effects of their substantial mineral sectors and used those sectors to achieve strong development outcomes in many areas. These conflicting stories about the role of the extractive sector in economic development make it difficult for nation states to sort out the optimal policy framework.

Before one can begin to design a framework for "extracting development" one must understand the range of potential impacts of the mineral sector on society and economy. Below I summarize the range of arguments underpinning the resource curse thesis. For organizational purposes I categorize these arguments

into economic, political and social impacts. While mining's environmental impacts are significant and worthy of discussion, the environmental conversation is beyond the scope of this essay.

A) Economic Impacts of Mineral-Led Development

Overwhelming evidence suggests that mineral-dependent economies perform worse than other, otherwise similar economies across the gamut of development indicators. Mineral dependent states have particularly low living standards, high poverty rates, and high income inequality (Ross 2001). Further, mineral-dependent countries are more vulnerable to economic shocks and high rates of inflation, and they tend to have relatively homogeneous industry mixes. The three central economic problems that accompany productive concentration in the mineral sector are enclave economy effects, Dutch disease, and increased vulnerability to market shocks.

Oloibiri Oil Well, Nigeria. Photo used with Creative Commons license.

Mineral economies often function as enclave economies and tend to foster a growth problem known as Dutch disease. An enclave economy is one which exists within a larger economy (usually a national economy) but which has no meaningful ties to the larger economy. This type of economic structure is considered bad for growth because it reduces the multiplier effect. In the mineral sector this is the case because the labor needs of mining projects are mostly highly specialized technicians and administrators, many of whom come from abroad. Also, the physical and technological installations necessary for mineral production are often not available in the host country and are usually imported as well. Moreover, metal mining firms are usually vertically integrated around processing, which means that the same company that extracts the ore also mills and processes the ore for export. Lastly, because much mining is a capital intensive enterprise, profits are usually expatriated at a greater rate than in other industries because they go to service the capital debt (Auty 1993).

Related to the enclave economy effect is the Dutch disease effect. This refers to a scenario wherein a boom in some enclave sector siphons off capital investment and labor from other sectors such as agriculture and manufacturing causing these sectors to lose competitiveness. First, this is detrimental to economic productivity because the agricultural and manufacturing sectors typically possess more backwards and forwards linkages within the economy than the mineral sector,

which means shrinkage in these sectors is not compensated in macroeconomic terms by growth in the mineral sector. Secondly, the Dutch disease effect is a problem because resource booms are, by definition, accompanied by resource busts. Mineral deposits are finite, and once they are exhausted, the mineral sector collapses leaving weakened, non-competitive manufacturing and agricultural sectors exposed. Lastly, as revenue from the mineral windfall is absorbed into the economy, mostly in the form of tax revenue, the exchange rate appreciates dramatically, leading to inflation.

Mineral-led economic development trajectories can also leave an economy more vulnerable to external shocks. This happens in two ways. First, the sectoral uniformity that results from Dutch disease leaves an economy more vulnerable (Lewis 1984). Second, the tendency to liberalize capital accounts in countries that are seeking a larger share of global FDI flows can leave the economy vulnerable to rapid divestment from highly mobile foreign capital. This can have devastating impacts on an economy as in the case of Thailand in 1997 and Argentina in 2002.

B) Political Impacts of Mineral-Led Development

In addition to the economic contradictions laid out in the previous section, states face political contradictions inherent in embarking on a mineral-led market integration development strategy. These political contradictions are 1) the enabling environment dilemma, 2) weakened social contract and weakened political institutions, and 3) strained municipal service provision.

The central political contradiction that states in this position face is the dilemma between fostering a political environment that will be amenable to the needs of foreign capital and upholding the rights of the citizenry and the integrity of the natural environment. There are essentially three types of foreign direct investment: market-seeking, strategy rent-seeking, and efficiency-seeking. Market-seeking FDI (also known as tariff jumping FDI) invests in countries that protect domestic industries with high import tariffs. Rather than incur extra costs to export to such a protected market, many companies would rather set up shop within the tariff boundary to produce for the domestic market. Strategy rent-seeking FDI is common in natural resource sectors where monopoly access to stores of non-renewable raw materials offer investors a competitive advantage over other companies (Bunker and Ciccantell 2005). Efficiency-seeking FDI seeks an investment climate in which it can minimize costs. This type of investment tends to be concentrated in labor intensive sectors and seeks environments with cheap, abundant labor. Efficiency-seeking FDI, because it often employs a broad swath of unskilled workers, is a productive development engine, but there are trade-offs. Often when states adopt new policies designed to foster an “enabling environment” for efficiency-seeking FDI, they distinguish themselves from other economies by rolling back labor and environmental standards. This makes it less expensive for firms to operate. When the FDI in question is from the mineral sector, state ownership of

subsoil rights and broad eminent domain laws are also an important piece of the policy bundle designed to attract investors. While such policies do attract investment, which is critical for macroeconomic growth, they can also worsen conditions for workers, degrade the natural environment, and generate social and political instability. Because mining threatens land tenure and water and soil resources in the rural regions where it takes place, mining economies can generate more social and political instability than economies premised on other types of FDI.

Research suggests that states with substantial mineral and oil endowments tend to neglect their social contractual obligations to their citizenry at a greater rate than other states (Karl 1997, Shafer 1994). This is the case because states that experience sudden windfalls of mining revenue become less dependent upon other, more labor intensive sectors such as agriculture and manufacturing for their revenue. When worker productivity is necessary for the state to function, states are incentivized to support the development of human capital in their population through public education and social spending. But if the state no longer needs a productive labor force to obtain the same level of tax revenue, it has less incentive to continue investing in human and social capital (Humphreys, Sachs and Stiglitz 2007; Karl 1997). This can lead to a reduction in spending on education, health and social programs. Terry Karl (1997) has also shown that oil windfalls weaken political institutions not just through the tax mechanism, but because public administration is not diffused throughout the country, but rather is concentrated in extractive regions. Lastly, Karl argues that oil windfalls tend to inspire ill-advised public spending on infrastructure mega projects.

In addition to the macro-political concerns from mineral-led development, mining projects can also debilitate local political institutions by straining local government's ability to provide adequate municipal services to its constituent households or by overwhelming municipal capacity to absorb and process windfall tax revenue (Tauxe 1993, Arellano Yanguas 2008). Most mining operations are particularly water and electricity intensive, which can leave households under-supplied with both. In rural areas where communities depend on water for irrigation, this can be a particularly pronounced problem. Further, in developing countries where service provision is uneven to begin with, the introduction of mining projects can have severe consequences.

C) Social Impacts of Mineral-Led Development

Beyond the economic and political contradictions faced by mineral rich states, mineral rich states also tend to experience social problems linked to their mineral endowments. On the national level mineral-dependent states report higher rates of child mortality, lower rates of life expectancy, high incidence of malnutrition, low school enrollment rates, and high income inequality (Ross 2001). The likely reason for these findings is the tendency discussed above for mineral-dependent states to reduce their educational, health and social spending.

On the micro level, resource towns suffer unique problems. Sudden influxes in mineral investment often lead to the formation of economic dualism both in terms of wages and technology (Bocoum 2000). But socially, this dualism can lead to intense economic stratification and maldistribution of wealth, which can bring about crime and other social problems (see Canterbury 2003, Gaventa 1980, Gill 1991, Nash 1979, and Tauxe 1993).

Social stratification, in turn, generates social conflict and crime, which can also produce social instability and backlashes against mining endeavors. These backlashes can negatively impact the mining operations through sabotage and other delinquency (Canterbury 2003). Furthermore, research also documents the increased incidence of alcoholism and prostitution that typically accompanies this boom effect owing to immigration booms to isolated mining localities (see Gill 1990).

Argyle Diamond Mine, Australia Photo by David Gardiner. Photo used with Creative Commons license.

These adverse effects of mining-led development strategies are trade-offs. Mining is not necessarily a negative sum game for development; if it were, it would never be considered as a development strategy. It warrants reiteration that the capital introduction, job creation and positive externalities can be a significant force for meaningful development if the right policy preconditions are met. The next section will draw out these preconditions for mineral-led development by examining the starkly different outcomes of two sub-Saharan African cases of states that have built their economies around their mineral endowments. The goal of this section is to explore the role of a country's policy regimes in determining how mineral endowments can become either a resource curse or a resource blessing.

Mineral Dependency in Sub-Saharan Africa: Botswana's Magic Bullet or Nigeria's Poverty Trap?

Botswana is a development paradox. This sub-Saharan African nation has had among the highest growth rates in the world since the 1950s. Despite being a small, landlocked country and a relatively recent democracy (independence from the British came in 1966), Botswana has had a seven percent growth rate over the past thirty years--higher than Singapore and Korea. Additionally, Botswana's success appears so exceptional because the driving force behind Botswana's economy has been its mineral sector, a sector which ostensibly encourages economies to underperform. Furthermore, not only has Botswana's growth rate been staggering, but it has also managed to attain relatively high development indices on many counts. Primary school enrollment has grown, on average, at 4.8 percent annually, and over fifty percent of students are women. Eighty three percent of rural residents have access to health care facilities (Leith 2005). How is it that a small, recently independent sub-Saharan African country largely reliant on an enclave economy that experiences large price swings has managed such development outcomes? The answer lies, to a large extent, in economic, fiscal and social policy.

	GINI (Most recent data available)	Poverty Gap at Nat'l Poverty Line (Most recent year data available)	Literacy Rate (% total population above 15 years of age)
Namibia	74.33	13%	89%
South Africa	67.4	7%	89%
Botswana	60.96	11.7%	84%
Nigeria	42.93	22.8%	61%
Tanzania	37.58	9.9%	73%

Table 1: Inequality, Poverty and Literacy Indicators for Major Sub-Saharan Mineral Economies. Source: World Bank (2011) World Development Indicators [on-line].

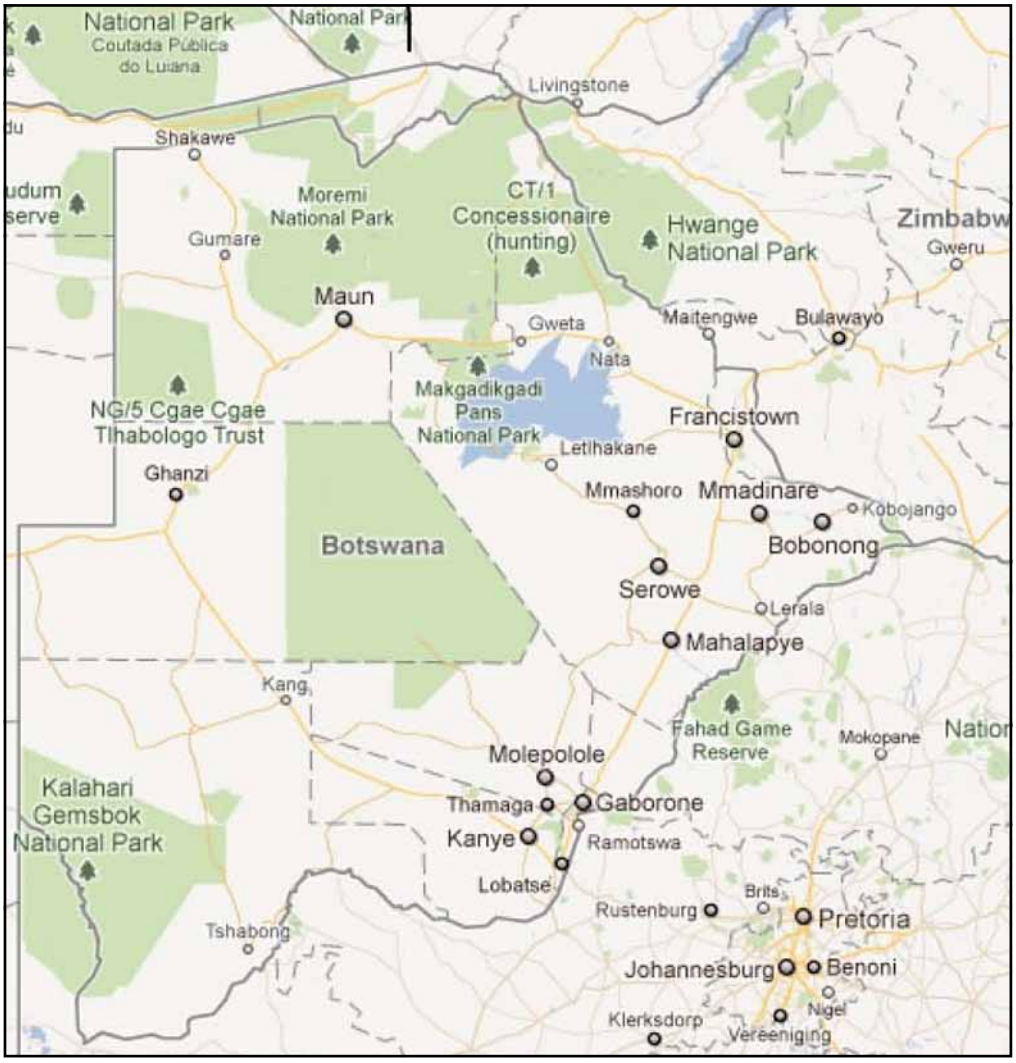
Botswana's early openness and considerable skill at attracting foreign aid and foreign investment got its economic motor running immediately following independence. At independence the government of Botswana was cash poor. They attracted significant donor money from the international aid community in the first years of independence to develop a productive infrastructure. But unlike many similar cases, donors didn't just introduce capital into Botswana's economy; they stayed and participated in the design of Botswana's independence infrastructure. The system of public administration, for example, was designed by foreign consultants who lived in Botswana for extended periods of time and learned to account

for the nuances of culture in the design of the system. A secondary source of cash in those early years came from foreign direct investment (Harvey and Lewis 1990, Leith 2005). Early on Botswana established a competitive real exchange rate to facilitate FDI inflows. It forgave debt to failed FDI initiatives allowing new companies to take advantage of sunk costs from failed ventures and offered tax relief to mineral companies for further exploration. Capital stock in the diamond mining industry ten years after independence was greater than the government's capital stock. In effect, FDI ran the country. Botswana's first President remarked "we should never sacrifice efficiency on the altar of localization" (quoted in Leith 2005: 57). The government, however, invested returns to FDI wisely, and by 2000 the government's capital stock was more that five times larger than that of the diamond industry. Botswana's openness to foreign assistance was reflected also in their export-oriented productive structure. Initially, Botswana produced beef and diamonds for export, but over time sought to diversify into non-traditional export crops, mostly to South Africa. Botswana has also been particularly adept at attracting both aid money and FDI capital in part because of its commitment to thorough, consensual development planning and the systematic execution of development plans.

The government was able to retain a significant portion of the wealth generated by Botswana's diamond mines through a policy which, rather than retaining a fixed percentage of sales, involved a profit-sharing agreement and a portion of equity in the mining operation. This policy allowed for the government to retain significant shares of profitable ventures and fewer shares of less profitable ventures; furthermore, such a policy did not deter new investors (Leith 2005). Botswana was fortunate to have a productive and collegial relationship with DeBeers, the largest mining firm operating in the country. DeBeers recognized the long-term value of their investment in Botswana and did not seek to unduly influence the government. Another important consideration in the Botswana success story relates to the particular geology of the mines themselves. Botswana's diamond deposits occur in narrow "pipes" which can only be extracted in specific locations. This has enabled the government to inexpensively and effectively monitor diamond output to ensure that their royalties match real production. This mineral geology contrasts sharply with the alluvial diamond deposits of other parts of sub-Saharan Africa, which have proven very difficult for governments to monitor.

The income from early investments by international aid agencies was reinvested in further productive capacity and basic public infrastructure to facilitate further productive capacity. Additionally, the Botswana government began building a comprehensive system of schools, health clinics and housing stock to accompany electric, telecommunications, and water distribution systems which were diffuse and interconnected throughout the country. This equitable distribution of savvy public investment in productive and social infrastructure meant that the urbanization process, as Botswana grew, happened diffusely, which kept wealth from being concentrated in just one part of the country (Leith 2005). There has not been a lot

of direct employment in the mineral sector, as it is not a labor intensive industry (Harvey and Lewis 1990). The growth that diamond mining has spurred has been indirect, through government revenue reinvested in non-traditional export crops and the beef industry.



Map of Botswana. Copyright 2011, Google. Image reproduced from Google Maps.

Botswana, to be sure, possessed some idiosyncratic factors which have been influential in generating this development success story. Most prominent among these were the strong pre-colonial legacy of tribal political systems, which were very participatory. Furthermore, Botswana, being arid, landlocked, and not appearing to possess any noteworthy natural amenities, was an outpost of the British colonial empire, largely left to its own devices by the British rulers. For this reason, the country retained a spirit of self-reliance, and cultural traditions endured. When independence was granted in 1966, the governing coalition, made up of economic and political elites held a set of development goals which

fortuitously coincided with the goals of a large percentage of the population (Leith 2005). The government of Botswana, early on, was acutely aware of the potential for ethnic conflict among the various tribes which had been grouped together within the boundaries of the new nation state by the British. They sought to downplay ethnic divisions, foster Botswana nationalism, and embark upon a development trajectory that would serve their diverse constituents equally.

Although Botswana has successfully leveraged its mineral endowment for sustainable development, it is by no means, a perfect country. Botswana has a relatively high inequality index, and its economy has experienced significant swing patterns corresponding to swings in the global price of diamonds (see Table 1). Furthermore, they have experienced periods of extremely high inflation in times when excess liquidity in the central bank forced the government to loan money at negative interest rates (Leith 2005). Despite free and fair elections there have been few transitions of authority in the years since independence. The president has extensive constitutional powers, and there is a range of ways that the government controls the dissemination of information. Botswana's system of government was described by one author as "authoritarian liberalism" (Good 1997). Some research also argues that the Botswana state has "prioritized other factors" over poverty alleviation, and that the economic growth that Botswana has experienced has not contributed to any serious poverty alleviation for the San community in particular (Good 1999). Kenneth Good argues that the Botswana state has in fact buttressed the elite, cattle-holding class in such a way that inequality has been exacerbated and the chronic poor have been overlooked. Perhaps the most significant evidence of state failure in Botswana is its staggering HIV/AIDS rate. In Botswana one third of the population has HIV/AIDS, which is one of the highest HIV/AIDS rates in the world.

Nigeria shares many characteristics with Botswana, although its development outcomes have been quite distinct. Nigeria was also a British colony, winning independence in 1960. Like Botswana, Nigeria possesses great raw material wealth. Nigeria is among the top ten petroleum producing states in the world, and is the top producer in Africa (see Figure 4). But unlike Botswana, Nigeria has not been able to leverage its tremendous natural resource wealth for meaningful development. In addition to being at the top of the oil production list, it is also at the top of Transparency International's (2007) list of the world's most corrupt countries, ranking at the 32nd most corrupt country in the world. Part of the responsibility for the Nigerian tragedy falls to the dubious role of the major oil companies in reinforcing bad governance to collect greater rents, and part of the responsibility falls to poor management of oil revenues by the government itself.

Fuel Exports as a % of Merchandise Exports (2008)	
Nigeria	91.7%
South Africa	9.5%
Tanzania	2.9%
Namibia	0.48%
Botswana	0.3%

Table 2. Source: World Bank (2011) World Development Indicators [on-line].

Two key differences that partially explain differential outcomes of extraction-led development in these two cases are the differential role of the British colonial powers in each case, and the distinct dynamics between firm and state in each of these cases. The British colonial rule in Nigeria created a dual economy where the economic activity of the elite did not filter into the isolated peasant economy (Ikein 1990). The colonial British rule in Nigeria amounted to a system of "divide and conquer" which fed ethnic divisions and rendered Nigeria incapable of establishing political institutions that could build consensus or effect substantive economic development (Karl 1997: 206). In contrast, in Botswana, the hands-off British allowed an egalitarian and densely integrated economy to develop. Another political structural difference between these two states is the highly concentrated political power of the Nigerian government as opposed to the somewhat diffuse and participatory nature of the Botswana state.

Oil companies are vertically integrated, which means that exploration, extraction and refining are all carried out by the same company. This fact has exacerbated the enclave effects of oil production in Nigeria, and has meant effectively no technology spillovers into the rest of the Nigerian economy from foreign investment in oil production (Ikein 1990). Furthermore, whereas DeBeers in Botswana supported the government, Shell Oil in Nigeria has been less scrupulous. Botswana's political institutions were stronger early on that those of Nigeria. Botswana's government had made an effort to overcome ethic divisions and work equitably for all Batswana. DeBeers understood this, and thought it prudent to enter into long-term, legitimate partnership with the government for mutual benefit. Oil firms in Nigeria have been less transparent, manipulated profit data to consistently underpay royalties, conspired to fix prices, and have systematically sought to corrupt the Nigerian government through bribes.

Nigeria fell victim to a classic Dutch disease story, and also conforms to Terry Karl's (1997) model of "capital deficient oil exporter." As the Dutch disease model predicts, the Nigerian economy is extremely homogeneous. Oil production accounts for 40 percent of GDP and 98 percent of export earnings. The Nigerian government accumulated a huge international debt, and has experienced many periods of high inflation. As its oil sector has grown, and consequently its fiscal dependence on oil revenues, agriculture has declined and manufacturing has remained stagnant. Lastly, with no industry mix to provide a safety net, world oil shocks such as the 1979 Iranian revolution have been particularly damaging to the Nigerian economy. So acute are the effects of Dutch disease on the Nigerian economy that this agrarian society has become a net importer of food (Karl 1997).

Further, because the Nigerian government has never had to work to obtain tax revenue from its citizenry, it has never seen fit to invest in the human and social capital necessary to promote its workforce. In contrast to Botswana, the Nigerian government has had little foresight. It failed to take advantage of boom periods to set up non-oil tax systems to ensure a continued revenue flow from other sectors

during bust periods. What little redistributive spending did occur, took place according to political interests. The majority of Nigerians have suffered abject poverty and ethnic conflict while a diminutive elite has accumulated tremendous wealth. Political strife and corruption have created an extremely unstable political system. Karl (1997: 193) describes a "pattern of regime change or acute regime crisis" which has been borne out in "making a transition to democracy in 1979, reverting to authoritarian rule in 1983, beginning an uncertain transition once again between 1986 and 1991, and then suffering a military coup in 1993."

Failure to utilize extractive windfalls for productive public goods can have the effect of trapping the host country in a cycle of poverty. This "poverty trap" occurs when the state is too poor to provide basic public goods. In turn, the failure to provide public goods acts as a disincentive for foreign investment to locate in the country, which in turn, further exacerbates poverty (Sachs 2007). Mineral revenue windfalls offer poor countries an opportunity to escape from the poverty trap, but in the Nigerian case, the government failed to take advantage of this opportunity. Poor investment decisions on the part of the Nigerian government further entrenched the country in its cycle of poverty.

In sum, where Botswana pursued a political agenda of unity, equity, industrial diversity, social and infrastructural investments in the productive capacity of the citizenry, economic liberalism, "benevolent authoritarianism," and long-term planning; Nigeria's state developed into a weak, corrupt, divisive instrument of the oil industry, and its economy fell prey to the classic symptoms of the resource curse. In the next section, the lessons from this brief case comparison will be integrated into a conceptual framework to guide policy-making for states pursuing mineral-led development strategies.

Nigerian Off-Shore Oil Platform. Photo used with Creative Commons license.

Conceptual Framework For Achieving Optimal Outcomes From Mineral-Led Development

Mitigating Adverse Economic Impacts

Attracting foreign direct mineral investment into an economy, given the right preconditions, can be a force for economic growth. The greater the capital stock in an economy, the more economic productivity takes place; and the more economic productivity that takes place, the better off consumers will be in aggregate. Also FDI introduces learning and technology spillover effects into the economy. Foreign firms typically bring proprietary technology with them, which gives them an advantage over domestic firms with which they are competing. Domestic firms possess other advantages such as superior knowledge of the availability of factor inputs (Kohpaiboon 2006). Learning and technology spillover effects arise when domestic firms institute and learn from the advanced technologies introduced by foreign firms. In general, the key points to consider when designing a mineral investment policy are 1) the compatibility between FDI policy regime and trade policy regime, 2) fiscal strategies, 3) the physical properties of the mineral endowment, 4) the terms of the deal, 5) investment strategies for government revenue from mining activities, and 6) physical and political infrastructure to distribute gains from investment evenly and in a sustained manner.

There is substantial evidence to support the Bhagwati hypothesis, which states that learning and technology spillover from foreign direct investment is diminished in countries with restricted trade regimes than it would be under an open trade regime. This is the case because highly protected economies disincentivize foreign firms from importing costly proprietary technology. Furthermore, in a highly protected economy, domestic firms, rather than competing with foreign firms with technological advantages, tend to differentiate to maintain market share. Therefore, in a protected economy there will be less competition between foreign and domestic firms. This means that foreign firms will operate under near enclave conditions, and with less competition there is less information crossover between firms (Kohpaiboon 2006). In short, the Bhagwati hypothesis suggests that for countries looking to increase foreign direct investment in the mineral sector-already an industry which lends itself to enclave practices-it is important to have some degree of openness in the trade regime. This will ensure that the learning and technology spillover effects that are crucial to mineral-led growth will be maximized. Often, liberal trade regimes accompany liberal FDI regimes. In cases where the two are incongruent, foreign capital may be looking for access to a protected market. This pattern is known as market-seeking or tariff-jumping FDI. It is unlikely, in smaller economies, that mineral investment would be seeking market access. It is more likely that mineral investment would be looking to export its product to markets elsewhere. Therefore, in the mineral sector, the Bhagwati hypothesis may be less relevant. Nevertheless, it is important to consider the synergy between trade and investment policy regime when courting foreign capital in any sector.

Botswana had high tariffs initially after independence. Although it had passed a variety of incentives for foreign direct investment, Botswana also sought to strengthen its domestic industry early on by protecting them from imports. Nevertheless, over time Botswana's trade regime was increasingly liberalized, which had the effect of maximizing the few spillover gains that accrued from its enclave diamond sector.

In addition to synergy between trade and investment policy regimes; there are important fiscal strategies to keep in mind when embarking on a mineral-led development trajectory. These include monetization, exchange rate policy, and capital account liberalization. Monetization of the economy, and maintaining a favorable exchange rate, are important strategies to encourage foreign direct investment and foreign exchange earnings. Many countries have attempted to peg their currencies to other currencies such as the US dollar. This approach, in contexts of institutional strength, can be an effective way to encourage investment as well. However, as Argentina experienced, in weak political institutional environments a floating currency may be preferable. This is the case because if a government is obligated to make good on an exchange rate in times of fiscal crisis, the additional commitments will only exacerbate the crisis. Another fiscal policy often undertaken by states that wish to facilitate foreign direct investment is liberalization of capital accounts—policies that allow foreign currencies to move freely in and out of an economy. Capital account liberalization is an effective fiscal strategy to promote development, although this approach can leave economies with inadequate institutional environments very vulnerable to economic shocks and capital flight (Humphreys, Sachs and Stiglitz 2007). The economic crashes of Thailand and Argentina were both precipitated by significant capital flight, the results of fiscal policy regimes designed to attract foreign direct investment, which left these economies vulnerable to market whims.

Countries must also consider the physical characteristics of the mineral endowment when designing the approach to capitalize on mineral wealth. Some mineral endowments facilitate better growth than others (Bocoum 2000). Some features to consider include the dispersion of the mineral in the rock, the physical location of the deposit within the country, the particular type of mineral in question, and the possibilities for upgrading through additional value-added production.

Bradford Barham, Stephen Bunker and Dennis O'Hearn (1994) suggest that the scarcity, distribution and location of mineral deposits influence the nature of the particular extractive industry. The scarcer the mineral, the greater the scarcity-based rents that can be collected by those who control access to the mineral. High potential for scarcity-based rents has the effect of encouraging dense, horizontal integration around mineral production because a wide variety of actors seek to "cash in". While this may make collecting royalties more difficult, it also may make

mineral production a more labor intensive process, thus serving as a vehicle for development. Furthermore, in most cases the mining firm retains most of those rents, but in cases like Botswana's where the contract between state and firm includes profit sharing and equity, the state can share significantly in the scarcity rents that accrue. Therefore, a sound mineral policy will consider the particular mineral itself and its relative scarcity or abundance when deciding whether or not, and how to exploit.

Distribution, per Barham et al.'s (1994) framework refers to the relative concentration or dispersion of the mineral in the earth's surface; the more diffuse a mineral, in global terms, the greater the number of producers. In national economic terms, dispersion has a different meaning. It can mean the possibility to attract multiple firms to exploit multiple projects, which may mitigate, to a certain extent, the enclave attributes of the mineral sector. Additionally dispersion within one deposit; that is, the ratio of ore to rock, has an impact on extraction costs, the level of environmental damage, and therefore, the level of social unrest. The more disperse the mineral within the deposit, the costlier to extract in financial and social terms; therefore, it is important to consider this geological feature before deciding if and how extraction will take place.

Industrial Diamond Mine. Photograph by Esther Dyson. Used with Creative Commons license.

Lastly, location, per Barham et al.'s (1994) framework refers to the integration of the mine site into the national infrastructure grid. The better integrated the site; that is, the less remote, the better the long-term investment in the sunk costs of extraction. Additional physical features to consider include the extraction practices of the mineral at issue and the potential for upgrading within the domestic economy. The technologies and techniques for extraction vary between minerals. Some, such as gold, typically employ open pit, cyanide-leaching practices which can be especially detrimental to the natural environment. Usually hydraulic and placer techniques are quite damaging as well. Underground mines, such as the diamond

mines of Botswana, tend to be less destructive. If an industry is very vertically integrated, such as oil production in the case of Nigeria, there are fewer possibilities for the host economy to retain additional value through upgrading. If, however, the domestic mining industry is marked by horizontal integration, which tends to be the case with less abundant minerals, then domestic industry may capture part of the production or refining of the mineral making the mining investment more productive within the economy.

Once the preliminary considerations such as synergy between trade and FDI policies, fiscal policies, and physical characteristics have been considered; and if, on that basis, it is deemed worthwhile to pursue mineral-led development strategies, the next step is to establish the terms of the deal between the state and the extractive company. Returning to the taxonomy of types of FDI—efficiency-seeking, market-seeking and strategy rent-seeking FDI all have different impacts in an economy. Furthermore, these three classes of capital respond differently to regulation by the state. Therefore, the state must understand investor's goals through the framework of efficiency-seeking, market-seeking, and strategy rent-seeking before it composes the terms of its contract. Foreign investment in the mineral sector is typically either efficiency-seeking or strategy rent seeking. Efficiency-seeking mineral capital is less likely to agree to unfavorable regulatory terms than strategy rent-seeking capital. Understanding investor's goals can be helpful in crafting favorable contract terms.

There are a variety of types of agreements, which the state must consider. Each has advantages and disadvantages. The common types of agreements include license agreements, production sharing agreements, joint ventures, and service agreements (Radon 2007). These can be thought of along a continuum from total privateness to total stateness. The license agreement involves selling the complete rights to all extraction, processing and exporting, based in a particular region, to one firm. The advantage to this agreement is that it is inexpensive for the government. The disadvantages are that the government cedes total control to the extraction firm, and it is likely to be a less lucrative deal in the long-run for the state. A production sharing agreement, like those between the Botswana government and DeBeers, cede all production and exporting authority to the firm, but usually involve an equity arrangement and higher returns to the government in the long-run. Under two types of agreements, the government does not shoulder any of the risk. Joint ventures include active government involvement in the operation and management of the venture, which means the government shoulders some of the risk as well as the gain. Finally, service agreements are those in which the government retains effectively all the rights over the mineral deposit, but contracts with private firms to provide particular services. Usually, in this scenario, all of the risk accrues to the state, and the firm is paid a flat fee for services rendered independent of the extractive revenues. In most cases, the ideal type of agreement is probably a profit sharing agreement. However, it is in the firm's interest to push hard for a licensing agreement. Therefore, states must be prepared to negotiate effectively.

Radon (2007) recommends that states spare no expense in hiring the best, most sophisticated coaches and negotiation consultants that they can. Oil and mining companies are savvy in the technical and financial aspects of contract negotiations, and they are relentless. This is why it is important for the state to have considered factors such as the physical properties of the mineral, and the type of FDI with which it is negotiating. This helps place the state in a stronger position vis a vis the firm during negotiations. It is important also to consider labor, human rights, and environmental standards when negotiating, and to conduct negotiations transparently and with broad-based citizen input. Radon (2007: 96) warns against stability clauses, which he calls, "contractual colonialism." Stability clauses exempt extraction firms from changes in government policies that may adversely affect the firm's profit structure.

Ultimately the state's obligation is to its citizens, be that in the form of well-invested revenues from mineral projects, or in the form of reasonable labor and environmental standards. Under neoliberal globalization these two processes may appear conflictive, but through wise negotiations with extractive firms, both can be accomplished. Minerals, if left in the ground, do not depreciate in absolute terms. In fact, as mineral scarcity increasingly becomes the norm, there is an ever-greater likelihood of a superior price environment down the road. Further, mineral stores are finite, and therefore firms do not have infinite leverage in negotiations. If the terms of the agreement are not right, states can exercise their right to leave the minerals in the ground until another, superior offer comes along. While failing to reach an agreement may appear to investors in other sectors as though the "enabling environment" for all FDI is poor, the more productive FDI (that which is labor intensive with high spillover effects) tends to prefer investment environments with a strong workforce and a stable political environment. A bad extractive agreement can undermine political stability and worker's rights, as the Nigerian case demonstrates.

Once production is at full swing, sound investment strategies for the revenue generated by mining are crucial to leveraging this sector as a vehicle for development. Arguably, the biggest difference between the Botswana and Nigerian cases was the way in which each country chose to use its extractive revenue. Humphreys et al (2007) suggest that governments conceive of mining revenue not as profit, but as part of the principle. This is because mineral deposits are non-renewable resources. Therefore, every dollar of revenue from the sale of minerals further depletes the total stock of minerals. Income from the extractive sector is finite by definition. For this reason, argue Humphreys et al. (2007), all revenues from mining projects must be reinvested elsewhere rather than spent down. Botswana has put large amounts of state funds into health care, for example, in stark contrast to Nigeria (Figure 2).

Jeffrey Sachs (2007) makes the case that because the direct benefits of foreign-financed mineral production accrue overwhelmingly to the government, the government has an obligation to invest that income in investments such as public and

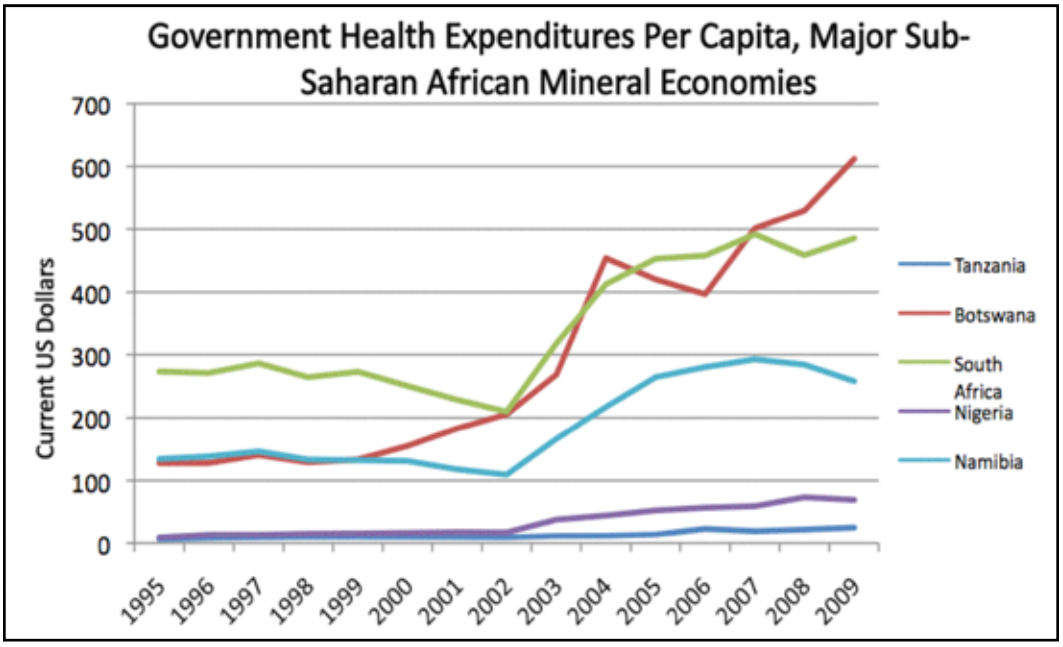


Figure 2. Source: World Bank (2011) World Development Indicators [on-line].

merit goods. Public goods, says Sachs are "goods that are under-provided by the private sector in a market economy" (2007: 175). Public goods are generally those that lend themselves to efficient management under monopoly ownership structures and the enjoyment of which is distributed equally among all citizens. Therefore, public goods are better provided by the state than left to the market. Such goods include "national defense, rule of law, environmental protection… and basic infrastructure networks." (Sachs 2007: 175). Merit goods, on the other hand, are goods that "should be for everyone in the society for the sake of social harmony and justice." (Sachs 2007: 175). These include health care, education, and social security. These two types of goods, public and merit, constitute an important destination for mineral revenue. Sachs further suggests that this public and merit infrastructure must be built gradually otherwise it will not be able to be appropriately assimilated. State of the art health clinics are of little use if there aren't enough trained nurses to staff them.

Botswana employed this approach effectively. This was one of the key differences between the Botswana and Nigerian experiences with extractive windfalls. Botswana began immediately during the first diamond boom, to invest in health, education and infrastructure evenly throughout the country. Nigeria, which did not capitalize on its opportunity to build a productive infrastructure of public and merit goods early on, was never able to escape from the poverty trap.

It is further important for the state to provide these public goods with a view toward macroeconomic stability and long-run fiscal solvency. Macroeconomic stability is accomplished by ensuring that the exchange rate is stable and that the economy

is not exposed to shocks from price falls or capital flight, and fiscal solvency refers to the ability to pay down on debt consistently without imposing dramatic austerity measures. Lastly, Sachs contends that a mixed economy where the government fully underwrites public and merit goods, but does so in a manner that complements private investment in the productive sectors of the economy, constitutes the ideal environment for long-term economic development.

The final consideration for states engaging in mineral-led development strategies involves strategic planning about the future of the extractive region. The mineral sector "produces" resources that are, by definition, non-renewable. Booms in mineral extraction inevitably accompany busts. If a mineral sector is large enough, the bust can have devastating macroeconomic consequences. In other cases, where mineral endowments are localized and constitute a small percentage of total GDP, the bust is felt most sharply in the resource producing region. There are two basic steps that a state can take to mitigate the effects of the bust for the host region: investment in infrastructure and equitable distribution of costs and benefits.

Governments must plan to network the sunk costs of mine projects back into the larger national infrastructure grid. To this effect, Barham and Coomes (2005: 177) write, "…the key issue lies in the degree to which existing investments in the sector, and other ancillary activities, can be reallocated toward new activities when opportunities change." Doing this enables the state's investment in the sunk costs of mining infrastructure such as roads, water and electric networks to continue to produce returns after the completion of the mining project. The Botswana government accomplished this with success, and it has been proven effective elsewhere as well (Ritter 2001). Though it is tempting for states to relinquish authority for infrastructure development to the mining firm, the state should assume at least partial responsibility for the provision of infrastructure necessary for the mining project and should make an effort to link that infrastructure elsewhere to mitigate the effects of the inevitable bust. Left to their own devices, the mining firm will build only enough to serve the needs of the mine for the anticipated time horizon. The state, on the other hand, will build infrastructure with a longer time horizon and with longer-term development goals in mind. Therefore, if the state partners with the mining firm to continue the infrastructure into other nearby communities and urban areas, the sunk costs of the mining project‘s infrastructure will remain productive long after the mine is closed.

Governments must also take steps to ensure that the direct gains (e.g., employment, local tax revenue) and costs (soil and water degradation, adverse health effects) from mineral projects are distributed evenly within the region. In many cases the local economic benefits from mining projects are not distributed equally among the communities that experience the costs. In the Siria Valley of Honduras for example, a large gold mine was built in the municipality of San Ignacio. The firm paid royalties to the local government of the host municipality and created a hundred new jobs in the community. But since the contours of watersheds don't

conform to municipal boundaries, the downstream municipality of El Porvenir experienced environmental degradation and a dramatic reduction in its water access. In this case, all of the economic benefits of the mine accrued to the municipality of San Ignacio while practically all of the costs accrued to El Porvenir. The right policy package can mitigate this tendency of mining projects to distribute benefits unequally and spur social conflict. Loyaza, Franco, Quezada and Alvarado (2001) concur that mining royalties must be invested in communities that have been adversely impacted by mining operations. This same research also shows that economic benefits from mineral activity accrue disproportionately to urban centers and bypass the rural villages which host these mines. Loyaza et al (2001: 82) write "In the case of [Bolivian gold mine] Inti Raymi…the multiplier effect in rural communities was practically zero, while in the city of Oruro, each dollar paid by the company became approximately 2.8 dollars circulating in the economy." Governments should incorporate strategies into their strategic plans to distribute gains back to the rural communities which are most affected by the mines.

It is further advisable to hedge against the ill-effects of the inevitable bust by designing proactive training programs for potential mine employees. The tendency among many extractive firms is to import a large percentage of technical personnel and virtually all management, but if the state can demonstrate that it has adequately trained a workforce equally capable of carrying out the work, then the host country is in a better position still to capitalize on economic benefits on a regional level. Additionally, such workforce training must be conducted in such a way that the skill set acquired will be transferable to another industry in the event of mine closure (McMahon and Remy 2001:33).

Mitigating Adverse Social Impacts

This essay is concerned with putting forward a conceptual framework for countries considering exploiting their mineral endowments as a key piece of a more comprehensive development plan. The above section was principally concerned with the negotiating the economic trade-offs, while this section is directly concerned with the social trade-offs. Mining can be contentious, and many mineral-rich states across the world are among the least politically stable. In recent years, broadly-based and well-endowed social movements have emerged. Based in coalitions of peasants and transnational activists, many of these movements have been quite effective at embarrassing states and firms and even shutting down mines. While states that pursue a mineral trajectory will inevitably displace and disappoint members of the citizenry, there are steps that a state can take to mitigate the adverse social impacts of mining on communities. These include understanding the affected communities and making decisions based on that empathy, engaging in transparent political and fiscal practices, advocating for communities during negotiations with mining firms, and coupling mine development with community development.

First, it is important to intimately know the communities in which the mining project will be carried out. This can be accomplished by long-term research in the region, collecting baseline data on development indicators in the community, and consulting the community at each stage of the mineral development process including contract negotiation. Central governments are often not involved enough in direct dialogue with the community. There is a tendency for the state to abdicate these responsibilities entirely to the mining firms. This has been observed empirically in cases such as the Inti Raymi gold mine in Bolivia (Loyaza et al. 2001) and the Yanacocha gold mining project in Peru (Pasco-Font, Hurtado, Damonte, Font and Salas 2001). States must assume responsibility for social outcomes in mining communities by increasing their direct involvement in community consultations and community development work.

As the world mining frontier moves farther into remote corners of the developing world (Bunker and Ciccantell 2005), mining firms are increasingly encountering combative host communities. McMahon and Remy (2001: 33) write that "a key result of the studies [in this book] is that legal license is no longer adequate. Companies must obtain a social license, and this depends on consultation, participation, and, increasingly, a strong trilateral dialogue [sic]." Acquiring this social license may assume the form of the mining firm setting up a local development organization; a charitable foundation or a governance board to give voice to disgruntled citizens (McMahon and Remy 2001). In many cases, the size and culture of the company itself may influence their social practices within the site. Larger, better established companies are in the public eye to a larger extent than small, unknown companies. They therefore have an incentive to prevent bad publicity. Smaller producers, or "junior" firms, have less riding on their reputation and public image, and thus may be less inclined to follow appropriate codes of conduct (Dougherty 2011). The state has the obligation to encourage community development work by the mining firm, but it also has the obligation to ensure that it complements and does not conflict with social goods that are the traditional purview of the state such as health care, infrastructure and education.

The state can also smooth social conflicts through transparent reporting of fiscal revenue collected and budgetary allocations for the revenue. Consider also what percentage of the revenue will be collected at the local level and what percentage will accrue to the central government. Transparent reporting is essential to maintain productive relational dynamics between the state and civil society. Terry Lynn Karl (2007) suggests that state transparency regarding the destination of raw material revenues is the single most important act to cultivate a strong state-society relationship in a mineral state. Firms must also be transparent if they wish to acquire their "social licenses" to operate. Compensation for land takings, for example, can be a particularly divisive issue, which can be easily mitigated by evenhanded practices and transparent reporting.

Discussion

Returning to the case examples to close, Botswana and Nigeria started from relatively similar places, and their respective policy regimes were tremendously influential in charting their divergent development trajectories. Botswana's independence government was committed to governing broadly and diminishing tribal schisms. They understood the potential and the threat embodied in their mineral wealth, and they planned to distribute benefits evenly. They did this through two key mechanisms; sound investments of fiscal revenue from the initial diamond boom and a strong agreement between the state and DeBeers. Botswana invested its resource windfall immediately in diffuse, productive infrastructure, with a view to fostering other economic sectors. Also, Botswana negotiated an agreement with DeBeers that was fair, flexible, and which gave the government broad regulatory and monitoring powers. Nigeria, on the other hand, quickly became complacent with its massive oil revenues and did not invest in human capital or other productive sectors. Further, Nigeria had dubious relationships with unethical oil firms, and thus Nigeria's oil wealth has largely wrought political and economic weakness.

River in Botswana. Photograph by Frederic Salein. Used with Creative Commons license.

Governments should take advantage of their territories' mineral wealth, but only if certain conditions exist. Successful engagement with the mineral sector requires strong political institutions. Such a state must possess an infrastructure and a capital stock capable of providing public and merit goods evenly and thoroughly to the citizenry. This state must also be capable of carrying out fully consensual development planning and have the executive capacity to operationalize such a plan. This requires responsive, representative democratic political institutions with decentralized systems of grievance redress. Liberal FDI policy regimes, in the successful mineral-led economy will synergize with liberal trade regimes and will further synergize with the existing industrial mix. The state should cultivate up and downstream industries which can establish linkages with the new mineral sector and should invest, proactively, in a trained workforce. Lastly, the state must cultivate an enabling environment for FDI in labor and technology intensive sectors and must consider extractive agreements as a complement to such industry mix. Such an approach will ensure that the agreement allows the state flexibility and authority with respect to its mineral sector. If the geology of the deposits, world price, and other factors require relaxed cost structures for profitable extraction, it may ultimately prove in the interest of long-term economic development to forego extraction until the environment changes.

References

Arellano-Yanguas, Javier (2008) "A Thoroughly Modern Resource Curse? The New Natural Resource Policy Agenda and the Mining Revival in Peru." *IDS Working paper* 300 Institute for Development Studies. Sussex, UK.

Auty, Richard M (1993) *Sustaining Development in Mineral Economies: The Resource Curse Thesis*. Routledge: New York and London.

Auty, Richard M. and Raymond Frech Mikesell (1998) *Sustainable Development in Mineral Economies*. Oxford University Press: UK.

Avila, Eduardo Chaparro (2003) *Small-Scale Mining: A New Entrepreneurial Approach*. ECLAC, Natural Resources and Infrastructure Division: Santiago, Chile.

Barham, Bradford, Stephen G. Bunker and Denis O'Hearn (1994) *States, Firms, and Raw Materials: The World Economy and Ecology of Aluminum*. University of Wisconsin Press: Madison, WI.

Barham, Bradford and Oliver T. Coomes (2005) "Sunk Costs, Resource Extractive Industries, and Development Outcomes" in Ciccantell, Paul S., David A. Smith and Gay Seidman (Eds.) *Nature, Raw Materials and Political Economy: Research in Rural Sociology and Development* 10. Elsevier: The Netherlands.

Bocoum, Brigitte (2000) "The Mineral and Energy Sectors and Stages of Economic Development: A Comparative Input-Output Analysis." *African Development Bank Economic Research Paper* 59.

Bridge, Gavin (2004) "Mapping the Bonanza: Geographies of Mining Investment in an Era of Neoliberal Reform." *The Professional Geographer* 56.3.

Bunker, Stephen G. and Paul S. Ciccantell (2005) *Globalization and the Race for Resources*. Johns Hopkins Press: Baltimore, MD.

Bunker, Stephen G. (1985) *Underdeveloping the Amazon: Extraction, Unequal Exchange and the Failure of the Modern State*. University of Chicago Press: Chicago, IL.

Canterbury, Dennis C. (2003) "Community Development through Community Non-Wage Benefits in Guyana's Mineral Sector" *Canadian Journal of Development Studies* 24:2.

Donnelly, Roger and Benjamin Ford (2008) “Into Africa: How the Resource Boom is Making Sub-Saharan Africa More Important to Australia.” *Lowy Institute Paper* 24. Lowy Institute for International Policy.

Dougherty, Michael L. (2011) “The Global Gold Mining Industry, Junior Firms, and Civil Society Resistance in Guatemala” *Bulletin of Latin American Research.* 30(4) 403-418.

Ferguson, James (2006) “Governing Extraction: New Spatializations of Order and Disorder in Neoliberal Africa” Chapter 8. *Global Shadows: Africa in the Neoliberal World Order*. Duke University Press: Durham, NC.

Freudenburg, William R. and Lisa J. Wilson (2002) “Mining the Data: Analyzing the Economic Implications of Mining for Micropolitan Regions” *Sociological Inquiry*. (74).

Gaventa, John (1980) *Power and Powerlessness: Quiescence and Rebellion in an Appalachian Valley*. University of Illinois Press. Urbana, IL.

Gill, Alison M. (1991) “An Evaluation of Socially Responsive Planning in a New Resource Town” *Social Indicators Research* 24:2.

Good, Kenneth (1999) “The State and Extreme Poverty in Botswana: the San and Destitutes” *Journal of Modern African Studies*. 37(2).

Harvey, Charles and Stephen R Lewis (1990) *Policy Choice and Development Performance in Botswana*. St. Martin’s Press: New York.

Humphreys, Macartan, Jeffrey Sachs and Joseph Stiglitz (2007) “Introduction: What is the Problem with Natural Resource Wealth?” in Humphreys, Macartan, Jeffrey Sachs and Joseph Stiglitz (eds.) *Escaping the Resource Curse*. Columbia University Press: New York.

Ikein, Augustine A. (1990) *The Impact of Oil on a Developing Country: The Case of Nigeria*. Praeger: New York.

Karl, Terry Lynn (1997) *The Paradox of Plenty: Oil Booms and Petro-States*. University of California Press: Berkeley, CA.

Karl, Terry Lynn (2007) "Ensuring Fairness: The Case for a Transparent Fiscal Social Contract" in Humphreys, Macartan, Jeffrey Sachs and Joseph Stiglitz (eds.) *Escaping the Resource Curse*. Columbia University Press: New York.

Kohpaiboon, Archanun (2006) "Foreign Direct Investment and Technology Spillover: A Cross-industry Analysis of Thai Manufacturing" *World Development* 34(3).

Leith, J. Clark (2005) *Why Botswana Prospered*. McGill-Queen's University Press. Montreal.

Lewis Jr., Stephen R. (1984), "Development Problems of the Mineral-Rich Countries" in Moshe Syrquin, Lance Taylor, and Larry E. Westphal, (Eds.) *Economic Structure and Performance*. Academic Press: New York.

Loyaza, Fernando, Ismael Franco, Fernando Quezada, and Mario Alvarado (2001) "Bolivia: Turning Gold into Human Capital" in McMahon, Gary and Felix Remy, (Eds.) *Large Mines and the Community: Socioeconomic and Environmental Effects in Latin America, Canada, and Spain*. World Bank: Washington, DC.

Nash, June (1979) *We Eat the Mines and the Mines Eat Us: Dependency and Exploitation in Bolivian Tin Mines*. Columbia University Press: New York.

Pasco-Font, Alberto, Alejandro Diez Hurtado, Gerardo Damonte, Ricardo Font, and Guillermo Salas (2001) "Peru: Learning by Doing" in McMahon, Gary and Felix Remy, (Eds.) *Large Mines and the Community: Socioeconomic and Environmental Effects in Latin America, Canada, and Spain*. World Bank: Washington, DC.

Power, Thomas Michael (1996) *Lost Landscapes and Failed Economies: The Search for a Value of Place*. Island Press: Washington DC.

Power, Thomas Michael (2002) *Digging to Development? A Historical Look at Mining and Economic Development*. Oxfam America Report.

Radon, Jenik (2007) "How to Negotiate an Oil Agreement" in Humphreys, Macartan, Jeffrey Sachs and Joseph Stiglitz (eds.) *Escaping the Resource Curse*. Columbia University Press: New York.

Ritter, Archibald R.M. (2001) “Canada: From Fly-In, Fly-Out to Mining Metropolis” in McMahon, Gary and Felix Remy, (Eds.) *Large Mines and the Community: Socioeconomic and Environmental Effects in Latin America, Canada, and Spain*. World Bank: Washington, DC.

Ross, Michael (1999) “The Political Economy of the Resource Curse” *World Politics* 51(2).

Ross, Michael (2001) *Extractive Industries and the Poor*. Oxfam America Report.

Sachs, Jeffrey (2007) “How to Handle the Macroeconomics of Oil Wealth” in Humphreys, Macartan, Jeffrey Sachs and Joseph Stiglitz (eds.) *Escaping the Resource Curse*. Columbia University Press: New York.

Shafer, D. Michael (1994) *Winners and Losers: How Sectors Shape the Developmental Prospects of States*. Cornell University Press: Ithaca, NY.

Tauxe, Caroline (1993) *Farms, Mines and Main Streets: Uneven Development in a Dakota County*. Temple University Press: Philadephia, PA.

Transparency International (2007) *Corruptions Perception Index*. Accessed online at http://www.transparency.org/policy_research/surveys_indices/cpi/2007 on 3/6/08.