

African Natural Resources Center
African Development Bank

Botswana's Mineral Revenues, Expenditure and Savings Policy

A CASE STUDY



table of
contents

Index

4	Preface
4	Foreword
7	1. Introduction
7	2. The Role of Minerals in the Botswana Economy
7	2.1 The Mining Sector
9	2.2 What are Mineral Rents?
10	3. Uses of Mineral Revenues
10	3.1 Spending Policy Framework
11	3.2 Budget Sustainability: The Sustainable Budget Index
13	3.3 Expenditure: Trends in Public Sector Asset Accumulation
14	3.4 Trends in the Composition of Investment in Human and Physical Capital
18	3.5 Investment in Financial Assets
19	4. Complementary Macroeconomic Policies
20	5. Social and Economic Development Policy and Achievements
23	6. Outstanding Issues
23	6.1 Productivity of Public Investment
23	6.2 Allocation of Investment between Savings and Capital Spending
24	6.3 Size Of Government and Sustainability of Public Investment
24	6.4 Transparency
24	7. Lessons for other countries
27	Abbreviations

Tables

8	Table 1: Economic importance of mining
13	Table 2: Total government revenues and spending, 1983/84–2014/15 (real, 2012 prices)
14	Table 3: Mineral revenues and adjusted spending, 1983/84–2014/15 (real, 2012 prices)
20	Table 4: Provision of selected public services and infrastructure
21	Table 5: Selected social development indicators

Figures

8	Figure 1: Sub-sector contributions to mining value added (average, 2004-14)
9	Figure 2: Contribution of mineral rents to GDP, 1994-2014
9	Figure 3: Government mineral revenues as a share of total revenues and GDP
10	Figure 4: Mineral revenues and rents (current prices, 5-year moving averages)
12	Figure 5: Sustainable Budget Index
13	Figure 6: Accumulated mineral revenues and public investment (real)
15	Figure 7: Allocation of development spending, excluding education and health, 1983/4–2014/15
15	Figure 8: Composition of development spending (as per SBI definitions)
18	Figure 9: Government financial savings (BWP million and % of GDP)

Preface

The African Natural Resources Center (ANRC) has commissioned a series of case studies to bridge the knowledge gap in natural resources project-driven SME development, supply chain based domestic linkages, extractives revenue management, public-private partnerships and fiscal policy formulation:

- Anglo American Corporation's Anglo Zimele small business development initiative in South Africa,
- Angola's Partnership with Total to implement national local content policy,
- AngloGold Ashanti Malaria and public-private partnership in Ghana,
- Botswana's Mineral Revenues, Expenditure and Savings Policy,
- Chile's mining revenue fiscal policy implementation,
- Debswana's Diamond Company and Botswana's HIV and AIDS public partnership program,
- Nigeria's Local Content Board's policy and institutional arrangements.

This case study examines the experience of a resources-dependent country's approaches to mining revenue management.

The report would not have been possible without contributions from and the support of a number of partners and experts: Dr. Keith Jefferis, the consultant who collected the information and documented the study; and the ANRC team through Thomas Viot who coordinated the project with Dr. Hudson Mtegha and Pietro Toigo, both of whom edited the final report.

Foreword

In the natural resources sector, national governments perform a central role by acting as stewards in resources development. This requires a balance of policy, legal and institutional considerations. It also requires governments to consider the needs of various stakeholders. In the extractives sector, the importance of protecting inter-generational benefits is a particular challenge given the finite nature of resources. This places an extra burden on policymakers to increase the value obtained from extractives while giving investors a fair return.

Additionally, to increase development outcomes, governments must make informed choices while meeting public expectations to benefit more from extractives projects. A particular challenge facing both investors and governments is to ensure that the impact of extractives projects is felt as early as possible. Another is to ensure that countries begin to enjoy the benefits despite the time lag between project commissioning, production and payment of taxes.

Equally important is the need to stabilize the project environment such that, regardless of the project life cycle, commodity market conditions and level of profitability, projects continue to have a positive effect on human development. The answer in part lies in delinking revenue from human development strategies by assisting governments with other options for delivering tangible benefits.

Other important challenges facing countries include:

- Striking a balance between the impact on local and national economies;
- Making the correct trade-off between fiscal and non-fiscal benefits;
- Integrating projects into national economies to ensure local content while capitalizing on the global outreach of multinational corporation supply chains and related economies of scale;
- Ensuring that public-private partnerships increase human impact, promote small and medium enterprises (SMEs) and deliver social welfare services directly to those affected by extractives projects;
- Securing inter-generational value by investing revenue in productive assets.

Many resource-rich countries need to generate concrete solutions and knowledge to overcome these challenges they face and build their own capacity. In view of this the African Natural Resources Center (ANRC) has commissioned this series of case studies to benchmark best practices. Ultimately, through these studies, we want to offer countries practical solutions and a coherent policy foundation with which to improve development outcomes through natural resources projects.

[Sheila Khama](#)

[Project Sponsor](#)

[Director of the African Natural Resources Center](#)

The African Development Bank established the African Natural Resources Center as a non-lending entity to build capacity to manage natural resources. The Center's mandate is to assist African countries to maximize development outcomes from the continent's natural resources. The Center advises governments on natural resources management, policy formulation and implementation to enable them to secure greater social and economic value from resource development. The scope of the mandate covers renewable (fishery, forestry, land and water) and non-renewable (minerals, oil and gas) resources.

The Center supports African governments in performing their custodial obligations by collaborating with regional institutions, private sector, civil society organizations and donors. The Center uses benchmarks and best practices from other countries to increase the capacity of governments.

Mineral Revenues, Expenditure and Savings Policy in Botswana

1. Introduction

In many African countries, the exploitation of natural resources is a major driver of economic growth, exports, fiscal revenues and development. Although many countries in the continent are well-endowed with both renewable and non-renewable natural resources, it is by no means assured that these endowments will automatically translate into broad-based social and economic development. Resource-based economies face particular challenges, arising from price and market volatility, the fiscal challenges of capturing resource rents, macroeconomic impacts of real exchange rate appreciation and governance challenges that often result in planning failures and corruption. Mineral resources are also finite and therefore raise issues of intergenerational fairness – how the proceeds of mineral exploitation should be shared between current and future generations. Several resource-based economies have managed to avoid some or most of these problems, and their policy choices and institutional design might provide useful insights for other countries. Botswana is one such economy. It is often cited as an example of a country that has avoided the adverse impacts of the “resource curse” through appropriate policy and governance choices.

The mining sector continues to be the backbone of Botswana's economy, despite efforts to diversify. Mining is, by some measures, the largest contributor to gross domestic product (GDP), generates the majority of export earnings and makes a major contribution to government revenues. The use of mineral revenues is, therefore, of critical importance for sustainable development. Botswana has received widespread praise for the way in which it has managed mineral revenues and invested them in education, health care and other forms of assets. In some respects, it has managed to avoid what is commonly known in the literature as the “mineral curse” and “Dutch Disease” through appropriate macroeconomic, exchange rate and fiscal policies, as well as institutional design.

It is important, however, that past success should not lead to complacency. It is also critical to recognize that policy changes may be required in response to changing circumstances, both domestically and internationally. As this report will show, the peak of the contribution of minerals to the Botswana government's revenues appears to have passed, and the fiscal importance of minerals is likely to decline in future. At the same time, some Dutch Disease and resource curse characteristics can be observed, such as high unemployment, high-income inequality, slow growth of non-mining exports and questionable public spending decisions.

2. The role of minerals in the Botswana economy

2.1. The mining sector

Mining has long been the dominant sector of the Botswana economy. For most of the past 35 years, it has been the largest contributor to GDP, largest contributor to government revenues and the source of a large majority of export earnings. The importance of mineral production to the Botswana economy is summarized in Table 1.

Table 1
Economic importance
of mining

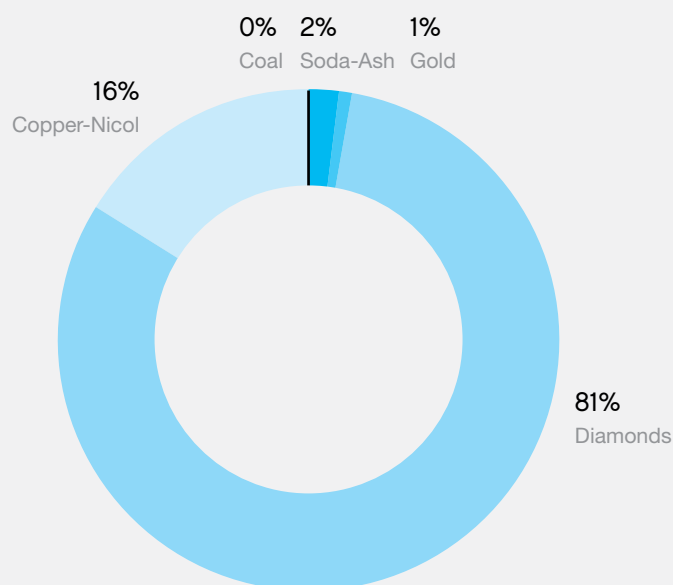
Macroeconomic Indicator	1985-1994	1995-2004	2005-14
Mining % of GDP	42.2	30.9	22.0
Minerals % of government revenues	50.9	52.0	39.9
Minerals % of merchandise export revenues	77.4	76.9	71.6
Mining % of overall GDP growth	22.1	29.9	-12.8

Source: Econsult Botswana, based on information from Statistics Botswana

Note: Export data excludes re-exports of aggregated diamonds.

The main driver of mining sector growth and earnings has been diamonds, although there have been smaller contributions from base metals (copper, nickel, and cobalt), coal, soda ash and gold.

Figure 1
Sub-sector contributions to mining
value added
(average, 2004-14)



Source: Statistics Botswana

This situation has been changing in recent years and is likely to continue evolving in the future. Government revenues from minerals appear to have peaked (relative to GDP and to overall revenues). The share of GDP accounted for by the mining sector has been declining and — depending on the measure used — mining may no longer be the largest economic sector. In 2014, mining fell to second place as a share of GDP/value added at constant (2006) prices after trade, hotels and restaurants.

There are a variety of reasons for the declining economic role of mining in Botswana:

- The diamond mining industry, which is the largest contributor to mining, has reached maturity; production (in terms of carats) peaked in the mid-2000s and has since declined.
- The global financial crisis of 2007/09 and its aftermath led to a sharp reduction in demand for diamonds, lower prices for copper and nickel, and delays in some planned mining investments.
- Economic diversification policies have to some extent succeeded, resulting in faster growth in the non-mining sector of the economy as compared to the mining sector.¹

¹ From 2004–14, the non-mining private sector grew by 128 percent, while the mining sector shrank by 13 percent (measured in terms of constant price GDP).

While minerals will remain important to the Botswana economy, the nature of the sector and its economic impact are likely to change as it becomes less important as a driver of growth.

2.2 What are mineral rents?

The economic value of a mineral resource is measured by the “resource rent”. This is the economic return earned from the sale of a mineral over and above the costs of extracting the mineral, including the risk-adjusted opportunity cost of capital. Mineral rents – a characteristic that distinguishes minerals from most other economic commodities – represent economic income that is not derived from the productivity of either capital or labour, but are derived from scarcity of a resource.

As an illustration of the peaking and subsequent decline in the relative importance of minerals in the Botswana economy, it can be seen that the contribution of mineral rents to GDP is now well past its peak.

Figure 2
Contribution of mineral rents to GDP, 1994-2014

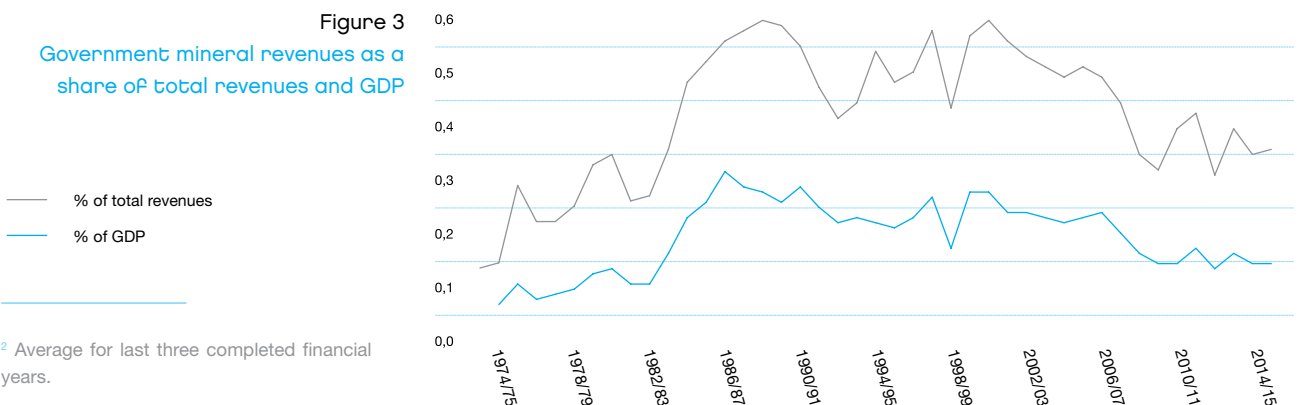


Source: Jefferys, 2015

In common with many other countries, Botswana uses a variety of mechanisms to appropriate mineral rents. These include royalties; variable-rate income tax applicable to mining companies based on profitability; dividends; and withholding taxes.

Evolution of rent appropriation over time: Mineral revenues increased rapidly from the mid-1970s onwards. At their peak, they contributed 60 percent of total government revenues, but they have since declined and now account for around 33 percent.² As a share of GDP, however, mineral revenues reached their peak as far back as the late 1980s, and have declined from 30 percent then to around 12 percent now. Nevertheless, minerals account still for the largest single contribution to the overall budget.

Figure 3
Government mineral revenues as a share of total revenues and GDP



Source: Author's calculation

² Average for last three completed financial years.

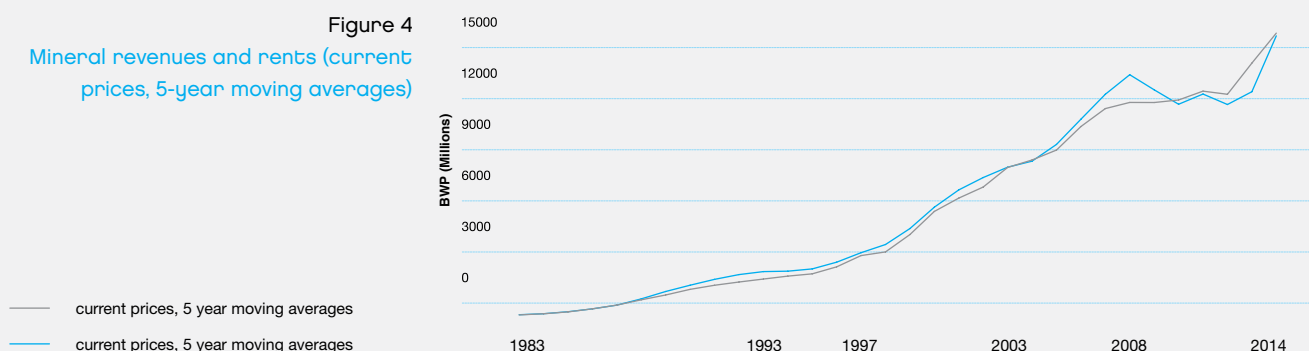
For present purposes, we are interested in the effectiveness of revenue policy in appropriating mineral rents as government revenues. In this assessment, we concentrate on the 1983–2014 period³.

At a high level, it may be concluded that mineral taxation policy has been quite successful at appropriating rents. Over the period in question, total mineral rents, were BWP414 billion (measured in real terms, at 2012 prices). Total government mineral revenues over the same period were BWP407 billion, of which BWP393 billion can be ascribed to the taxation of rent. By this measure, mineral revenues were equal to 95 percent of mineral rents⁴.

When expressed as five-year moving averages, to even out annual volatility, mineral revenues track rents generated quite well (see Figure 4).

Figure 4

Mineral revenues and rents (current prices, 5-year moving averages)



Source: Author's calculation

3. Uses of Mineral Revenues

3.1 Spending Policy Framework

The framework for public spending in Botswana is based around National Development Plans (NDPs) and the annual budgeting process. NDPs run for five or six years, and have been in place since just before independence in 1966. The current plan, NDP10, runs until March 2017.

NDPs lay out the broad parameters of public sector development policy and the government's intentions over the plan period. More specifically, they lay out the development projects that the government will undertake during the plan.

The expenditure side of the government budget is divided into two main components, recurrent spending and development spending. The development budget in principle covers one-off capital items, such as roads, schools, other building projects, purchases of capital equipment, equity injections to government-owned companies, etc. The implementation of many development projects (and the associated expenditure) is spread over a number of years. The recurrent budget mainly covers public sector salaries and wages, maintenance costs, consumables, debt interest etc., and relates specifically to annual expenditures.

The annual budget includes both the annual recurrent budget provision and the annual component of expenditure required for on-going development projects. No government ministry is permitted to spend money that has not been included in the budget estimates approved by parliament.

NDPs also have to be approved by parliament. In particular, all development projects included in the NDP must be specifically approved along with their total estimated costs. Money cannot be appropriated (in the annual budget) or spent on any development project unless it has been included in the NDP. Halfway through each NDP, there is a mid-term review (MTR) that covers economic outturns, policy and project implementation.

³ Detailed data on public expenditure is only available from the 1983/84 fiscal year.

⁴ Mineral revenues include taxes on profits, dividends, royalties and withholding taxes levied on mining companies. These represent the taxation of mineral rent as well as the taxation of "normal" profits. In order to assess the effectiveness of policies aimed at taxing mineral rent, it is therefore necessary to adjust mineral revenues to remove the portion derived from the taxation of normal profits. This is done by applying the standard rate of corporate tax to the estimated return on capital used in the mineral rent calculation and deducting this amount from the total mineral revenues received.

The review can, if necessary, add (or remove) approved development projects or vary cost ceilings. Any changes to the list of approved development projects outside of the NDP or MTR, or to their total estimated costs, have to be explicitly approved by parliament.

3.2 Budget Sustainability: the Sustainable Budget Index

It is generally accepted that for development to be sustainable in a mineral economy, the revenues derived from the exploitation of non-renewable resources need to be reinvested in other assets that will generate future income when the non-renewable resource is exhausted. Following Hartwick (1977) and Solow (1974, 1986), the Hartwick Rule (or Hartwick-Solow Rule) offers a rule of thumb for sustainability in mineral economies: A constant level of consumption can be sustained if the value of investment equals the value of rents on extracted resources at each point in time (World Bank, 2006). In other words, depletion of natural capital requires a compensating increase in other forms of capital (Lange and Wright, 2004).

The policy adopted towards mineral revenues in Botswana broadly follows this approach. The public finance policy framework specifies that revenues derived from minerals, because they are derived from the sale of an asset, should be used to finance investment in other assets. The intention is twofold: first, to preserve the country's overall asset base; and second, to provide the basis for the generation of income that can replace mineral income when it eventually declines. The corollary to the asset replacement principle is that recurrent (non-investment) spending must be financed from recurrent (non-mineral) sources.

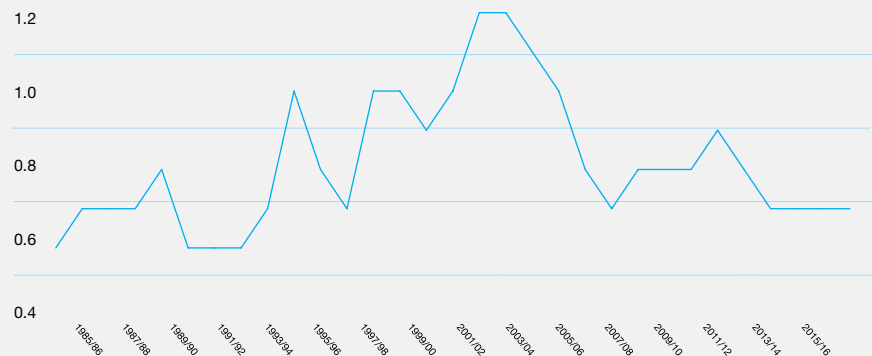
In Botswana mineral revenues are not institutionally segregated from the rest of the budget but are paid into the general revenue pool (Consolidated Fund). As discussed below, while there are guidelines relating to the spending of the share of total revenues derived from minerals, there is no statutory basis underpinning these guidelines.

The implementation of the asset-preservation principle has historically been monitored through the Sustainable Budget Index (SBI), defined as the ratio of non-investment spending to non-mineral revenues. An SBI value of more than 1 means that non-investment spending is being financed in part from mineral (non-recurrent) revenues. A value of less than 1 means that mineral revenue is either being saved or spent on public investment while recurrent spending is being financed from non-mineral (recurrent) sources, which is interpreted as being sustainable. In calculating the SBI, the normal budget classification of expenditure is adjusted so that recurrent spending on education and health is classified as investment in human capital.

For most of the period since 1983/84 (the start of the current data series on public spending), the SBI has been less than 1 and the budget has, therefore, been "sustainable"; however it remained above 1 between 2001 and 2005 after having been on an upward trend for many years, indicating that part of recurrent spending was being financed by mineral revenues. Since 2006, the SBI has been well below 1, as the share of spending on development and health and education in the budget rose sharply.

⁵ The first was the Transitional Plan for Social and Economic Development, which guided the transition through Independence in 1966 and ran from 1965 to 1968. This was followed by the first in the series of NDPs, starting in 1968.

Figure 5
Sustainable Budget Index



Source: Author's calculations, based on data from Ministry of Finance and Development Planning (MFDPP)

However the SBI has no statutory basis, nor is it even firmly entrenched in policy. For instance, neither the SBI nor the principle underlying it are mentioned in the current National Development Plan 10, or in recent Budget Strategy papers. In other terms, the SBI is a general statement of intent, not an ex-ante rule against which policymakers are held accountable.

Hence the SBI is a “principle” used, to some extent, in budget formulation, but there is no mechanism to force compliance or any penalty for non-compliance. Parliament can pass any budget, whether or not it meets the SBI principle. Compliance with the SBI is entirely dependent upon a responsible executive (to draw up sustainable budgets) and a responsible legislature (to approve sustainable budgets).

Box 1

Alternative conceptions of optimal spending rules for mineral economies

While the Hartwick Rule (reinvest all mineral revenues in other productive assets) is a useful rule of thumb, it is not necessarily optimal for developing countries. The analysis in Collier, van der Ploeg, and Venables (2008) and Collier (2012) shows that an optimal savings/investment path involves devoting some portion of resource revenues to consumption, especially in the early years of the exploitation of a mineral resource. It also shows that savings/investment should asymptotically approach 100 percent of resource revenues as the resource nears depletion. While it is beyond the scope of this paper to go into the details of the different approaches, it is important to note that the Hartwick Rule principle of investing all resource rents may not be optimal.

Interestingly, Botswana’s pattern of spending seems in some respects to follow the opposite pattern to that of the Collier/van der Ploeg/Venables rule. As Figure 8 shows, the “recurrent” component of investment spending has been growing over time, rather than declining.

3.3 Expenditure: Trends in Public Sector Asset Accumulation

Although the SBI suggests that mineral revenues should be devoted to asset accumulation, i.e. investment, it does not provide any guidance regarding the composition of public investment expenditure (i.e. how public investment should be divided between different asset types – human capital, physical capital, and financial). Nevertheless, expenditures on the different asset classes can be traced easily, reflecting ex-post policy priorities as laid out in the NDPs and other policy documents.

Total mineral revenues during the 1983/84 to 2014/15 period at 2012 prices were BWP406 billion. If the SBI constraint had not been observed, these could in principle have been devoted to spending on the different asset types or on recurrent spending.

Table 2
Total government revenues and spending, 1983/84–2014/15 (real, 2012 prices)

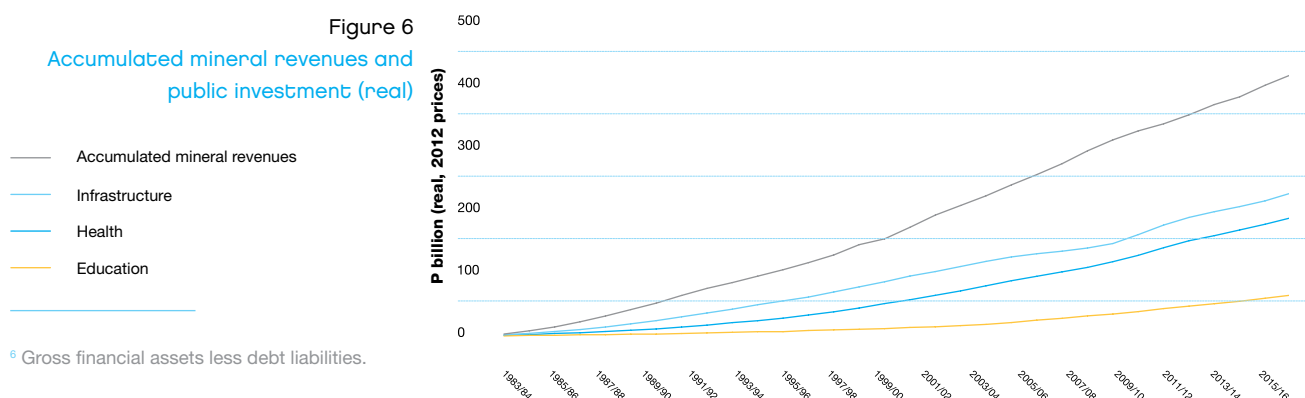
Category	Pula Billion
Mineral revenues	405.8
Total investment (physical and human capital)	445.5
of which: Education spending	185.9
Health spending	66.9
Other development (investment) spending	192.7
Net financial savings (March 2015, at 2012 prices)	39.8
Recurrent revenues, excluding grants and sale of property	474.1
Recurrent spending, excluding health and education	383.4
Recurrent budget balance	90.8

Source: Authors' calculations, based on data from MFDP Note: Deflated using GDP deflator.

The data in Table 2 and Figure 6 show that, during the period as a whole, mineral revenues have been entirely devoted to investment in physical and human capital assets, and have not been used to finance recurrent spending (with the exception of health and education), which has been financed by recurrent revenues over the period as a whole, if not in all individual years. Public investment spending has been divided between physical assets (43 percent), education and training (42 percent), and health spending (15 percent).

In addition, a relatively small amount – BWP44.0 billion as at March 2015, equivalent to BWP39.8 billion at 2012 prices – has been accumulated as net financial assets⁶ by the government.

Figure 6
Accumulated mineral revenues and public investment (real)



⁶ Gross financial assets less debt liabilities.

However there are caveats regarding the classification of spending for the purposes of calculating the SBI. Some categories of spending deemed as investment for budget or SBI should rather be considered as maintenance of human capital (e.g. large portions of health expenditure and spending on welfare programs). Such spending may be justified for social reasons but do not add to the stock of capital in economic terms any more than the maintenance of roads, while essential, can be considered as net investment. This has become particularly important in the past two decades, with very high levels of spending on health (HIV/AIDS) and social welfare programmes, some of which are classified in the budget as development spending despite being clearly recurrent in nature.⁷

Taking into account some of these concerns, the allocation of mineral revenues spending over the 1983/84–2014/15 period has been recalculated, making the following adjustments to the definition of investment:

- Excluding recurrent health spending
- Excluding development spending on food and social welfare.

Table 3
Mineral revenues and adjusted
spending, 1983/84–2014/15
(real, 2012 prices)

Category	Pula Billion	% of Mineral Revenues
Mineral revenues	405.9	100%
Total investment (physical and human capital)	359.8	87%
of which: Education spending	185.9	46%
Other development (investment) spending	174.0	43%
Net financial savings (March 2015, in 2012 prices)	39.8	10%

Source: Authors' calculations

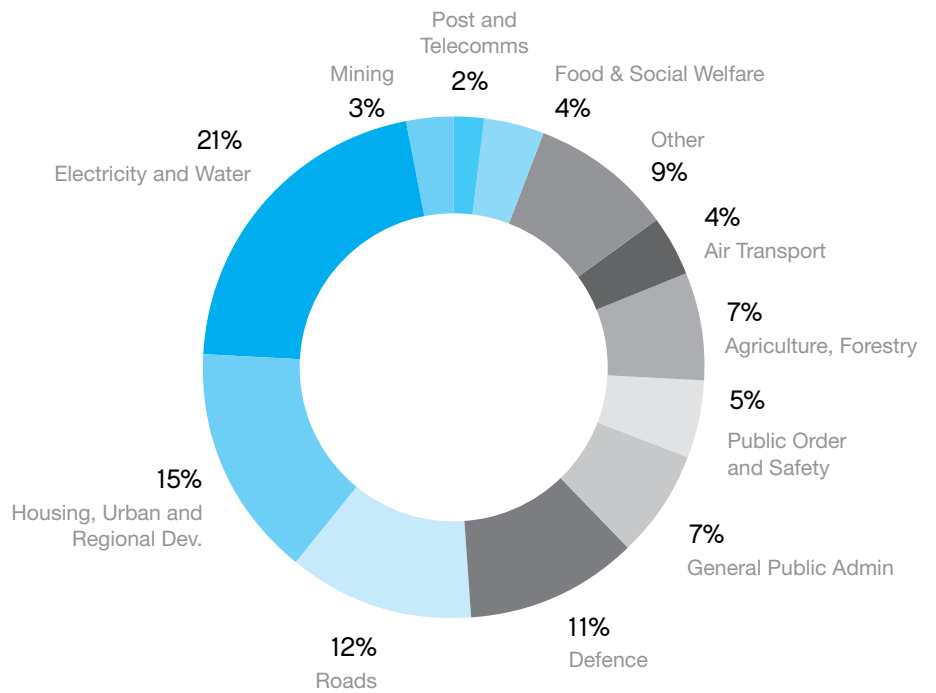
These figures show that, even with the adjustments, the broad conclusions do not change. Ninety seven percent of Botswana's mineral revenues have been devoted to asset accumulation. Of this, only 10 percent has been devoted to financial assets, with the remaining 87 percent split almost equally between physical infrastructure (43%) and human capital (skills and education, 46%).

3.4 Trends in the composition of investment in human and physical capital

On average, physical investment—excluding health and education facilities—has been across a range of assets, with the three largest areas of investment being electricity and water (21 percent), housing and urban infrastructure (15 percent), and roads (12 percent) (see Figure 7).

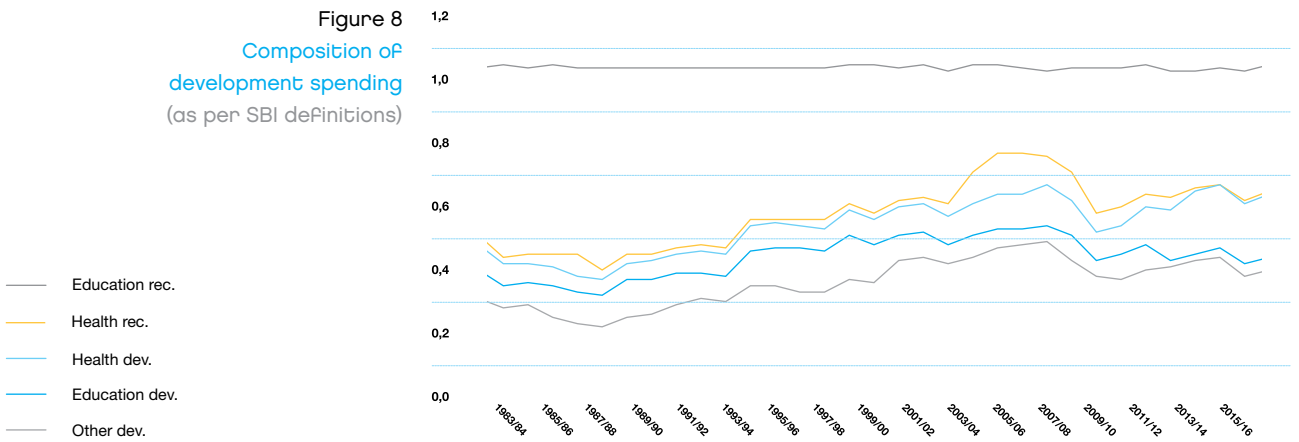
⁷ For instance, the Ipelegeng scheme, which provides public employment for able-bodied unemployed adults as a social safety net, is classed as development spending despite being largely recurrent in nature.

Figure 7
Allocation of development spending, excluding education and health, 1983/84–2014/15



Over time, however, composition has evolved. In the 1980s, over 75% of investment spending was comprised of investment in social and economic infrastructure.⁸ But as the infrastructure deficit was gradually addressed and the need for new infrastructure accordingly reduced, the composition of spending has changed. The large number of schools and health facilities constructed means that there is an increasing need for teachers and health staff, as well as a rising salary bill. Given that this is classified as investment in human capital, the share of this “recurrent” spending has been increasing, and now accounts for up to 60% of total “investment” spending. Within the category of “other development spending,” there has been no noticeable trend change in composition.

Figure 8
Composition of development spending (as per SBI definitions)



Source: Authors, based on data from MFDP

⁸ The remainder is recurrent education and health spending, which for SBI purposes is classified as investment in human capital.



From 1983/84 to 2014/15, 87 % of Botswana's mineral revenues were devoted to physical infrastructure (43%) and human capital (skills and education, 46%)

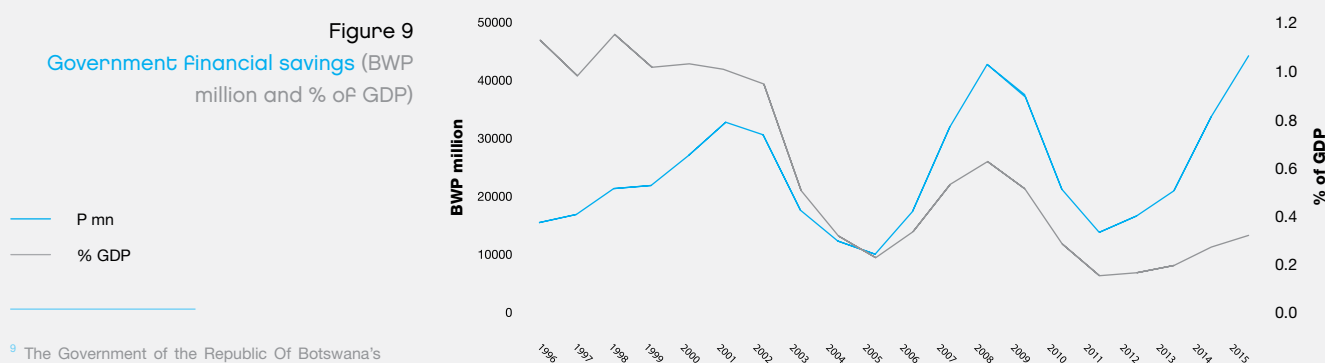


3.5 Investment in Financial Assets

Despite the fact that there has been rapid growth in public spending since the early 1980s, the budget has been in surplus, resulting in the accumulation of financial assets. Public finance decision-making has generally been cognizant of the limits imposed by absorptive capacity constraints, and the government has felt no obligation to spend all mineral revenues when there were concerns about overheating the economy, or when suitable investment opportunities could not be found. As a result, there were 15 consecutive years of budget surplus from 1983/84 to 1997/98. The situation has changed in recent years, however, and the earlier public finance discipline has arguably been eroded as mineral revenues have declined. Consequently there were budget deficits in 8 of the 15 years since 1998/99.

The result of budget surpluses over many years is that, initially, significant financial assets were accumulated as fiscal residual rather than through targeting specific amounts of financial savings. However these assets have been substantially depleted during later years.⁹

Figure 9
Government Financial savings (BWP million and % of GDP)



Source: Author's calculations, based on data from MFPD and BoB

⁹ The Government of the Republic Of Botswana's (GRB) financial assets take various forms. Budget surpluses are accumulated as government savings balances at the Bank of Botswana (BoB) into the Government Investment Account (GIA). The GIA appears on the liabilities side of the central bank's balance sheet. These surpluses are distinctly different from the foreign exchange reserves, which appear on the assets side of the BoB balance sheet. The foreign exchange reserves do not directly belong to the government, and it only has an indirect claim on part of the reserves. This distinction is not widely understood.

Due to the nature of the accounting arrangements between the GRB and the BoB, some of GRB's financial savings also appear as BoB currency revaluation reserves, which also are balance sheet liabilities for the BoB (like the GIA). As the sole shareholder of the BoB, the revaluation reserves are rightly part of the GRB's financial assets. Offset against these financial assets are the government's debt liabilities, including domestic debt (bonds and T-Bills) and foreign borrowing. Therefore, the government's net financial savings position is the balance of its financial savings at the BoB (the GIA plus revaluation reserves) and its domestic and foreign borrowing. The figures reported here also include some relatively small additional amounts in calculating the overall net financial position, including lending to parastatals; central and local government deposits in commercial banks; and local government borrowing from banks. It does not include the value of GRB's shareholding in De Beers, Debswana and other mining companies, or parastatals (state-owned enterprises).

Historically the government has accumulated significant financial savings and undertaken very little borrowing. As Figure 9 shows, the GRB's net financial savings reached 115 percent of GDP in the late 1990s. The savings then were partially depleted by the establishment of a new pension fund for government employees, which involved financing the contingent liabilities accumulated under the previous, unfunded government pension plan. Net financial savings were partially rebuilt in the mid-2000s, although only recovering to around 62 percent of GDP in 2008. They were substantively depleted, however, following the global financial crisis and several years of large budget deficits (which were financed by a mixture of drawdowns of savings and new borrowing). After reaching a low point of 14 percent of GDP in 2011, the GRB's net financial savings have since risen modestly, to reach 31 percent of GDP by early 2015.¹⁰ This amounts to 10% of the mineral revenues received over the period as a whole (measured in real terms in 2012 prices), as seen in Table 2.

It is striking that during nearly 40 years of mineral exploitation, the government effectively has decided not to accumulate mineral revenues in the form of financial savings to any significant extent. The thinking is that investment in physical assets and human capital will provide future income, rather than living off income from financial assets. While this may not have been an explicit strategy, the net effect of various policy decisions has been to invest almost all of the mineral revenues received in physical and human capital, rather than in financial assets.

Although the government accumulated financial assets during part of the mineral development period, this was not pursued as an active policy. Botswana has never had

any rules requiring a specified proportion of mineral revenues to be paid into a dedicated fund; they are simply combined with other general revenues in the consolidated fund. Importantly, there are no rules regarding the payment of mineral revenues into the Government Investment Account (GIA).

Similarly, there are no restrictions on withdrawals from the GIA: The government of the Republic Of Botswana (GRB) can withdraw any amount up to its balance in the GIA to fund budget deficits. Other than the normal public finance procedures, there are no restrictions on how much of the GIA can be drawn down by the GRB.

This mechanism provides flexibility; for instance, during the global financial crisis of 2008/09, the government was able to run large deficits by drawing down in accumulated savings in the GIA, and hence minimise the impact of the crisis on the economy. It has resulted, however, in relatively small financial asset accumulation.

In theory, financial savings accumulated over many years of budget surpluses can be used to finance any level of spending and any size of budget deficit – until the savings are depleted, of course. There is no legal requirement for financial savings to be preserved for future generations. Because additions to or drawdowns from government financial savings are residual driven (i.e. by budget surpluses or deficits), the emphasis for sustainability is on responsible public finance processes and decision making.

A similar situation applies to the Pula Fund (PF), which is the national equivalent of the government savings held in the GIA. The GRB has a claim on part of the PF, up to the value of the GIA. There are no rules regarding the payment of mineral revenues into the PF; it is simply driven by balance of payments surpluses or deficits. Like the GIA, the PF could be depleted rapidly in the event of balance of payments deficits. While there are procedures to be followed in the event of drawdowns from the PF, there are no legal limits on how much can be drawn down in a given time period.

The PF and the GIA have dual objectives: stabilisation (of the balance of payments and the government budget, respectively) and providing financial assets for future generations to generate income when mineral assets are depleted. However, there is no formal demarcation into these two components, and nothing that requires a certain proportion of the PF to be maintained and invested for future generations. In principle, therefore, GRB could draw down its entire balance in the GIA for stabilisation purposes (i.e. to fund short-term government spending), leaving nothing for future generations.

4. Complementary Macroeconomic Policies

A fiscal policy that is not supported by an appropriate macroeconomic policy is unlikely to succeed. Therefore the fiscal policy adopted by a mining economy should not be seen in isolation from the more general macroeconomic framework.

Botswana's macroeconomic policy has been generally focused on maintaining internal and external balance through appropriate fiscal and monetary/exchange rate policies. The government has commonly run budget surpluses and has largely avoided borrowing. There is some public debt but well below the statutory debt ceiling of 40% of GDP.¹¹ As a result of prudent fiscal policy and asset accumulation, GRB has an investment grade credit rating – the highest in sub-Saharan Africa – from Moody's and Standard and Poors.

The second major component of macroeconomic policy has been monetary/exchange rate policy. At the heart of this has been the management of the exchange rate through a managed, adjustable peg. Currently, the BWP is pegged to a basket comprising equal proportions ZAR and SDR.¹² Exchange rate policy has prevented currency volatility (receipts from mineral exports tend to be very lumpy, so a market-determined floating

¹⁰ All dates in this paragraph refer to the position at the end of the government financial year in March.

¹¹ As legislated in the Stocks, Bonds and Treasury Bills Act.

¹² A weighted basket of GBP, USD, EUR and Yen.

exchange rate is likely to be volatile); it has also prevented undue nominal appreciation, which would otherwise have resulted from successive balance of payments surpluses. The managed exchange rate has therefore been an essential component of minimising Dutch Disease impacts and attempting to support diversification; additionally, it has had the important benefit of the accumulation of foreign exchange reserves for stabilisation.

5. Social and Economic Development Policy and Achievements

Broadly speaking Botswana has been transformed from one of the poorest countries in the world at the time of independence in 1966 to an upper middle income country with a GDP per capita of almost USD8,000 as at 2015.¹³

At independence, Botswana saw a major backlog of social and economic infrastructure. This was in the context of extremely constrained financial resources, with high dependency on donor funding. It was only in the 1970s, as mineral revenues began to flow, that the government had some financial autonomy.

As noted above, spending priorities are laid out in the NDPs, which typically cover a 5-7 year period. Underlying these priorities are a set of national policies relating to education, health, housing, water provision, electrification, etc. These policies are usually determined after a national consultation process. Botswana ensured a stable planning horizon, with policies typically in place for a number of years before being revised.

In education and health, the emphasis has been on progressively improving both the depth and breadth of public provision. In education, the emphasis has been on firstly providing universal primary education, then three years of universal secondary education, followed by higher transition rates to upper secondary and tertiary education. A similar approach has been followed in healthcare, with an initial emphasis on extending primary healthcare to the entire population, followed by upgrading of district, primary and referral hospitals. The HIV/AIDS epidemic that emerged in the 1990s imposed major additional demands on healthcare. In response, Botswana rolled out a programme of free provision of anti-retroviral therapy to all eligible citizens, through the public health service.

Table 4 provides information on select measures of public service and infrastructure provision, comparing the situation immediately after independence with the most recent data available (2009-14).

Table 4
Provision of select public services and infrastructure

Indicator	1967	1991	2009-14
Primary education			
No. of schools	252	626	821
No. of pupils	71,577	298,812	340,065
No. of teachers	1,713	9,833	15,042
Pupil/teacher ratio	42	30	23
Secondary education			
No. of schools	9	172	283
No. of pupils	1,854	73,909	172,669
No. of teachers	111	4,312	14,081

¹³ See e.g. Acemoglu & Robinson (2013); Iimi (2007) for a comprehensive overview.

Pupil/teacher ratio	17	17	12
University			
No. of students (degree courses)	100	3,567	41,051
Health			
Nurses	194	2,679	5,816
POP/nurse	3,100	495	337
Doctors	17	252	819
POP/doctor	35,294	5,263	2,394
Hospitals	9	29	31
Infrastructure			
Roads (tarmac) (km)	7	4,200	6,616

Sources: Republic of Botswana, 1967; Statistics Botswana, 2003, 2012, 2014a, 2015; HRDC

With increased public service provision, there has been considerable progress on a range of social development indicators. In particular, education-related inputs and outputs have improved a great deal. Similar improvements have been seen with most health and demographic indicators, although the impact of HIV/AIDS caused a reversal in the direction of some indicators in the early 2000s. There has also been a high level of investment in social and economic infrastructure, leading to increased access to water, sanitation and electricity.

Table 5
Selected social development
indicators

Indicator	1967	1991	2009-14		
Health/Demography [1]					
Crude Birth Rate (per 1000)	45.3	47.7	39.3	28.9	25.7
Crude Death Rate (per 1000)	13.7	13.9	11.5	12.4	6.25
Natural Rate of Increase (% per annum)	3.1	3.4	2.7	1.7	1.9
Total Fertility Rate (births per woman)	6.5	6.6	4.2	3.3	2.7
Infant Mortality Rate	97.0	71.0	48.0	56.0	17.0
Under 5 Mortality	152	105.0	63.0	74.0	28.0
Life Expectancy at Birth (years)	55.5	56.5	65.3	55.6	68.0
Economic [2]					
GDP per capita (constant 2005 US\$)	797.6	1,938.2	3,894.7	4,672.9	6,476.1
GDP per capita (current 2005 US\$)	177.3	1,038.2	2,767.9	3,078.3	7,697.4

Education [2]

Literacy Rate, adult (% of people aged 15 and older)	41 [3]	-	68.6	81.2	86.7
Literacy Rate, female adult			71.3	81.8	87.1
Literacy Rate, male adult			65.4	80.4	86.7
Primary completion rate, total (%)	42.0	77.8	89.1	91.5	97.7
Primary completion rate, female (%)	44.5	90.6	96.9	94.4	99.2
Primary completion rate, male (%)	39.5	65.1	81.2	85.7	96.3
School enrolment, primary (% , net)	40.9	76.8	87.5	82.3	90.3
School enrolment, female, primary (% , net)	44.6	83.2	91.0	84.0	90.9
School enrolment, male, primary (% , net)	37.2	70.4	84.1	80.7	89.7
School enrolment, secondary (% , net)	5.7	15.3	38.6	52.5	60.8
School enrolment, female, secondary (% , net)	5.5	17.5	42.4	56.1	65.2
School enrolment, male, secondary (% , net)	5.9	13.2	34.7	48.9	56.4
School enrolment, tertiary (% , gross)	-	1.2	4.2	6.0	17.9
School enrolment, female, tertiary (% , gross)		0.8	3.5	6.0	20.4
School enrolment, male, tertiary (% , gross)		1.6	4.8	6.1	15.4

Infrastructure [2]

Electricity consumption (kWh per capita)	-	527.9	794.0	1134.4	1602.7
Improved sanitation facilities (% of population with access)	-	35.7 [4]	40.8	53.2	64.0
Improved water source (% of population with access)	-	-	92.5	95.1	96.8
Telephones lines (fixed) (per 100 people)	0.6	0.8	2.3	8.3	7.5

Sources: [1] Statistics Botswana (2014); [2] World Bank World Development Indicators; [3] Hanemann (2005); [4] WHO/UNICEF (2015)

6. Outstanding Issues

There have been many achievements in Botswana's management of mineral revenues and their accumulation as assets. Indeed the country is often used as an example of how newly emerging mineral producing countries should manage their resources. Nevertheless there have been some challenges. Although the SBI—and its corollary, the maintenance of assets—is a convenient rule of thumb, it is questionable whether a budget meeting the SBI can be defined as sustainable, for a variety of reasons.

6.1 Productivity of public investment

First, investing in public assets is not in itself sufficient to ensure that the investment is productive and that it will generate future income once minerals are depleted.

Concerns have been expressed regarding the productivity and economic impact of many public investment projects. For the SBI rule to meet its objectives, it needs to be supplemented with effective project appraisal analysis, appropriate project selection and prioritization systems, and effective monitoring and evaluation. While these skills and processes may have been in place in earlier years, it is widely agreed that these disciplines have dissipated over the years leading to a decrease in project quality, as measured by cost overrun and delays, and by a decline in the rate of return of public investment.¹⁴ This is due in part to the extreme difficulty in maintaining such discipline in an environment of prolonged fiscal surpluses and “soft” budget constraint.

Furthermore, while in the earlier years of mineral-financed spending, economic and social needs largely coincided, in later years, many of the most important economic investment needs have been met. Spending has been increasingly driven by social and political needs, often with minimal economic benefits.

The above concern relates largely to investment in physical assets, but there are similar concerns regarding the quality of investments in human capital through education and training. Despite a very high level of investment in human capital, widespread skills shortages persist in the private sector, and unemployment is high among educated young adults. The government has acknowledged the importance of strengthening project appraisal in recent policy documents, in particular the need to select high-return projects for funding.

6.2 Allocation of investment between savings and capital spending

A second concern with the SBI is that it considers capital in the aggregate—whether in physical assets or human capital, but it does not provide any useful guidance as to the distribution of public investment and assets across these different types of capital. Nor does the SBI provide any guidance as to what proportion of mineral revenues should be saved as financial assets rather than invested. It does not have any way of ensuring that public investment will be effective at generating future income when minerals are depleted. It therefore contrasts with alternative approaches that focus on the accumulation of sufficient financial assets (for instance, in a sovereign wealth fund (SWF) that could yield an annuity income to replace mineral income.¹⁵ Botswana's choice of investing large and roughly equal proportions of mineral revenues in human capital and physical assets, and saving a much smaller proportion in financial assets, was not the result of a high level strategy decision targeting a specific distribution of assets. Rather it was the result of a set of decisions regarding spending priorities and the accumulation of financial savings as a residual.

¹⁴ World Bank (2010).

¹⁵ Of course financial assets can also be badly invested, mismanaged or misappropriated, so a return is not guaranteed.

6.3 Size of government and sustainability of public investment

The SBI does not address the fact that, due to very high economic rents generated from diamond mining and the very high share of these rents accruing to the government, the level of fiscal revenues and spending in Botswana relative to GDP has been very high. This leads to a very large government sector in the economy. Once diamonds are depleted, even if economic diversification is successful and new sources of growth are found, fiscal revenues will inevitably decline as a share of GDP. It will then be necessary for the government to shrink in relative terms. From this perspective, simply adhering to the SBI does not mean that government is of a sustainable size.

A related issue is the ability of the government to continue funding public investment once minerals are depleted. Funding investment from mineral revenues and recurrent expenditure from mineral revenues makes sense while mineral revenues are large. As they decline, there will be fewer resources available to finance public investment. This is a particularly important issue given the definition of investment used in Botswana's Sustainable Budgeting principle, where recurrent expenditure on education and health is classified as investment (in human capital) and financed from mineral revenues. Whereas investment in physical assets can be reduced or delayed as mineral revenues decline, the recurrent component of human capital investment – such as teachers' salaries – cannot.

6.4 Transparency

Botswana paints a mixed picture regarding the transparency of mineral revenues and spending. Reasonably detailed data are published on government revenues and spending. Government finances are subject to the scrutiny of the Auditor-General, who publishes an annual report. Detailed disaggregated expenditure data are only available one year after the end of the relevant budget year. No information is published on the disbursement of funds to service delivery units. The Public Accounts Committee of Parliament provides scrutiny.

Government accounts include information on total mineral revenues but not by mineral, company or payment type. Botswana has not subscribed to the Extractive Industries Transparency Initiative (EITI), and does not meet the EITI Standard (EITI, 2015).¹⁶ While the governance and fiscal regime for all non-diamond minerals is laid down in the law and is not subject to negotiation, for diamonds – the most important mineral – it is discretionary. No information is published on contracts with mining companies, tax arrangements or environmental impact assessments.

7. Lessons For other countries

What can other countries learn from Botswana with regard to mineral revenue management and expenditure, especially now that the country is a mature mineral producer? In many respects the Botswana experience is a positive one with many examples of policy and practice that are relevant to other countries. Botswana has an effective and efficient mineral fiscal regime, and these revenues have been invested in social and economic development. Sufficient financial resources have been accumulated to provide effective stabilisation buffers. However, Botswana's experience also has some distinctive characteristics that make it more difficult to replicate. These include the very high rents entailed in diamond mining, and the fact that the bulk of that mining is done by one company.

The following are the main lessons that are of general relevance.

Mining Fiscal Regime: Botswana has effectively appropriated the large majority of mineral rents, while leaving mining investors with sufficient return to compensate for the cost of capital and risk. This has been done through a combination of fiscal mechanisms, including royalties, variable rate profit taxes, and ownership stakes. The fact that the fiscal

¹⁶ In particular, Botswana does not disclose company-level payments to/receipts by the government.

regime is laid out in various laws and has little scope for project-by-project negotiation has contributed to the predictability and objectivity of the fiscal regime. While Botswana is not a low-tax regime for mining investors, it is a predictable one. In the diamond sector negotiations are allowed, although in practice all new diamond-mining firms are subject to the same terms as other mining firms, and there is little or no potential for negotiation. The effectiveness of Botswana's fiscal framework in appropriating mineral rents supports the idea of limiting as far as possible scope for negotiations, while using a combination of fiscal mechanisms.

Guidelines vs Rules: Guidelines (save or invest all mineral revenues) provide some flexibility for spending to respond to changing circumstances. However, they are highly dependent on having a strong public finance management framework in place, which ensures that public investments are subject to proper appraisal and that funds are not spent on low return projects. For guidelines to work, there must also be a high quality macroeconomic policy framework, ensuring, for instance, that exchange rates do not become overvalued and that borrowing is minimised (i.e. internal and external balance is maintained).

The guidelines approach, though effective, has some vulnerabilities. First, strict public finance management discipline is difficult to maintain over a period of decades when there is a "soft" budget constraint. Second, when the fiscal regime comes under pressure (due perhaps to a maturing mineral sector and the relative decline in the return on non-financial assets), guidelines are difficult to enforce. However while there may then be a case for shifting to a reliance on rules (e.g. to prevent the excessive drawdown of financial assets), the environment will not be conducive for introducing new ones. In other words, if rules are likely to be necessary at some point, they should be introduced early on, when times are good, even if they are not yet needed.

Investment of Mineral Revenues: A principle that can be used is that all mineral revenues must be saved or reinvested in economic, social or human capital. This can be achieved despite the fact that it is a policy principle rather than a hard-and-fast, legally enforceable rule. This leads to the conversion of mineral wealth to economic, social and human capital. The implicit assumption is that these types of assets offer higher rates of return than financial assets. To the extent that financial assets have been accumulated, these largely serve stabilisation purposes rather than as a source of future annuity income (funds for future generations).

Sovereign Wealth Funds: A further lesson from Botswana is that an SWF works well if it invests only in financial assets outside the country. The investment and asset allocation process then becomes a largely technical, objective process, mostly insulated from domestic pressure, especially political. Once an SWF can invest domestically, this has two disadvantages. First, it means that the SWF is not playing a role of offsetting Dutch Disease pressures and contributing to macroeconomic balance. Second, it is vulnerable to the pleadings of special interests and rent-seeking groups. To the extent that mineral revenues are used to fund real (rather than purely financial) investments, these should be done through the budget rather than off-budget through the SWF.

Expenditure management rules: It is essential to maintain discipline with regard to project appraisal and other mechanisms to ensure the effectiveness of public spending, even when resources are apparently abundant.

Consider intergenerational fairness: Establish a clear target – or at least a policy – on the accumulation of financial assets set aside for future generations. This becomes particularly important as revenues reach their peak and the country reaches good levels of physical and human capital such that the needs of current generations become less urgent.

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Abbreviations

ADB/AfDB	African Development Bank
ANRC	African Natural Resources Center (AfDB)
AU	African Union
CSO	Civil Society Organisation
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GIA	Government Investment Account
GRB	
HDI	Human Development Index
HR	Human Resources
MTR	Mid-Term Review
NDP	National Development Plan
PF	Pula Fund
SBI	Sustainable Budget Index
SME	Small and Medium Enterprise
USD/US\$	United States Dollar



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