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Policy Brief

Natural resources and poverty in Botswana: development linkages and economic valuation

Key findings, analyses and recommendations from an Economic Study



BOTSWANA

Key Messages

- Natural resources – minerals and renewable resources – are the single most significant contributor to GDP, employment and Government revenue
- Botswana's efforts to diversify the economy away from the dominance of extractive industries and going beyond limited import substitution are becoming exceedingly desirable.
- Arable and livestock agriculture remain important sectors for the engagement and subsistence of rural households below the PDL
- Renewable natural resources contribute to livelihood support and provide emerging opportunities for lifting people out of poverty incl. solar energy, peri-urban agriculture and veld product utilisation
- CBNRM offers additional potential to use ecosystem goods and services for income generation (PES) and job creation in such areas as eco-tourism, watershed management and carbon storage (REDD)

Introduction

Botswana's natural resources (diamonds, copper / nickel, coal, as well as water, wildlife, soils, forests, veld products, and ecosystems) are the most significant driver of economic development and growth. Their contribution is valued in terms of achievements in income generation, social protection, employment creation, infrastructure development and human capital development (health and education) but also through ecosystem goods and services in the form of food, raw materials, water and air purification, erosion prevention, biodiversity and cultural services. Revenue from mineral exports, especially diamonds, has enabled the implementation of different poverty-reduction policies and programmes which have resulted in a reduced poverty incidence of 19.3% in 2009/10 (Statistics Botswana 2013, BCWIS pg.18).

PEI Botswana commissioned a study into the contribution of natural resources to the national development agenda (BIDPA, 2012). This Policy Brief presents some observations and findings from the study. The focus is on the value of natural resources in general, their relevance to the poor and policy implications and recommendations.

Poverty

Current levels of poverty stand at 19.3% (poverty head count) as the national average with 8% in cities/towns, 19.9% in urban villages and 24.3% in rural areas (in 2002/03 the above percentages were 30.6% national average and 10.6%, 25.4% and 44.8% respectively for the above residential strata).

Poverty levels have decreased across the board and absolute numbers have come down from just under half a million people in 2002/03 to a national head count of 362.116 in 2009/10. Botswana halved national household



poverty incidence from 21.7 to 10.8% in the same period.

BCWIS 2009/10 figures furthermore indicate that 6.4% of the population of Botswana lives on less than USD 1.25 per day which amounts to about 120.000 persons in head count figures or one third of all people living below the poverty datum line (the Botswana PDL for a family of four (4) persons is calculated at Pula 880/month¹ (2010 figures); about 30 000 people (25% of the extremely poor) are registered as permanent destitutes.

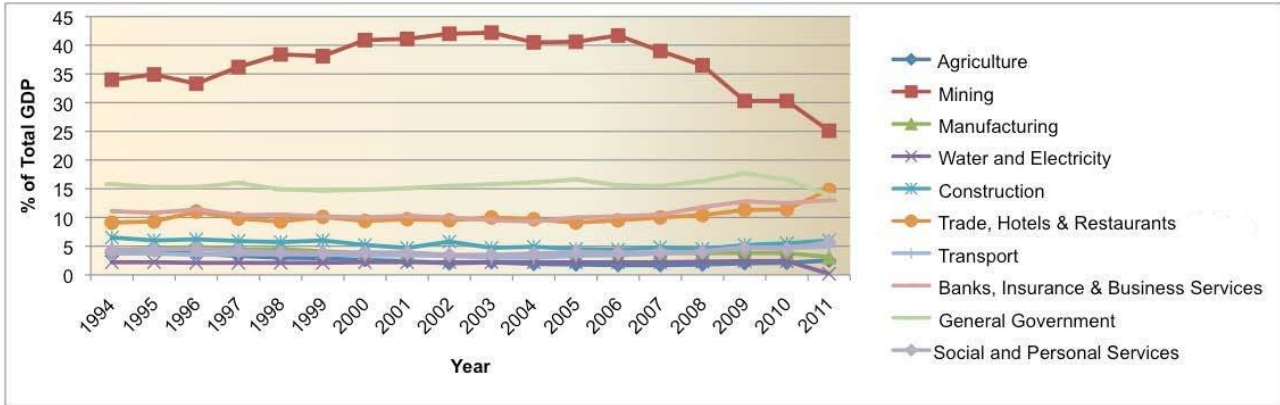
The remote western Botswana sandveld (sub) districts of Kgalagadi, Ghanzi, Ngamiland, Ngwaketse West and Kweneng West have poverty levels above the national average whilst most of the eastern hardveld (sub) districts have poverty levels equal to or below the national average.

Natural resources and GDP

Botswana is critically dependent on her natural resources and approximately 75 % of paid employment in the country can be linked to natural resource utilisation and services in

¹ The Pula – US Dollar exchange rate is about 8.50 (September 2013)

Figure 1: Percentage of Total GDP by Economic Activity, 1994-2011



Source: Botswana Environmental Statistics 2012 (Statistics Botswana, 2013)

agriculture, mining, tourism (hotels & restaurants) and water (CSO, 2010). In addition, virtually all subsistence employment in agriculture, fishing and veld food collection, which remain unrecorded in official employment statistics, depends on natural resources. On the other hand, unsustainable mining, harvesting and climate change pose major risk on the value of natural resources.

Economic growth is traditionally framed in terms of GDP (Gross Domestic Product). However, the value of our natural resources' stock and flows is not adequately captured by GDP, for two reasons: Firstly, most of the ecosystem services from land, water and air are simply not captured in monetary terms by GDP e.g. no value is given to the ecosystem service for storing carbon or purifying water. Hence, GDP understates the contribution of ecosystems to the economy². Secondly, environmental externalities (e.g. damage from mining, soil erosion, pollution) which reduce value are not subtracted from GDP.

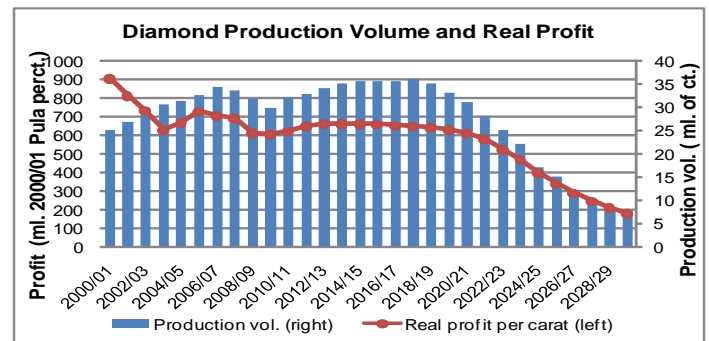
Key Findings

Diamond mining, in particular, has been the largest contributor to GDP (Figure 1) and government revenue in the last two decades (Bank of Botswana, 2012). Diamonds have within the last decade contributed on average well over 80% to the total exports value (Figure 2) followed in importance by copper/nickel, soda ash/salt, coal and precious metals (gold)³.

² Evidence from Total Economic Valuation (TEV) of the Okavango Delta is that regulating services have an economic value of at least half the combined annual GDP contribution of tourism, agriculture and natural resource harvesting in the Delta (DEA, 2008).

³ Botswana has made it part of her development strategy to use most mining revenue for investment in physical, social and human capital thereby lessening the potential negative effect of natural resources being

Government revenue from diamond mining is expected to peak in 2016/17 and fall sharply from 2021 onwards⁴. Projected shortfalls in fiscal income from the mining sector imply that the value of diamonds will fall greatly after 2020.



Source: Ministry of Finance and Development Planning, 2011

Despite employing relatively few people, mining generates remittances from employed relatives and government transfers that are major sources of livelihoods for poor households in predominantly rural areas (Moepeng and Tisdell, 2008).

With the discovery of large coal deposits in the country and an increasing global demand for this resource, especially in South East Asia, coal is likely to become a major source of revenue in the future. The risk of coal mining, particularly surface mining, is that it requires large tracts of land to be temporarily disturbed and this raises a number of environmental challenges, including soil erosion, dust, noise and water pollution, and impacts on local biodiversity. Thus, unlike diamonds, coal mining will involve high

directed towards financing the luxuries of the few and becoming a curse of the people, also known as the "resource curse".

⁴ Due to the global financial crisis and economic slow-down the projected trend may be delayed by a few years.



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cost input capital and low margins per unit, and hence will lead to less contribution per unit to economic growth and poverty eradication. Efforts to diversify the economy away from the dominance of extractive industries and going beyond import substitution are becoming exceedingly desirable.

Renewable natural resources

Poor people's livelihoods rely heavily on natural resources such as soil, water, forests, fisheries and wildlife (OECD, 2008). Renewable natural resources underpin commercial and subsistence activities and often provide a safety net for the poor in times of crisis. Arable agriculture, beef production, veld products' utilization and tourism, are some of the sectors in Botswana which benefit from natural resources and ecosystem services through which they contribute to economic growth and poverty eradication. Evidence suggests that traditional agriculture contributes to food security of poor households through own production and informal sale of agricultural products although the latter is rather low (Moepeng, 2010). As a result, low arable crop productivity in Botswana related to poor soils, unfavourable climatic and weather conditions, labour-extensive farming systems, lack of farm labour, inappropriate crop selection etc. have contributed to persistently high levels of rural poverty. Agriculture contributes only around 2 per cent to GDP and the specific value of traditional arable agriculture as part of total agricultural sector GDP is less than 10 per cent (Bank of Botswana, 2012; CSO, (various)).

The value of arable production, in terms of social inclusion, is substantial for most people in Botswana who still maintain ties with the rural areas. Government support takes the form of investments in rural extension, input support, market chain development and support to such programmes as the Integrated Support Programme for Arable Agriculture Development (ISPAAD) which remains relevant as instruments facilitating the achievement of a social protection objective. Supporting arable agriculture promotes self-help, discourages development of a hand-out dependency syndrome, discourages rural-urban migration, engages people in productive physical activity and for some, it promotes human dignity. Support for the arable agriculture also reduces the burden of urban workers' obligation to provide remittances to their members of household in rural areas. There is a need to promote sustainable arable agriculture on the basis of land suitability, agro-ecological zones and effective farming systems.

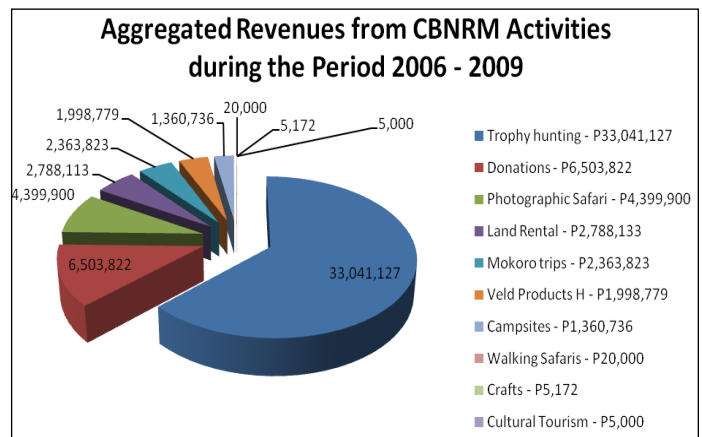
Livestock, especially the beef sector, is the most valuable agricultural sector and its export is competitive in the global markets with marketing and manufacturing as one of the most advanced in Africa. Increasing in-country levels of consumption⁵ and non-tariff import barriers imposed by the European Union

⁵ This is somehow counteracted by health awareness campaigns about the danger of red meat. A sustained shift towards the consumption of white meat could result in lower levels of local, and international, demand for beef and may negatively affect the sustainability of the sector.

have cause some shifts towards local consumption and export to regional markets. However, the livestock sector employs many of the rural poor and marginalised, and the collapse of this sector would adversely affect employment and demand for agricultural labour in the rural areas.

The value of livestock sector in Botswana is also important for social and cultural reasons. Livestock plays important roles in marriages, burial rites, and is used as a form of savings for the poor (and rich alike). However, the best economic returns from the livestock sector tend to be made by larger cattle owners who have private or leasehold farms and may furthermore exercise their (dual) grazing rights to also graze their cattle in communal areas thereby competing with the small cattle owners who only have the commons to graze their livestock.

Community-Based Natural Resource Management (CBNRM), utilises wildlife as well as various veld (non-timber) products and has a substantial value for the poorer sections of the population.



Source: CBNRM Status Report 2010 (Mbaiwa, 2011)

The actual value of CBNRM activities relative to GDP is not known because most goods and services are not exchanged in formal markets. However, commercialised CBNRM activities generated substantial levels of revenues (see figure). Most lucrative are community engagements in the hunting⁶ and photographic safari industry. Commercialized veld product utilisation contributed Pula 2 million in 2009.

For supplementary and emergency household income and food needs, ecosystem goods and services incl. veld products are highly valued by those who use and consume them, especially in rural (remote) areas. Most popular are *phane* caterpillar, *morula* fruit and processed products (pulp, sweets, soap, oil), reeds and thatching grass, fire wood, various herbal teas (incl. *morukuru*) honey, crafts production incl. basket weaving, and medicinal .

⁶ The announcement of a national sector-wide hunting ban as from January 2014 will create an additional challenge to those CBNRM communities who have relied most heavily on consumptive wildlife use and income from joint partnerships with the private sector.



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plants such as grapple (*sengaparile*). The risks which threaten the exploitation of veld products include climate change and unsustainable harvesting methods and over utilisation due to market demand and open access to communal resources.

Conclusions

The contribution of non-renewable natural resources' exploitation to Botswana's GDP is high and has provided the backbone of the country's economic growth and development interventions. The declining value of diamond mining, especially after 2020, cannot be fully compensated by improved export revenues from coal due to high capital expenditures, externalities and limited profit margins.

Traditional arable and livestock agriculture is of marginal GDP value because of low productivity levels related to a number of bio-physical, agro-ecological, social and economic constraints but remains an important sector for the rural poor. CBNRM has provided considerable income generation and employment creation for some rural communities particularly in the tourism sector and in the marketing of veld products.

Policy implications and recommendations

There is need for continued economic diversification through beneficiation of mining products and into other economic sectors (incl. renewable energy, notably solar) beyond the scope of import substitution. In arable farming, the (re)adoption indigenous drought tolerant food crops (i.e. sorghum, millet and pulses) is recommended as well as the development of livestock feed production and peri-urban agriculture on the basis of modern technologies (incl. the use of recycled water).

The value of veld products is high for the poor in rural areas, but further regulation is required to support sustainable utilisation. In

addition, more research investment in value addition and marketing of veld products is required to enhance the potential of this sector to contribute to economic growth, poverty eradication and achievement of NDP 10 goals. Community Based Natural Resource Management (CBNRM) should be actively supported through institutional strengthening and financial management. Opportunities exist for engagement of communities in photographic tourism, veld product utilisation, and payment for ecosystem services (PES) such as carbon storage and watershed management.

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