



WAVES
Country Report
Botswana
June 2016



Wealth Accounting and the
Valuation of Ecosystem Services (WAVES)

BOTSWANA Country Report 2016



WAVES

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Wealth Accounting and the
Valuation of Ecosystem Services

WAVES – Global Partnership for Wealth Accounting and Valuation of Ecosystem Services

Wealth Accounting and Valuation of Ecosystem Services (WAVES) is a global partnership led by the World Bank that aims to promote sustainable development by mainstreaming natural capital in development planning and national economic accounting systems, based on the System of Environmental-Economic Accounting (SEEA). The WAVES global partnership (www.wavespartnership.org) brings together a broad coalition of governments, UN agencies, nongovernment organizations and academics for this purpose. WAVES core implementing countries include developing countries—Botswana, Colombia, Costa Rica, Guatemala, Indonesia, Madagascar, the Philippines and Rwanda—all working to establish natural capital accounts. WAVES also partners with UN agencies—UNEP, UNDP, and the UN Statistical Commission—that are helping to implement natural capital accounting. WAVES is funded by a multi-donor trust fund and is overseen by a steering committee. WAVES donors include—Denmark, the European Commission, France, Germany, Japan, The Netherlands, Norway, Switzerland, and the United Kingdom.

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1. WAVES in Botswana



1.1 Background

Botswana is pursuing sustainability objectives in a manner that recognises the importance of integrating the value of natural assets into existing national frameworks. This is an approach that is expected to enrich the planning and policy systems through an adaptive approach while responding to emerging national and global issues that relate to sustainability. Through Wealth Accounting and Valuation of Ecosystem Services (WAVES), natural capital accounting provides the required information that complements the national economic accounts. Priority setting for the natural capital accounts in Botswana is based on the opportunity of WAVES to address identified policy issues.

Under the current WAVES cycle (2012-2016) minerals, water, energy, tourism sectors and development of macro economic indicators

were prioritised and government has worked through the World Bank support to compile accounts for these sectors to generate results that will inform the formulation of key programmes and projects for the National Development Plan 11, which will run from 2017 to 2022. The planning context for NDP 11 will in that way be more informed towards integrating the economic, social and environmental dimensions that should inform policy decisions. The introduction of NCA has also been timely in that it coincided with the development of the National Strategy for Sustainable Development, the formulation of the National Vision 2036 and the ratification of the Gaborone Declaration for Sustainability in Africa (GDSA), all of which are still in the making. Of notable importance is that Natural Capital Accounting is provided for in the Keynote Policy Paper and the Macro Economic Outline for NDP 11 which states:

“

“the value of natural resources and their implication for economic development through a variety of measures including natural capital accounting, with a view to assessing the physical stocks of the natural resources and preparing economic accounts resulting from the utilisation of those resources”

”

(Paragraph 169) - Keynote Policy Paper and the Macro Economic Outline for NDP 11

1.2 Recent Developments

Priority accounts: The relevance of the WAVES components as identified in 2012 has not changed and the WAVES workplan has encapsulated activities to grow the momentum in developing accounts for water, minerals, energy and tourism (prioritised within the ecosystem accounting component) as well as development of macro economic indicators, while building the institutional capacity for long-term NCA action within those sectors. This process takes cognisance of the requirement to establish appropriate data management systems and networks to sustain the NCA programme in the long-term.

Sectoral response capacity has varied across NCA planning sectors during the execution of the WAVES project. However, it is important to report that the water accounts are now in the third cycle which has improved the quality of the water accounts from the 2010/11 through to 2012/13 and recently 2014/15 accounts covering both the physical and monetary water profiles. The first mineral accounting report covering diamonds, copper/nickel, gold, coal and soda ash was completed in December 2015 and the report is being quality checked before publishing. In terms of energy accounts the first report which focused on electricity and water through a time series running from 2010 to 2015 was completed in March 2016 and is currently being reviewed by government structures to validate data and determine the technical adequacy of the report. For its part, the tourism scoping assessment under the ecosystem component is on-going and report is expected to be presented to the Ministry of Environment, Wildlife and Tourism by June 2016.

The Ministry of Finance and Development Planning (MFDP) is currently building the technical capacity to compute and analyse macroeconomic indicators for sustainable development. A draft report on mineral revenues and public finance has been produced.

Links to National Development Planning:

The Government of Botswana realises that increased urbanisation and inappropriate environmental practices have put pressure on environmental goods through increased consumption and negative environmental outputs such as pollution, deforestation, soil degradation, green gas emissions, it thus emanates that there is need to pursue sustainable environmental policies in order to conserve natural assets while at the same time ensuring that meeting current needs does not compromise the ability of future generations to meet their needs.

Therefore, Natural Capital Accounting activities are envisaged to inform the National Development Planning process. Government level deliberations on the strategic focus areas for NDP 11 found it fitting to include natural capital accounting in the Keynote Policy Paper and the Macro Economic Outline. This has culminated in NCA being captured as one of the priority areas under the Sustainable Environment Thematic Working Group. Recently in January to March 2016 sectors have been developing projects aligned to the NDP priorities and the NCA Coordinating Unit within the Ministry of Finance and Development Planning has had an opportunity to appraise the sectors with a view to ensure that the results from the water accounts (where there is marked progress) are used to inform projects that are aligned to the concept of sustainable development.

1. WAVES in Botswana (continued)

These also included making provisions, to the extent possible, to include projects for enhanced institutionalisation of Natural Capital Accounting during NDP 11 in a transitional approach, through establishing formal NCA Units, building capacity of NCA staff and setting up data management facilities.

Coordination: Coordination of NCA is anchored within the Ministry of Finance and Development Planning (MFDP) due to its central role in coordinating national development planning. MFDP has established an NCA Coordinating Unit manned by two economists at the level of Chief and Assistant, respectively. The two operate within the Macroeconomic Policy Section and are assisted by an Intern. Key among their duties are: serve as secretariat to the WAVES Steering Committee; administration of the decisions of the Steering Committee; Government liaison to the World Bank on the WAVES partnership; facilitation of sectoral activities programmed under the WAVES workplan; and steering the development of macroeconomic indicators for sustainability. The NCA Unit is also serviced by a World Bank contracted Advisor. It is expected that the NCA Unit will be sustained in the long-term. The establishment of a dedicated NCA Unit demonstrates government's commitment to Natural Capital Accounting.

Communications: A Communications and Engagement Strategy is implemented through a workplan that is currently targeting government entities. The International Institute for Environment and Development (IIED) has been delegated responsibility to support the WAVES in communication activities and to that effect, a Communication Specialist was recruited to work with the government of Botswana in disseminating NCA activities to all partners.

A series of communication events have been undertaken during this reporting period, including presentations to sector executive teams at the Ministries of Agriculture; Minerals, Energy and Water Resources; Environment, Wildlife and Tourism; and the National Strategy Office. For its part the Department of Water Affairs has presented water accounts to the Water Pitso, and to its district teams in Kasane, Mahalapye, Kanye and Maun. The Department has also presented to the Waternet symposium in Mauritius in December 2015.

Moreover, Botswana WAVES has been showcased at Natural Capital Accounting Forum in Edinburgh, Scotland; in Kigali Rwanda in November 2015 and in March 2016 when the Rwandan delegation visited Botswana for a lessons learning exchange on WAVES; and in February 2016 at the East and Southern African Accountant's General's conference in Nairobi, Kenya. In order to engage with the general public on the significance of natural resources in economic development, the NCA Unit exhibited at the 2015 International Consumer Fair in Gaborone. It is expected that in 2017 more communication activities will be undertaken with local authorities and non-state agencies.

Above all, the target is to reach out more to the global community and share NCA experiences in Botswana. Efforts are being made to open a link in the Ministry of Finance and Development Planning website which would also assist in disseminating information on Natural Capital Accounting.

2. Macroeconomic and Environmental Context in Botswana

Economic growth: Botswana's economic landscape has seen marked growth since independence till the mid-1990's with average annual rates of over 10%. This led to Botswana being elevated to a middle income economy with per capita income of around US\$7,600. This does not however translate to comfortable levels of income equality, diversified economic status and creation of employment opportunities, all of which continue to feature as challenges that need attention.

Natural capital: Natural Resources contribute substantially to the economic wealth of Botswana shown by the contribution of minerals to the economy at 19% mainly from mineral rents. Mining generates the majority of export earnings, and makes a major contribution to government fiscal revenues. Key minerals are diamonds, copper/nickel, gold, coal and soda ash. The use of the revenues generated by the mining sector is, therefore, of critical importance for sustainable development.

Botswana holds great potential as a tourism destination. The tourism sector has experienced a significant level of growth; seconding the mining sector in as far contribution to GDP is concerned. The epicentre for the growth of the tourism sector is attributed to the abundance of areas of natural beauty and wildlife watching opportunities. Further, the country has a stable political environment and offers a range of accommodation options.

The Protected areas account for 37% of the country's area. These are in the form of national parks, game reserves, forest reserves and wildlife management areas.

The key ecosystems include the Okavango Delta which is listed as a Wetland of International Importance under the Ramsar Convention and it was also designated as a World Heritage Site in 2015 by UNESCO. Other key ecosystems include the Chobe-Linyanti wetland system, Makgadikgadi salt pans and the Kalahari sand dunes. Nevertheless, it should be noted that the sector has its own challenges as inadequate transport facilities and a lack of investment in the hotel market continue to hinder the possibilities of continuous growth of the sector. As such a lot has to be done to curb this challenge.

In Botswana rainfall is low, highly erratic and unevenly distributed. Surface and ground water resources are scarce. Three new dams have been constructed but further new large supply schemes are linked to international rivers and utilisation is subject to agreements with other riparian countries, where demand for water is also increasing fast. Water resources are very limited and are expected to constrain future economic growth if not used efficiently. The country currently faces acute water shortages in south eastern Botswana and its capital Gaborone, which have led to severe water restrictions and supply interruptions. Climate change is expected to exacerbate the situation, leading to more droughts (and floods), increased stress on water resources and reduced primary land productivity. Integrated water resource management and careful assessment of trade-offs are critical for future economic development.

The government sector: The government sector is the second largest after the private sector. The mining sector remains dominant regardless of the declining mineral revenues. Other important sectors include trade, transport and communications, finance and business services.

2. Macro-economic and Environmental Context in Botswana (continued)

Job creation: Despite its outstanding record of economic growth, Botswana has been less successful at creating jobs. The rate of job creation, especially in the formal sector, has generally lagged behind the economic growth rate and new entries into the labour market. As at 2013 unemployment rate was 20%. However, human capital development has been identified as a strategy that can reduce unemployment rate amongst the youth.

Poverty eradication: The poverty rate, while high for a middle-income country, shows signs of improvement. The population living below the poverty datum line in 1993 was estimated at 47% and this has since decreased to 19.3% by 2009/2010. This result has shown that Botswana surpassed the global target of halving the proportion of people living below the poverty datum line before 2010.

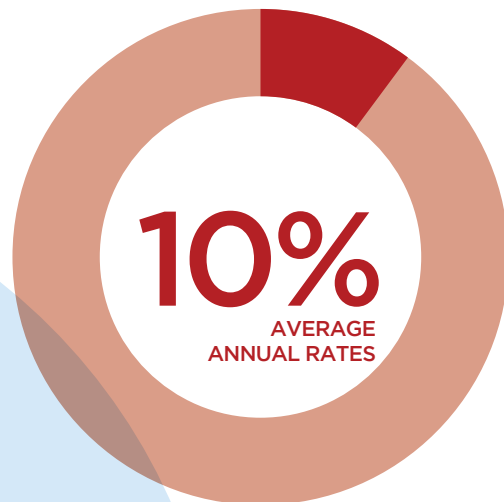
Economic diversification: The government of Botswana has always been keenly aware that in the long term it must use revenues from diamonds, a non-renewable resource, to diversify the economy. In recent years, the need for economic diversification to develop new sources of economic growth has become acute. The overarching development objectives, highlighted in both the long-term Vision 2016 strategy (now in its final year), and in the medium term NDP 10, stress economic diversification, job creation and poverty eradication. Several natural-capital based sectors have been targeted for a major role in achieving growth with diversification through:

- diamond beneficiation; the global headquarters of the Diamond Trading Company has relocated from London to Gaborone, and a number of downstream diamond industries including diamond cutting and polishing operations, have been established;
- new mining activities, especially development of Botswana's vast coal reserves to alleviate regional energy shortages as well as for possible export;
- expanded eco-tourism with an emphasis on greater participation by local communities and benefits to the Botswana economy as well as diversification of the tourism products;
- expanding commercial agriculture through irrigation;
- more efficient use of scarce water resources, which underpin all economic activities, to include reuse of waste water;
- More efficient use of energy resources, especially electricity, with an assessment of the roles of coal and renewables.

Sustainable Development: Botswana like other countries in the world is investing in sustainability initiatives and there is evidence of increased experience and momentum for green economy, which tends to strengthen the value of natural endowments. Such evidence include hosting, by Botswana, of the Summit for Sustainability in Africa in 2012, which resulted in the Gaborone Declaration. Botswana also subscribes to global sustainability agreements and processes, and is committed to integration of economic, environmental and socio-cultural values. These sustainability imperatives will enable Botswana to transition to a green economy in order to enable economic growth and investment while increasing environmental quality and social inclusiveness. This will yield improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. Wealth accounting will provide such sustainability initiatives with information to make informed decisions.

ECONOMIC GROWTH:

Botswana's economic landscape has seen marked growth since independence till the mid-1990's with average annual rates of over 10%. This led to Botswana being elevated to a middle income economy with per capita income of around US\$7,600.



US\$7,600
income per capita

3. Policy Priorities and Workplan in WAVES Implementation

Optimizing natural resource use:

This is key to achieving growth with diversification and poverty reduction, but the necessary economic information to transform these strategies into effective policies, investments, and other actions is often incomplete or missing. WAVES aims to provide technical support for environmental accounting in order to fill that information gap and improve economic decision-making in two ways:

- Supporting a new way of assessing economic growth—beyond GDP—that takes Natural Capital into account in order to better assess prospects for long term development.
- Compiling information that can be integrated with the national accounts to optimize use of Botswana's Natural Capital in the following four priority sectors: water, minerals, energy, land/ecosystems & tourism.

The policy objectives of WAVES Botswana are summarised below and a more detailed work plan is given in the subsequent table. The lead agencies and policy inputs are also included in that table. As indicated above, Government prioritised water accounts for the first year of the Implementation of WAVES Botswana, and other components were only started after that.

Component 1. Water Accounts: Managing scarce water resources to support long term growth, diversification and poverty eradication

Information to support implementation of the National Water Master Plan and associated water sector reforms, the National Master Plan for Wastewater and Sanitation and the IWRM plan; inform NDP 11 and Vision 2016/2030

Component 2 – Minerals Accounts: Supporting Economic Growth and Diversification

Mineral and energy asset accounts generate information that contributes to policy dialogue on rent recovery, distribution and investment, and to provide the appropriate basis for long-term investment decisions, especially with regard to energy sources. Information on energy use and supply accounts supports decisions regarding the optimal energy path for Botswana.

Component 3 – Energy Accounts: Assess and support optimal energy mix for sustainable Economic Development

Construct energy accounts to assess optimal energy mix for Botswana. What is the best use of Botswana's coal - is it a strategy for diversification? Renewable energy policy contributes to NDP11, and Vision 2036, energy strategy, Coal Roadmap, and others. **Lead Agency:** Ministry of Minerals, Energy and Water Resources chairs Technical Working Group with members from Energy Affairs Department, MFDP, Statistics Botswana, Botswana Power Corporation and Department of Water Affairs.

Component 4 – Ecosystem/Tourism Accounts: Balancing competing uses of ecosystem to optimize growth, job creation and poverty eradication.

About 40% of Botswana's land area is under some form of protection or management, and four major systems account for much of this: the Okavango Delta, Makgadikgadi Pan, Chobe area and the Kalahari. Land/Ecosystem accounting provides the value of ecosystem services to support optimal management of different land use zones (e.g. Protected Areas, Wildlife management Areas, communal areas, Forest areas, agricultural). Tourism is a major component of the economic value generated and has been targeted as a sector to lead growth and diversification. Linking tourism and ecosystem accounts will help address the balance among competing users and identify strategies to increase benefits from tourism that accrue to local communities.

Component 5 - Macroeconomic indicators: Is Botswana on a growth path that is sustainable in the long-term?

New macro-economic indicators that integrate natural resource values and that are complementary to existing macroeconomic indicators are developed to monitor sustainable development. Examples include Adjusted Net National Income (ANNI), Adjusted Net Savings (ANS) and Comprehensive Wealth.

3.2 Activities in the Past Year

a) Presentations:

- WAVES presentation to the Communications Coordinating Committee of Government (CCC) convened by the Office of the President (OP) in August 2015
- Presentation of WAVES to the national stakeholder conference/road show on the implementation of the Gaborone Declaration for Sustainability in Africa (GDSA) in September 2015.
- Presentation of WAVES and showcasing water accounts results to the executive teams - Ministry of Minerals, Energy and Water Resources (MMEWR) in August 2015, Ministry of Environment, Wild life and Tourism (MEWT) in October 2015 and Ministry of Agriculture (MoA), in February 2016.
- Presentation of WAVES to the National Strategy Office (NSO) in February 2016.
- Presentation of WAVES to Thematic Working Groups for NDP 11 during the drafting of the National Monitoring and Evaluation System, in March 2016
- Presentation of WAVES to the Rwanda delegation visiting Botswana in March 2016.
- Presentation of WAVES to annual conference of the Hospitality and Tourism Association of Botswana (HATAB) in April 2016

- Presentation of Water Accounts to district water sector meetings in Tsabong, Tlokweng, Kasane, and Mahalapye
- Presentation of Water Accounts at the Water Pitso in March 2016.
- Presentation of the macroeconomic indicators Terms of Reference to the Botswana Modelling and Forecasting Group (BMFG)
- Presentation of WAVES to the World Forum on Natural Capital Accounting in Edinburgh in Scotland in December 2015
- Presentation of Natural Capital Accounting to the 23rd East and Southern African Accountant General's Conference in Nairobi in February 2016

b) Account development:

- Development of water accounts for 2014/15 – report approved by TWG in March 2016
- Department of Water Affairs - undertook survey among irrigation farmers between May- June 2015)
- Templates for direct data collection from mining enterprises and water service providers developed
- Development of monetary aspects of water accounts
- Development of energy accounts for coal and electricity, for the period 2010 to 2015 – report under review
- Development of mineral accounts to the year 2015 – report finalised in February 2016
- Draft final Report on Mineral Revenues and Public Finance submitted to Ministry of Finance and Development Planning by Econsult in May 2016

c) Policy briefs:

Development and finalisation of three policy briefs on Water and Mining (published through WAVES) and Water and Irrigation (published through DWA); and Water and Agriculture

3. Policy Priorities and Workplan in WAVES Implementation (continued)

d) Training and Capacity building:

- Three Training and capacity building activities undertaken for water accounts with support from Australian National University.
- Two capacity building initiatives for energy accounts, undertaken with Statistics Netherlands
- Three training sessions on the development of macroeconomic indicators of sustainability with the support of Econsult, a local consultancy company.
- Three training sessions on updating of mineral accounts led by Econsult.
- Draft Memorandum of Understanding (MoU) between MFDP and University of Botswana (UB) on NCA training developed.

- An officer from the Natural Capital Accounting Unit attended training course on Introduction to Environmental Accounting at the Australian National University

e) Water accounting enterprise level pilot study:

- Enterprise level pilot project for Botswana Meat Commission undertaken and results presented to TWG. The objective of the study was to find out how water interruptions due to rationing were affecting the abattoir which is one of the drivers of the country's economy. Main finding was that rationing was severely affecting number of animals slaughtered hence hampering meeting the required quantity for the lucrative EU market.

f) Institutionalisation:

- Formalization of MMEWR institutional structure to include Water Accounting Unit
- Macroeconomic Indicators Technical Team (MITT) formed, for the development of macroeconomic indicators of sustainability.



4. WAVES Activities (May 2015 – April 2016)

WAVES has carried out substantial work on water, minerals, energy accounts and has carried out a scoping study for tourism accounts, as well as capacity building for the development of macro-economic indicators for sustainability. The work is summarized below. Technical reports and policy briefs (for water) have been published and are available and these reports provide detailed results, policy recommendations and a Botswana Natural Capital Accounts Roadmap for the next phase of the work.

4.1 WATER ACCOUNTS

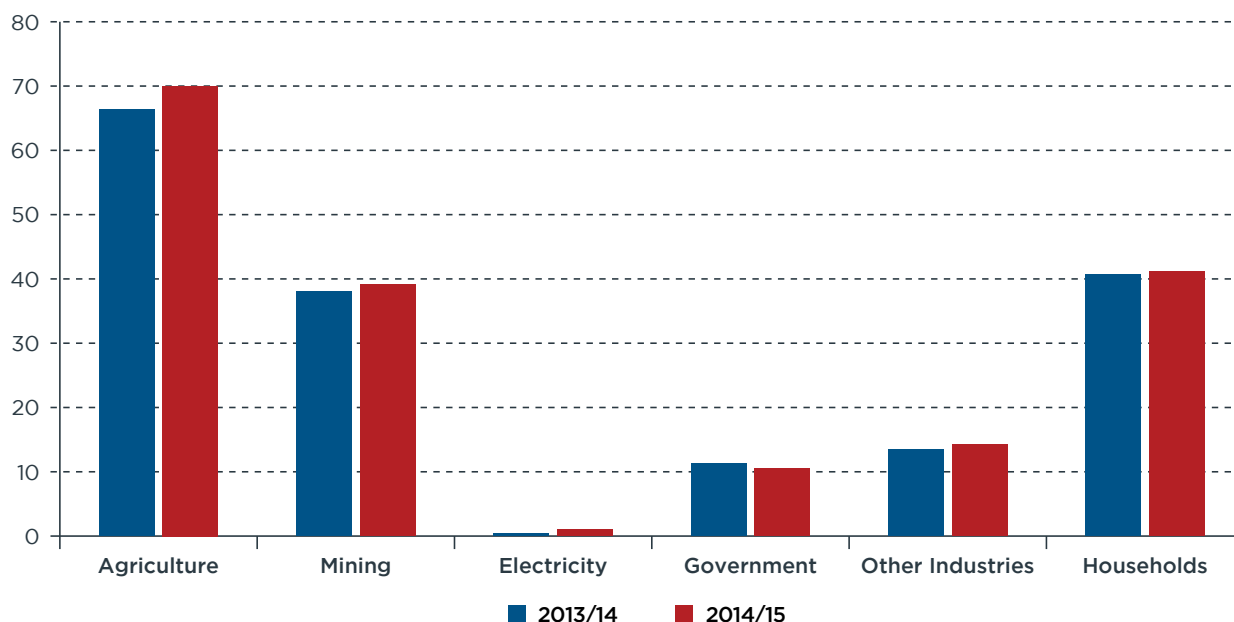
COMPONENT 1 – Water Accounts; Managing scarce water resources to support long-term growth, diversification and poverty eradication	
TIME FRAME	ACTIVITIES
2015/16	<ul style="list-style-type: none"> • The third and latest 2014/15 Water Accounts Report is complete and was approved by TWG in April 2016. • DWA and Ministry of Agriculture completed Irrigation surveys in the South East district. • Site visit and data discussions at Botswana Power Corporation power stations and Debswana Morupule Coal Mine were done • Assistance missions by Dr Michael Vardon (3 missions conducted) greatly improved the understanding of the water accounting principles by DWA and the TWG • DWA engaged CAR to conduct Water Economics training for DWA senior management • Participated in the Rwanda benchmarking visit: March/April 2016 • Developed Agriculture and Water Resources policy brief. • Undertook two case studies viz. BMC Water risk study and Water resources management zones concept note.

HIGHLIGHTS OF RESULTS FROM THE ACCOUNTS

- Water extracted from the environment to support the Botswana economy in 2014-15 was 188 Million Cubic Meters (MCM), which was virtually unchanged since 2013-14.
- Total water consumption in 2014-15 was 167 MCM, which was a 2.5 % increase from 163 MCM in 2013-14;
- Water consumption by industry (Agriculture, mining, manufacturing, etc., excluding households) in 2014-15 was 133 MCM, which is a 3% decrease from 129 MCM in 2013-14;
- Water consumption by households in 2014-15 was 41.2 MCM, which was a very slight increase from the 40.8 MCM in 2013-14;
- Of the total 188 MCM extracted from the environment, around 47% or 88 MCM was extracted by the water supply industry while the remaining 53% or 100 MCM was extracted directly by self-providers (mainly the agriculture sector at 68 MCM and the mining sector at 31 MCM);
- The agriculture sector consumed the largest volume of water with 70 MCM, a 6% increase from 2013-14 consumption of 66 MCM; and
- The agriculture sector accounted for 42% of Botswana's total water consumption in 2014-15. The next largest water users were households with 25%, mining with 23%, other industries with 7% and government with 6%.

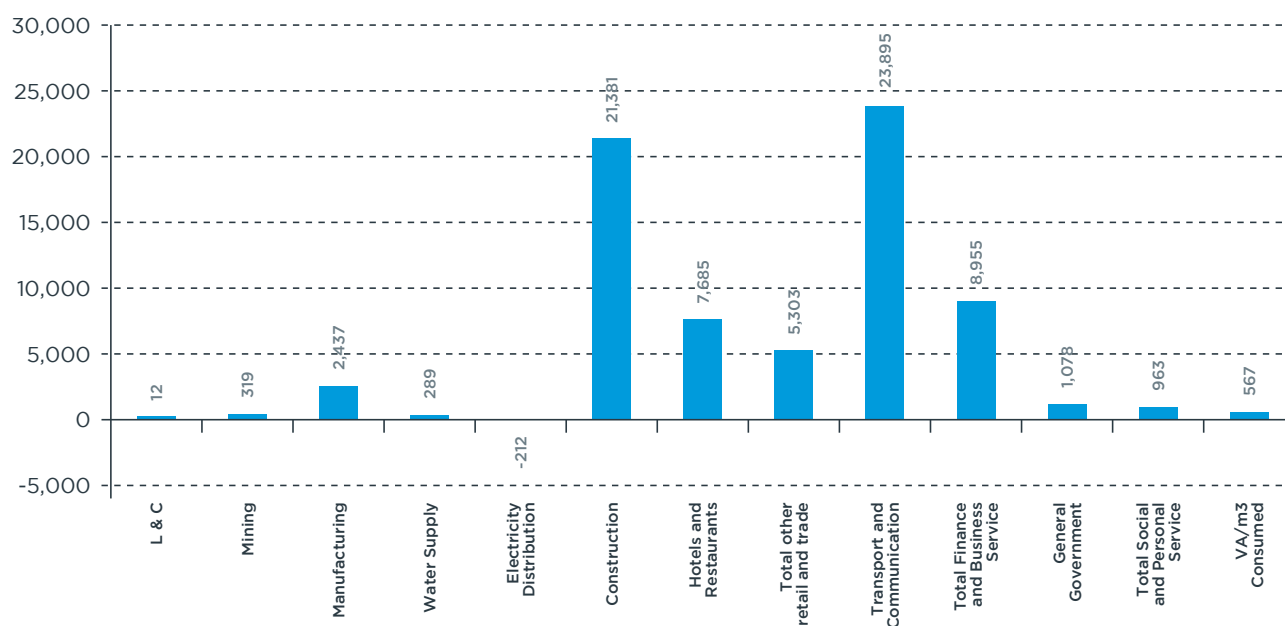
4. WAVES Activities (May 2015 – April 2016)

Water consumption by economic sector, 2013-14 and 2014-15 (MCM)



The figure above shows water consumed by economic sectors. Agriculture and mining are the main consumers and this two (2) industries self abstract majority of the water they use.

Value added per consumed water unit (BWP/m³; 2014-15)



The figure above shows the value added by each economic sector per cubic meter of water consumed. L&C denotes livestock and crops. Transport and communication performs the best but this industry is less water intensive than agriculture and mining.

The table below shows the five (5) year trend of water use indicators which shows a decline in water abstraction for the current reporting period and this mainly due to the ongoing drought in the country

Table 1: Water use indicators.

		2010-11	2011-12	2012-13	2013-14	2014-15
Total water abstraction	Mm³	197.2	194.4	194.1	194.4	187.9
Abstraction for own use	Mm³	99.5	103.4	91.5	94.9	187.9
Abstraction for distribution	Mm³	97.7	91	102.6	99.5	98.1
Imported water	Mm³	7.3	7.2	7.7	6.5	89.7
Abstraction by source:						
Groundwater	Mm³	99.3	103.4	95.9	99.6	108.8
Reservoirs	Mm³	82.5	75.6	83.4	80.6	79.1
Rivers	Mm³	15.4	15.4	14.6	14.3	
Total water consumption		172.5	171.6	178.3	169.8	166.8
Households	Mm³	37.2	38	37.9	40.8	41.2
Government	Mm³	15.7	11.5	16.1	11.3	10.3
Agriculture	Mm³	74.6	74.6	66.2	66.2	70.2
Mining	Mm³	32.4	34.6	40.8	38	39.0
Other prod. Sectors	Mm³	12.6	12.8	17.3	13.5	6.1
Per capita:						
Abstraction	L/p/d	261.8	253.2	247.3	244.9	240.2
Consumption	L/p/d	237.9	232.1	236.7	221.3	213.3
Household water consumption	L/p/d	51.3	51.4	50.3	53.2	52.7

Emerging policy issues from the water accounts

It is worth noting that all policy issues mentioned below are relevant for NDP 11 consideration.

- Estimation of abstraction by self-providers and unit charge
- Raw water abstraction pricing strategy
- Measuring and re-use of treated effluent
- Economic diversification focused on water extensive industries (e.g. service industries)
- Water and Energy regulatory authority
- Promote water efficient irrigation in agriculture
- Promote internal reuse of water for manufacturing industry
- Cap irrigation fresh water use
- Building codes to incorporate rainwater harvesting tanks and plumbing
- WUC water may be too expensive for many poverty eradication projects (especially water intensive projects)
- Where possible, re-use of treated effluent, use of non-conventional sources (rainwater harvesting) and spare water capacity of boreholes should be considered;
- Construction of side dams for livestock and irrigation syndicates
- Optimization of safe yields of the linked up surface and groundwater sources.
- Climate resilient water infrastructure (i.e. use of deep storage dams to overcome evapotranspiration losses)
- Managed aquifer recharge to mitigate against rising temperatures and encourage conjunctive of surface and ground water.

4. WAVES Activities (May 2015 – April 2016)

4.2 MINERAL ACCOUNTS

COMPONENT 2 – Minerals Accounts: Supporting Economic growth and diversification	
TIME FRAME	ACTIVITIES
2014/15	<ul style="list-style-type: none"> • Establishment of the Mineral Accounts TWG • Conducted three training workshop (Dec 2014, Feb 2015)
2015/16	<ul style="list-style-type: none"> • Mineral Accounts up to 2014 covering diamond, copper-nickel, coal, soda ash and gold developed • Spreadsheets and operational manual for mineral accounting developed • Training workshop September 2015 undertaken

2. Highlights of Results from Mineral Accounts

The importance of mineral production to the Botswana economy is summarized in Table 1. The mining sector 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, the largest contributor to government revenues, and the source of the large majority of export earnings.

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. In 2014, the most recent full year for which data is available, mining was the largest economic sector when measuring GDP/value added at current prices, but at constant (2006) prices, mining was the second largest economic sector, after trade, hotels and restaurants.

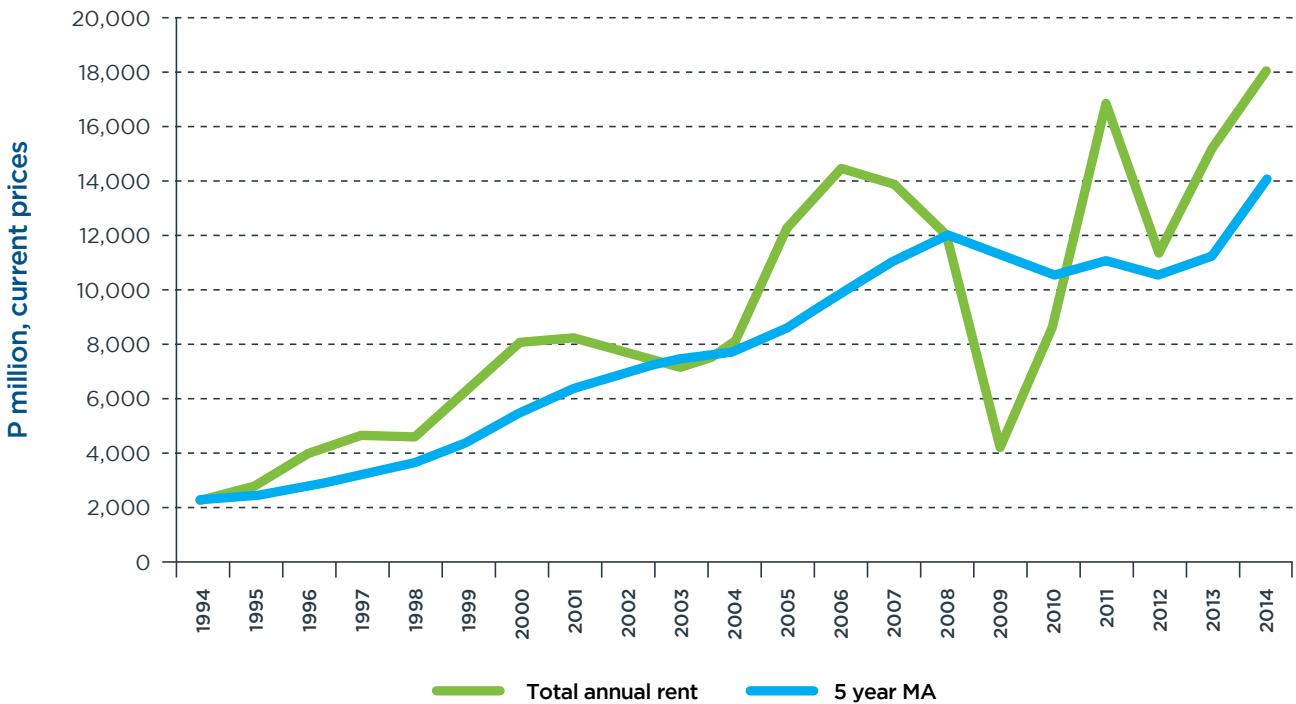
Table 1: Economic importance of mining

MACRO ECONOMIC INDICATOR	1985-1994	1995-2004	2005-2014
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

Figure 1: Total resource rent, annual and 5-year moving average



Source: Mineral Accounts technical report, 2016

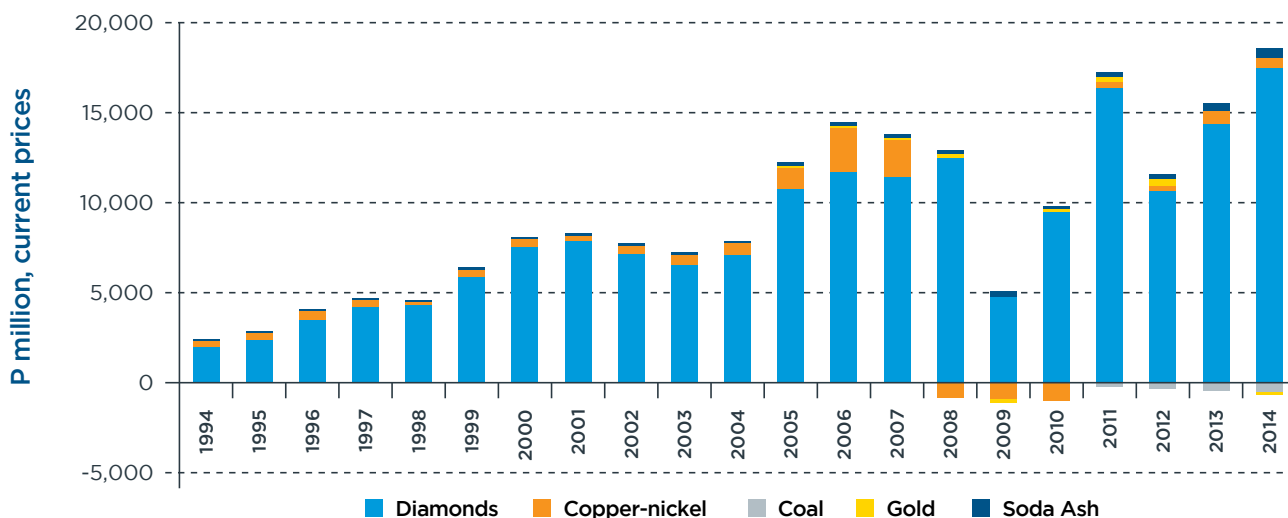
The results from the figure above produce a number of conclusions:

- Annual resource rents have been quite volatile, depending on mineral prices and production volumes—indicating that a 5-year moving average of rents gives a more representative long-term trend;
- The impact of the global financial crisis of 2008–9 was very large, causing a sharp fall in resource rents; and
- Overall resource rents are dominated by rents received from diamonds—an average of 94 percent of the total. Rents from copper-nickel have been much smaller, but positive in most years, except for 2008–10. Rents from coal have been consistently negative, although generally small until the last five years, when a large investment program at Morupule sharply increased the level (and cost) of capital employed.

4. WAVES Activities (May 2015 – April 2016)

Figure 2: Resource rent, by mineral, 1994-2014 (current prices)

The Figure below shows that mineral rents account for a large proportion of the operating surplus for both diamonds and soda ash. For coal, rent has generally been negative, while for copper-nickel and gold it has been highly variable.

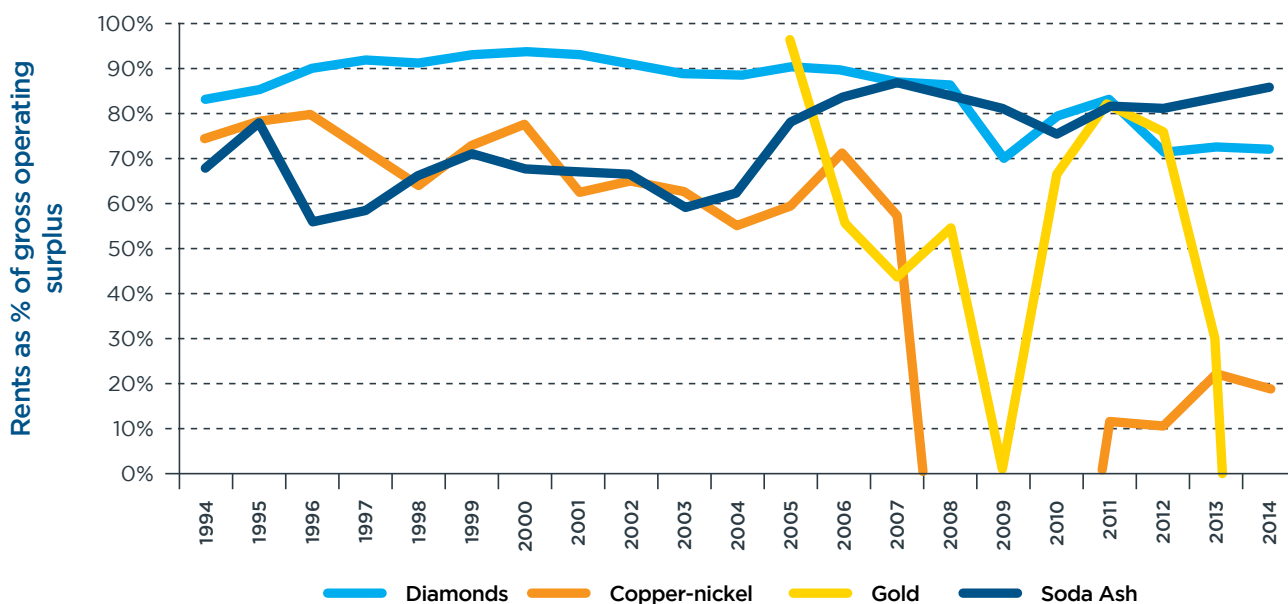


Source: Econsult Mineral Account report

Note: Coal shows a negative result as the accounts are based on rents accruing from market sales of minerals: coal is consumed locally.

Besides being by far the largest contributor to rents, diamond rents were also much more stable over the period as a whole than those from other minerals, despite the disruption caused by the global financial crisis.

Figure 3: Rents as % of Gross Operating Surplus, by mineral

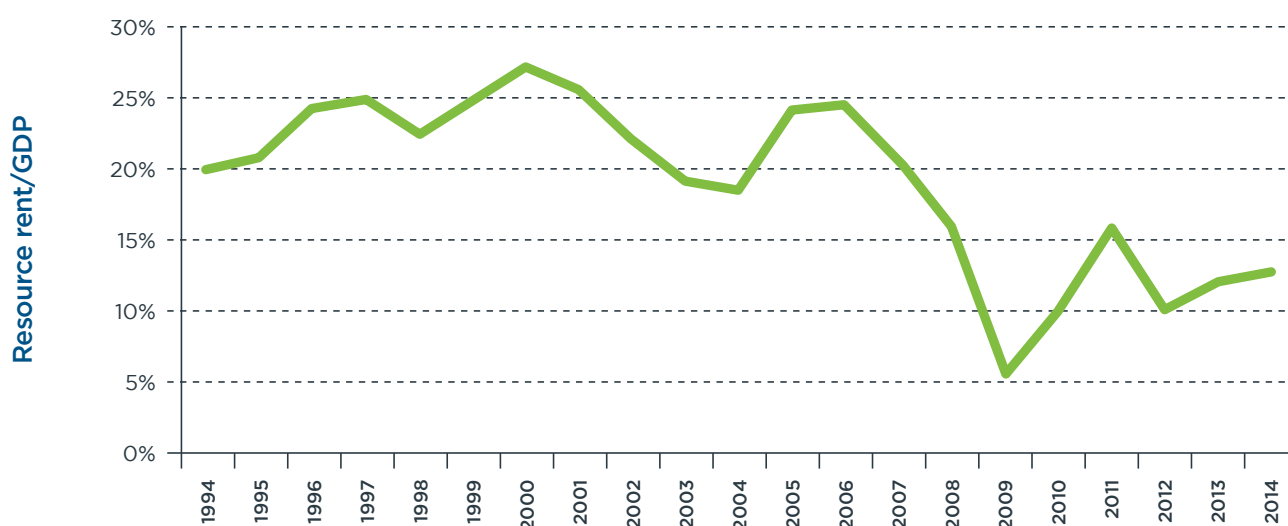


Source: Mineral Accounts Technical Report, 2016

Resource rents have been extremely important to the Botswana economy, and contributed on average 19 percent of GDP during the period 1994–2014. However, it is evident that the relative contribution of resource rents has been in decline over the past decade (as shown in figure 4 below).

The figure shows that resource rents as a percentage of GDP sharply declined to 5 percent in 2009 due to the effects of the global economic recession. The recession led to the decline in mineral production, particularly diamonds, as a share of GDP, as well as to rising costs of production.

Figure 4: Resource rent as a percentage of GDP



Source: Mineral Accounts Technical report, 2016

4.3 ENERGY ACCOUNTS

COMPONENT 3 - ENERGY Accounts: Supporting economic growth and diversification	
TIME FRAME	ACTIVITIES
2014/15	<ul style="list-style-type: none"> • Scoping exercise for energy accounts • Capacity Building with UK consultant
2015/16	<ul style="list-style-type: none"> • Development of the Action Plan • Development of the statistical infrastructure for the energy accounts • Development of energy accounts for coal and electricity • Report writing for coal and electricity accounts • Collection of data for liquid fuels

4. WAVES Activities (May 2015 – April 2016)

HIGHLIGHTS OF RESULTS FROM ENERGY ACCOUNTS

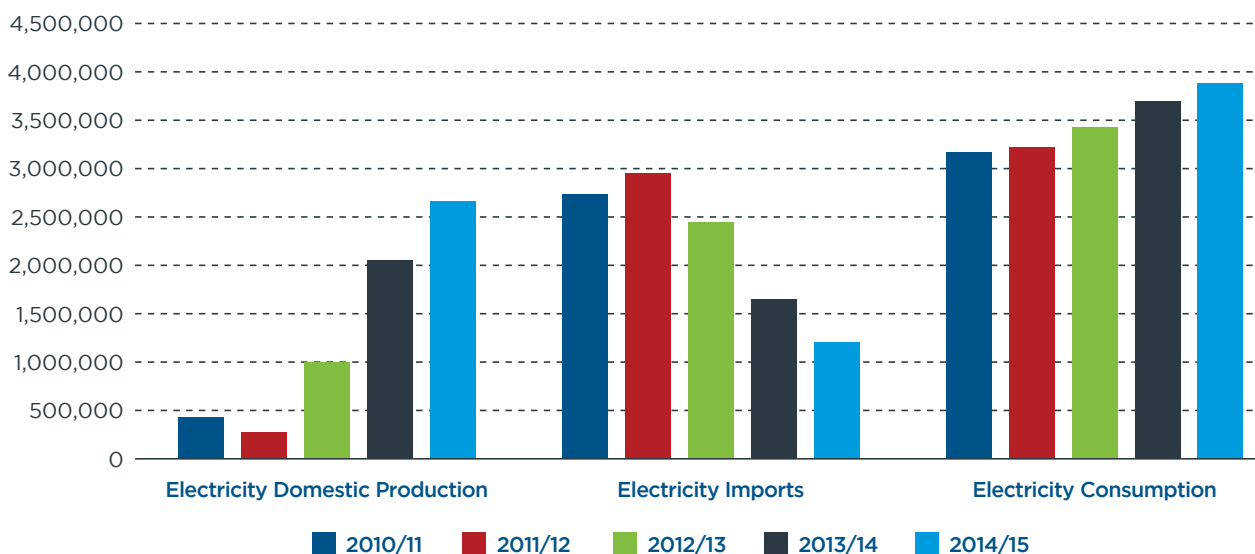
Coal and electricity accounts for Botswana have been constructed for the years 2010-2015. Highlights of the results are presented below.

1. From an electricity importer to an electricity producer

Botswana has shifted from a country that was highly dependent on South African electricity into a country that produces most of its electricity.

The share of domestic electricity has increased from 14% in 2010/11 to 69% in 2014/15. The increase in domestic electricity generation has been achieved through the building of a new coal-fired power plant (Morupule B) which is being supplied by the Morupule Coal Mine. In addition, consumption increased by 22% over the same period. While the domestic production was expected to grow faster, the achieved increase together with imports have sustained a modest growth in electricity consumption.

Figure 5: Trends in Electricity



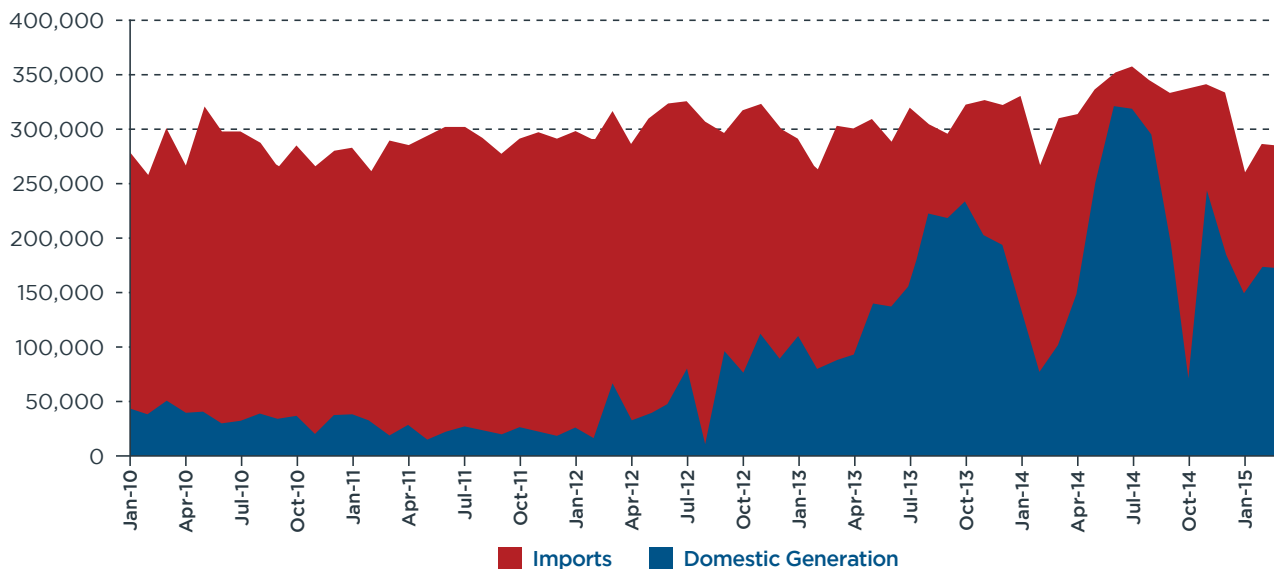
Trends in electricity – Domestic generation, imports and consumption (MWh)

2. Transition has been volatile

The transition towards increased domestic production discussed above has not been smooth. The monthly data shows that there has been significant volatility due to the fact that the Morupule B power plant has been out of operation on various occasions. In these months Botswana has been forced to return to its position as an energy importer and where imports fell short of demand load shedding became inevitable.

In the months that Morupule B was running satisfactorily, Botswana was almost entirely self-sufficient. Corrective measures at Morupule B, refurbishment of Morupule A and other plans for power plants should alleviate power constraints in future and could make Botswana net exporter of electricity. Electricity is mostly imported from South Africa, making Botswana vulnerable to power shortages in South Africa. In response, attempts have been made to source imports from other neighbouring countries too.

Figure 6: Power imports versus domestic supply



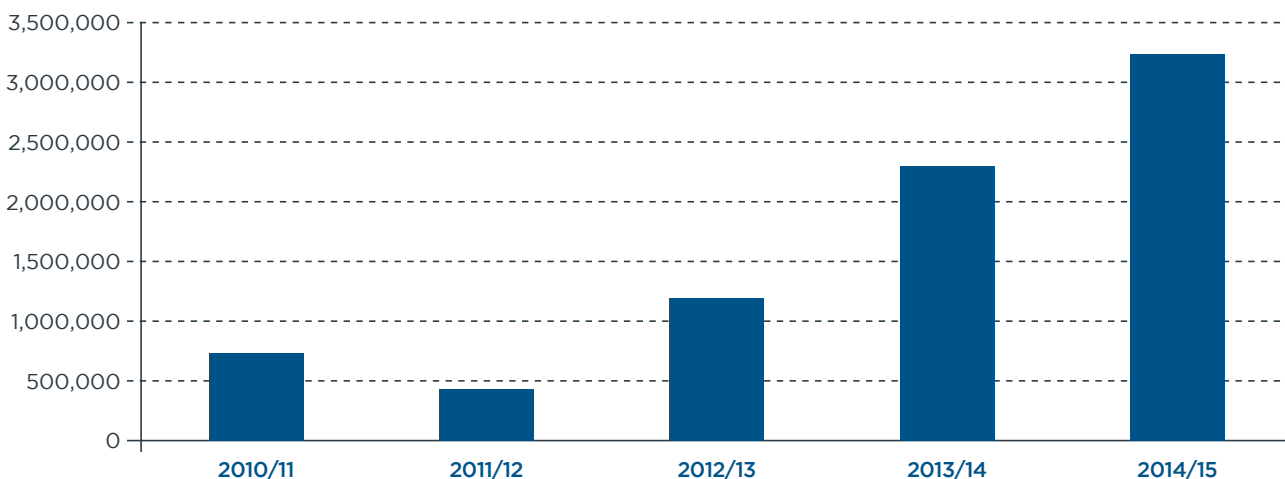
Source: Department of Energy, Energy accounts technical report

3. Large increase in domestic carbon emissions

Figure 6: The shift from electricity imports to coal-fired electricity has also led to an almost five-fold increase in domestic CO₂ emissions of 0.7 million tons of CO₂ emission in 2010-11 to 3.2 million T in 2014-15. The latter is around 1.5 T/person and represent significant environmental costs.

As imports decreased, emissions embodied in imports have decreased significantly (from 2.5 to 1.2 million T). Clearly, the shift towards domestic electricity generation has created a far more CO₂ intensive economy, which may have repercussions in international negotiations about climate change. Coal fired power plants are largely responsible for the associated CO₂ emissions (93%).

Figure 7: Domestic CO2 emissions related to coal and electricity (in T)



Source: Department of Energy, Energy Accounts technical report

4. WAVES Activities (May 2015 – April 2016)

4.4. TOURISM ACCOUNTS

COMPONENT - Tourism Accounts: optimizing management of land and ecosystems to contribute to long-term growth, diversification and poverty alleviation	
TIME FRAME	ACTIVITIES
2014/15	<ul style="list-style-type: none"> • Draft Terms of reference for consultancy to undertake tourism accounts scoping study
2015/16	<ul style="list-style-type: none"> • Scoping study for tourism accounting • Database for tourism satellite accounts resuscitated • Formalize the Tourism Sector Statistics Committee as TWG for tourism accounts • Stakeholder consultations on tourism accounts scoping study • Draft interim tourism scoping report was developed in March 2016

UPDATE ON THE DEVELOPMENT OF TOURISM SATELLITE ACCOUNT

1. The tourism scoping study commenced in March 2016 and will run until June 2016. The study will:
 - Undertake a data assessment to support tourism accounting
 - Evaluate the institutional arrangement for tourism development
 - Identify key issues that will inform the development of the tourism accounts
 - Develop a roadmap to guide the development of tourism accounts in the long-term
2. The tourism accounting component is led by the Department of Tourism under the Ministry of Environment, Wildlife and Tourism in collaboration with the Botswana Tourism Organisation. International support has been secured through the World Bank, from ACORN -UK consulting company

4.5 MACRO ECONOMIC INDICATORS FOR SUSTAINABILITY

Component 5 – Macro-economic indicators: Is Botswana on a growth path that is sustainable, is growth really long-term growth?	
TIME FRAME	ACTIVITIES
2015/16	<ul style="list-style-type: none"> • Macroeconomic Policy Section established a team of five economists to form a Macro Indicators Technical Group. • The Botswana Modelling and forecasting Group (BMFG), hosted by the Ministry of Finance and Development Planning designated as a Technical Working Group for Macro Indicators • Through the World Bank support, a series of training workshops were conducted by a local consultant to staff of Macroeconomic Policy Section, including members of the BMFG.

HIGHLIGHTS OF RESULTS FROM THE MACROECONOMIC INDICATORS

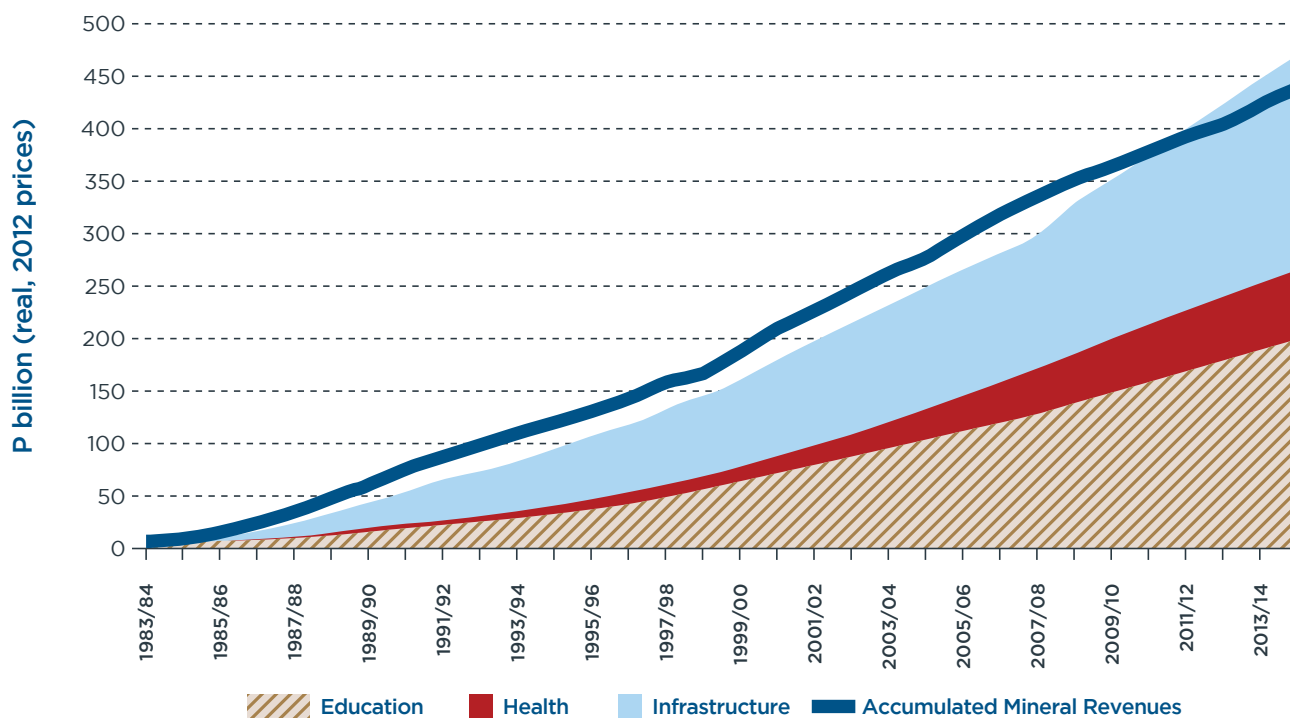


Figure 1 indicates that from 1983/84, mineral revenues have been completely devoted to investment in physical and human capital assets, and have not been used to finance recurrent spending, which has been financed by recurrent revenues over the years. Public investment spending has been divided between physical assets (43 percent), education and training (42 percent), and health spending (15 percent). The government experienced budget surpluses from 1983/84 to 1997/98. However, this situation has changed in recent years due to declining mineral revenues.

Despite the fact that there has been rapid growth in public spending, the budget has been in surplus which has resulted in the accumulation of financial assets. Historically, the government has accumulated significant financial savings and undertaken very little borrowing. Over the years the savings were partially depleted and rebuilt over time. Even though there was no active policy, Botswana has done well in terms of managing its mineral revenues.

5. Coordination of WAVES/Natural Capital Accounting in Botswana



The WAVES project is coordinated at national level by the Ministry of Finance and Development Planning (MFDP). This Ministry's mandate includes; coordination of national development planning; and it is responsible for the formulation of financial and economic policies for sustainable economic development. Since the main objective of WAVES is to mainstream natural capital accounting into national development planning and economic decision making, the MFDP is therefore strategically positioned to ensure the sustainability of Natural Capital Accounting (NCA) program in the country.

The WAVES project is coordinated by the Division of Economic and Financial Policy through the Deputy Secretary, Macroeconomic Policy (DSMP). At policy level, the DSMP serves as Chairperson of the WAVES National Steering Committee, which oversees the overall implementation of the WAVES program in Botswana. At technical level, WAVES issues and activities are coordinated by the Macroeconomic Policy (MP) Section through the Natural Capital Accounting (NCA) Unit. The MP Section is headed at Director and Deputy Director levels.

The Section is mandated with the overall responsibility of coordinating the preparation of National Development Plans and their Mid-Term Reviews, as well as preparation of Annual Budget Speeches and economic reports. The NCA Unit falls under the MP Section and it is headed at Chief Economist level. It is responsible for coordination of NCA implementation in Botswana.

The Assistant Economist and an Intern make up the staff complement of the Unit, which serves the dual purposes of WAVES project coordination and implementation, as well as discharging other equally important responsibilities within the Macroeconomic Policy Section. At coordination level, WAVES activities are implemented through the NCA annual Workplan, which is monitored from time to time by the NCA Unit.

The functional responsibilities of the NCA Unit include the following;

- Coordinating implementation of the WAVES Workplan, which consists of four NCA components for prioritized natural resources of water, minerals, energy and tourism (key element of the ecosystem)
- Providing secretariat services to the WAVES National Steering Committee. These include convening meetings, taking minutes and making follow-ups of action items arising from the meetings
- Promoting full functioning of the NCA Technical Working Groups. These include facilitating TWGs to convene meetings aimed at reviewing implementation of their respective NCA component workplans
- Building capacity of NCA implementing sectors/partners through liaising with World Bank to provide technical backstopping missions to TWGs and staff members fully assigned/dedicated to compile and analyse NCA component accounts
- Integrating natural capital accounting elements into policy and planning frameworks such as the NDPs
- Implementation of the WAVES-Botswana Communication and Engagement Strategy, such as building stakeholder relationships and making presentations on WAVES to various stakeholders to sensitize them on natural capital accounting principles, methodologies and policy applications

INSTITUTIONAL FRAMEWORK FOR IMPLEMENTATION OF NCA IN BOTSWANA

Implementation of NCA activities is carried out at sectoral level by the Ministries of; Minerals, Energy and Water Resources; and Environment, Wildlife and Tourism. The former is responsible for compiling natural capital accounts for water, minerals and energy, while the latter is responsible for the development of the tourism satellite accounts. On the other hand, the Ministry of Finance and Development Planning combines the WAVES coordination role with the compilation of a set of macroeconomic indicators to monitor sustainability of economic growth. These functions are effectively executed through multi-sectoral Technical Working Groups (TWGs) to ensure ownership and timely supply of relevant data for the compilation of the accounts.

Role and responsibilities of the WAVES National Steering Committee (NSC).

The main role of the Steering Committee is to provide overall guidance and advice for the country program on policy and technical work; facilitate communications and liaison with appropriate government and non-governmental agencies to support the program; approve the annual workplan and budget for the implementation of WAVES; promote collaboration between WAVES and other sustainability initiatives in the country; and approve all natural capital accounting reports on behalf of Government before such can be published. The Ministry of Finance and Development Planning is the Chair of the Steering Committee, while the Ministry of Environment, Wildlife and Tourism is the Co-chair. The members of the Steering Committee meet biannually.

5. Coordination of WAVES/Natural Capital Accounting in Botswana (continued)

Composition, role and responsibilities of the Technical Working Groups

All WAVES components are technically facilitated through multi-sectoral Technical Working Groups (TWGs), chaired by the relevant Deputy Permanent Secretary who is also a National Steering Committee member. The main responsibilities of the TWG members are to provide data for the compilation of accounts; liaise with agencies within their sector to support their NCA component activities; review technical reports to ensure sectoral relevance and adequacy of the reports before consideration by the Steering Committee; support component consultants to ensure technical adequacy of activities relevant to their sector; participate in TWG meetings to monitor implementation of the component workplans; and participate in NCA capacity building and training activities to internalise the application of NCA methodologies.

- **Water Accounts TWG**

The water accounts TWG is responsible for monitoring implementation of the water accounts annual workplan. It is composed of representatives from the following organizations: Department of Water Affairs; Water Utilities Corporation; Statistics Botswana; Ministry of Agriculture; Department of Mines; Ministry of Finance and Development Planning; and Chamber of Mines. It is chaired by the Deputy Permanent Secretary for the Ministry of Minerals, Energy and Water Resources (MMEWR). The restructuring of MMEWR has led to the formal establishment of the Water Accounting Unit in March 2016. It is capacitated by four officers who previously carried out water accounting responsibilities for the Ministry and have benefitted from training and skills development initiatives from the WAVES project. The creation of the Water Accounting Unit is a positive step towards institutionalization of natural capital accounting process in the country. The Water Accounting Unit provides secretariat services to the water accounts TWG; such as

convening meetings, building and sustaining stakeholder relationships with data providers, coordination and implementation of WAVES issues related to the development of water accounts in the country.

- **Energy Accounts TWG**

The Energy Accounts TWG is made up of representatives from the following: Department of Energy; Ministry of Finance and Development Planning; Department of Water Affairs; Statistics Botswana; Chamber of Mines; Morupule Coal Mine; and Botswana Power Corporation. It is chaired by the Deputy Permanent Secretary for the Ministry of Minerals, Energy and Water Resources. The Modelling and Statistics Unit within the Department of Energy, host the accounts. The Unit provides secretariat services to the Energy Accounts TWG and implements all WAVES issues related to the development of the energy accounts. It has a staff complement of three officers assigned to compile and analyse the energy accounts. It is responsible for convening TWG meetings to monitor implementation of the energy accounts workplan. Building and sustaining stakeholder relationships with data providers is key to improving the quality of the energy accounts.

- **Mineral Accounts TWG**

The TWG is composed of representatives from the Department of Geological Surveys, Department of Mines, Mineral Affairs Department, Chamber of Mines, Ministry of Finance and Development Planning and Statistics Botswana. It is chaired by the Deputy Permanent Secretary in the Ministry of Minerals, Energy and Water Resources. The former Department of Geological Surveys provides secretariat services to the Mineral Accounts TWG. These include convening TWG meetings to review implementation of the annual workplan. The DGS has been restructured and it is now called the Botswana Geoscience Institute.

As part of the ongoing restructuring process, a Mineral Accounting Unit dedicated to the timely compilation and analysis of mineral accounts is being considered. Due to its composition, the Mineral Accounts TWG is adequately represented to obtain good quality data used in compiling and updating the mineral accounts. Its members have benefitted from training and capacity building initiatives from WAVES and they are now in a position to update the accounts annually. Strengthening the technical capacity to analyse the information from the accounts is needed, in addition to enhancing the capability of the proposed Unit to liaise, coordinate and sustain the mineral accounts.

- **Tourism Satellite Accounts TWG**

The Tourism Sector Statistics Committee (TSSC) has been designated as the Tourism Satellite Accounts (TSA) TWG. The Tourism Satellite Account is a globally accepted instrument used for measuring the contribution of the tourism sector to the economy. The TSSC is composed of membership from those who provide data, those who compile data, users of data, those with public policy responsibilities and the national statistical agency. WAVES aims at strengthening the technical capacity of the Department of Tourism (DOT) to compile tourism data and to improve the quality of the Tourism Satellite Account. Currently, one officer is dedicated to dealing with assignments involving liaison and coordination of WAVES issues related to the development of Tourism Satellite Account.

- **Macroeconomic Indicators of Sustainable Development**

The Macroeconomic Policy Section is responsible for compiling the macroeconomic indicators of sustainability through a team of five dedicated officers, dubbed the Macroeconomic Indicators Technical Team (MITT).

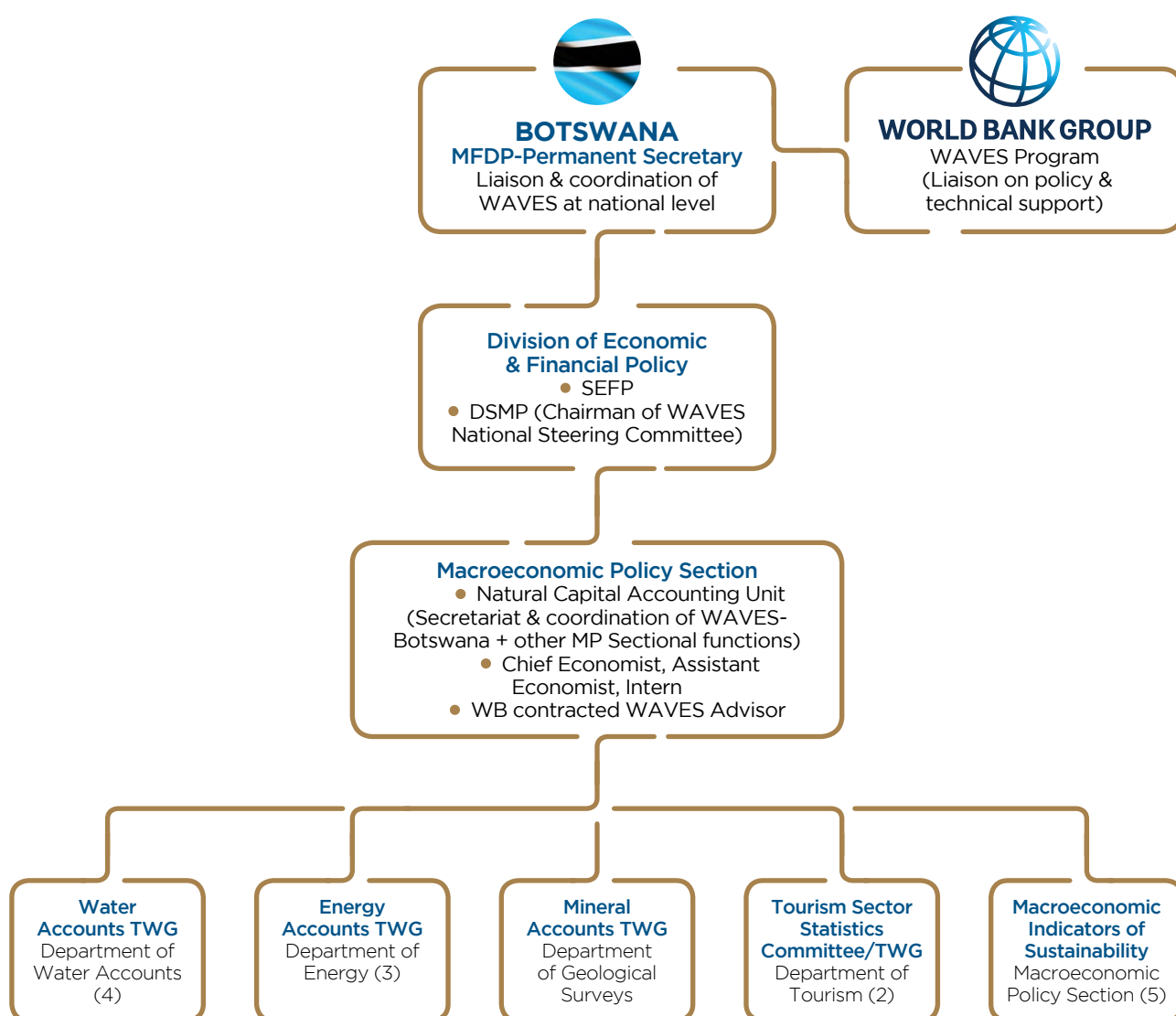
The MITT is responsible for computing and analysing macroeconomic indicators used to complement the use of Gross Domestic Product (GDP) and any other macroeconomic indicators that can be used to monitor the long-term sustainability of economic growth. They include adjustments to conventional macro indicators to account for the depletion of minerals, specifically, *Adjusted Net National Income* and *Adjusted Net Savings* as well as *Comprehensive Wealth*. It is notable that these indicators are not a substitute for GDP.

The Botswana Modelling and Forecasting Group (BMFG) has been designated as the TWG for the macro indicators of sustainability. It is multi-sectorial in composition, consisting of representatives from: University of Botswana; Bank of Botswana; Botswana Unified Revenue Services; Ministry of Minerals, Energy and Water Resources; Botswana National Productivity Centre; Human Resources Development Council; and Statistics Botswana. One of its terms of reference is to guide and inform the production of forecasts and to build capacity in modelling and forecasting.

The diverse technical expertise in this Group facilitates timely supply of essential data needed for the compilation of the macroeconomic indicators used for monitoring the sustainability of economic growth, after accounting for the depletion of mineral resources. Their sectoral representation and modelling capabilities enriches analysis of policy related issues. Hence, the BFMG has been designated as the TWG for Macroeconomic Indicators of Sustainability. The Natural Capital Accounting Unit coordinates the compilation and analysis of these indicators, in addition to other WAVES related issues.

5. Coordination of WAVES/Natural Capital Accounting in Botswana (continued)

INSTITUTIONAL FRAMEWORK FOR COORDINATION & NCA IMPLEMENTATION IN BOTSWANA



6. The Road Ahead

The long-term vision of NCA in Botswana is premised on its integration into development planning and policy processes. This roadmap is linked to the formulation of NDP 11 for it to complement normal planning and budgeting systems. The roadmap will build momentum on the NCA accounting for the sectors of water, energy, minerals and ecosystem/tourism during NDP 11 as outlined in the profile of activities below.

TABLE 1: Consolidated NCA Roadmap

NCA COMPONENTS	YEAR OF IMPLEMENTATION				
	2017	2018	2019	2020	2021
WATER ACCOUNTS					
Annual Update of Water Accounts (physical and monetary)					
Design of a Data Management Infrastructure for Water Accounting					
Short courses on NCA and SEEA-Water (e.g ABS/ANU short course)					
Development of full monetary accounts					
WUC SAP Client list coding as per SEEA					
Training on Analysis of Water Accounts to inform policy decision					
Integration of Water Accounts into NDP and make part of the normal operations of the DWA					
Produce Water Accounts Policy Briefs					
Quantification of Waste Water					
Quantification of Ground Water Stocks					
Compile Physical Stocks for small streams and small dams (Agricultural Dams)					
Expansion of Water Accounts to include soil moisture experimental accounts (Rain-fed agriculture)					
Water Quality and Water Emission Accounts					

6. The Road Ahead (continued)

TABLE 1: Consolidated NCA Roadmap (continued)

NCA COMPONENTS	YEAR OF IMPLEMENTATION				
	2017	2018	2019	2020	2021
WATER ACCOUNTS					
Engagement with District level Water Affairs Stations to widen the knowledge base on Water Accounting					
Design a system of Integrating Water Accounts to other Thematic Accounting Activities					
MINERAL ACCOUNTS	2017	2018	2019	2020	2021
Annual Updating of Mineral Accounts (Physical & Monetary)					
Produce Policy Briefs based on Mineral Accounts					
Design data management infrastructure to facilitate mineral accounting					
Establish Mineral Accounting institutional Structure and strengthen technical capacity					
Include downstream activities in the mining sector, (i.e diamond processing, cutting, polishing and diamond sorting, valuation and marketing/trading)					
Data on mineral reserves & new discoveries covered on annual basis					
Integrate results of mineral accounts to inform NDP 11 projects					
Regular reporting on mineral accounts					

TABLE 1: Consolidated NCA Roadmap (continued)

NCA COMPONENTS	YEAR OF IMPLEMENTATION				
	2017	2018	2019	2020	2021
ENERGY ACCOUNTS					
PREPARATION OF ENERGY ACCOUNTS					
Annual surveys for energy Balances and Accounts					
Data verification, evaluation and analysis					
Report on physical EnA and EnBalances					
Annual up-dates of physical Energy Balances and Energy Accounts					
Development of data collection templates for key stakeholders					
TRAINING AND CAPACITY DEVELOPMENT					
Training on Access MS					
Training on System Query Language (SQL)					
Training on advanced Excel					
Short courses Development MFDP-UB MoU WAVES					
Development of an energy law to allow easy data collection					
POLICY ANALYSIS					
Policy analysis of ENA findings on electricity and coal supply & use					
Development of key ENA indicators (Liquid fuels)					
Policy brief on energy and development planning					
Development of policy briefs on electricity and coal issues					

6. The Road Ahead (continued)

TABLE 1: Consolidated NCA Roadmap (continued)

NCA COMPONENTS	YEAR OF IMPLEMENTATION				
	2017	2018	2019	2020	2021
ENERGY ACCOUNTS					
RESULT COMMUNICATION & DISSEMINATION					
Briefings of senior management key stakeholders (BPC, MCM & SB etc)					
ENA seminar to DoE staff					
ENA seminar to TWG					
ENA seminar for macro-economic-dev. Planning (NDP11 MTR)					
Seminars for priority target groups (macro-economic MFDP,					
Seminar for TWG and all energy stakeholders					
Development of flyers, brochures etc.					
Progress & result reporting to BEAC					
Regular up-dates Botswana WAVES PSC					
EQUIPMENT, SOFTWARE AND MACHINERY					
Laptops					
Car x3					
Energy information management system					

TABLE 1: Consolidated NCA Roadmap (continued)

NCA COMPONENTS	YEAR OF IMPLEMENTATION				
	2017	2018	2019	2020	2021
TOURISM SATELLITE ACCOUNTS					
Data Assessment and Tourism Profiling to inform development of Nature based tourism.					
Tourism Data capture to update existing databases					
Build capacity for ecosystem Accounting (including tourism)					
Development of Tourism Accounts as a priority Satellite Account will be undertaken based on SEEA methodology					
Establish institutional structure/ Unit for Ecosystem Accounting (including Tourism)					
Set priorities for Ecosystem Accounting for Major Ecosystems based on key issues to cover biodiversity hot spots, reduction of land use conflicts, tourism development and enhanced socio economic activities.					
Develop land Accounts					
Update land Accounts					

6. The Road Ahead (continued)

TABLE 1: Consolidated NCA Roadmap (continued)

NCA COMPONENTS	YEAR OF IMPLEMENTATION				
MACROECONOMIC INDICATORS OF SUSTAINABILITY	2017	2018	2019	2020	2021
Develop macroeconomic and fiscal indicators - Adjusted Net Savings, Adjusted Net National Income, Comprehensive Wealth					
Annual collection of data from BoB, SB and Mineral Accounts					
Produce policy brief on macroeconomic indicators					
Training and capacity building on policy analysis					
Strengthen institutional capacity of Macroeconomic Policy Section					
Use national balance sheet to monitor the long term sustainability of economic growth (linking to NDP 11)					
Integrating results from other Accounts to feed into Macroeconomic Indicators.					

7. Result - Based Monitoring and Evaluation Plan

Country Results - Based Monitoring Matrix – PDO 1

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Baseline June 2011	Prep year June 2012	Year 1 June 2013	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016
PDO 1. To implement natural capital accounting in partner developing and developed countries						
Outcome indicators:						
a. Country has committed to institutionalise natural capital accounting based on lessons learned from the WAVES programme	None	None		<p>Target: Water accounts partially institutionalized</p> <p>Achieved Department of Water Affairs unit for water accounts with 3 staff</p>	<p>Target: DWA Unit approved</p> <p>Achieved Two staff hired in Ministry of Finance & Development Planning; Department of Energy commits for energy accounts</p>	<p>Target: Staff commitments for additional accounts in respective government agencies.</p> <p>Achieved Agreement on regular reporting for key indicators; staff commitments in NDP11 are as follows: NCA Coordinating Unit at Ministry of Finance 2 staff members, Water Accounting Unit at Department of Water Affairs 5 staff; energy accounting at Department of Energy 4 staff; macro-economic indicators at MFDP 5 staff; minerals accounts by Department of Geological Surveys (including Mineral Affairs and Mines departments) 5 staff members</p>

7. Result - Based Monitoring and Evaluation Plan (continued)

Country Results - Based Monitoring Matrix – PDO 1 (continued)

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Baseline June 2011	Prep year June 2012	Year 1 June 2013	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016
PDO 1. To implement natural capital accounting in partner developing and developed countries						
Intermediate Outcomes Indicators						
1.1 Country has completed the milestones for the WAVES Preparation Phase	None	Fully Achieved				
1.2 Country has asset accounts for selected natural assets	None			<p>Target: Preliminary mineral accounts</p> <p>Achieved: Surface water stock accounts, subsoil asset accounts (phase 1)</p>	<p>Target: Phase 2 mineral accounts, preliminary groundwater stock accounts, preliminary land accounts for one ecosystem site (Okavango)</p> <p>Achieved: Botswana-Subsoil assets (phase 2), preliminary groundwater water stock accounts</p>	<p>Target: Updated or additional accounts:</p> <p>Achieved: Subsoil assets updated; total water stock accounts by region – technical water accounts report covering physical/stock accounts and monetary accounts for 2014/15 approved by TWG in April 2016</p>

Country Results - Based Monitoring Matrix – PDO 1 (continued)

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Baseline June 2011	Prep year June 2012	Year 1 June 2013	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016
PDO 1. To implement natural capital accounting in partner developing and developed countries						
Intermediate Outcomes Indicators						
1.3 Country has flow accounts for selected natural resources	None	None		<p>Target: Update flow accounts</p> <p>Achieved: Preliminary water accounts; Time series of national water accounts</p>	<p>Target: Update flow accounts</p> <p>Achieved: Water accounts (update national accounts, accounts by water management area, new sectoral accounts), phase 1 energy accounts (electricity and coal)</p>	<p>Target: Update flow accounts</p> <p>Achieved: Monetary accounts for water, accounts for recycled water; energy accounts for major companies</p> <ul style="list-style-type: none"> • Water accounts for 2014/15 • Mineral Accounts covering diamonds, copper/nickel, gold, soda ash and coal on a time series 1994 to 2014 • Report on mineral revenues and public finance • Energy accounts for 2010/11 to 2014/15

7. Result - Based Monitoring and Evaluation Plan (continued)

Country Results - Based Monitoring Matrix – PDO 1 (continued)

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Baseline June 2011	Prep year June 2012	Year 1 June 2013	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016
PDO 1. To implement natural capital accounting in partner developing and developed countries						
Intermediate Outcomes Indicators						
1.4 Country has experimental ecosystem accounts	None	None		<p>Target: Scoping study for ecosystem accounts completed.</p> <p>Achieved: Scoping study for ecosystem accounts to take place in June to July 2014</p>	<p>Target: Scoping study for ecosystem accounts completed and preliminary results for one of the four pilots</p> <p>Achieved: Prioritisation of Tourism accounts</p>	<p>New Target: Scoping study for Tourism accounts developed</p> <p>Achieved: Scoping exercise for tourism accounts on-going, to include desk review for Issues to inform national tourism policy – Commenced March 2016 and ends in June 2016</p>
1.5 Country has Macroeconomic indicators based on NCA	None			<p>Target: Preliminary macro-economic indicators estimated</p> <p>Achieved: Preliminary macro-economic indicators estimated</p>	<p>Target: Macro-economic indicators estimated</p> <p>Achieved: Preliminary macro-economic indicators estimated</p>	<p>Target: Macro-economic indicators updated</p> <p>Achieved: Training sessions on macro-economic indicators held in March and April 2016;</p>

Country Results - Based Monitoring Matrix – PDO 1 (continued)

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Baseline June 2011	Prep year June 2012	Year 1 June 2013	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016
PDO 1. To implement natural capital accounting in partner developing and developed countries						
Intermediate Outcomes Indicators						
1.6 Country has capacity for maintaining NCA (evidenced by dedicated government staff for NCA and regular reporting mechanism for production of natural capital accounts)	None	None		<p>Target: Dedicated Unit for Water Accounts in DWA</p> <p>Achieved: Water accounts unit in DWA created with 3 staff trained); technical working groups (TWG) for all accounts established and receiving training; initial training seminar on energy accounts</p>	<p>Original Target: Water Accounting training course at University of Botswana</p> <p>New target: Signing MoU for capacity building at UB</p> <p>Achieved: Training continues through in-country, regional, and other training workshops and by working with international experts on the accounts (see country report for detail)</p>	<p>Target: MoU between MFD and UB on NCA capacity building signed</p> <p>Achieved: MoU on NCA ready for signing between Ministry of Finance and University of Botswana awaiting UB Senate meeting to be set between April and May 2016</p> <p>Training continues through in-country, regional, and other training workshops, and by working with international experts on the accounts</p>

*National Steering Committee (NSC) established, Feasibility study approved by NSC and WAVES Secretariat, Stakeholder consultation on draft work plan, Work plan approved by NSC and WAVES Secretariat.

7. Result - Based Monitoring and Evaluation Plan (continued)

Global Results-Based Monitoring Matrix – PDO 2 (WAVES 5 Core Countries)

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Baseline June 2011	Prep year June 2012	Year 1 June 2013	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016
PDO 2. To incorporate natural capital accounting in policy analysis and development planning in core implementing countries						
Outcome Indicators:						
a. NCA informs policy dialogue on growth, environment, and poverty reduction, evidenced by citing NCA or using NCA indicators and data in development plans, sector strategies and plans, executive orders, legislative documents, and the broader policy analysis literature (may include World Bank ESW, AAA, and project formulation documents)	None	<p>Target: Policy dialogue on NCA undertaken</p> <p>Achieved: Government hosts Heads of State Summit on African Sustainability, resulting in Gaborone Declaration to implement NCA signed by 10 countries</p>	<p>Target: Policy dialogue on NCA undertaken</p> <p>Achieved: Mid-term Review of National Development Plan 10 calls for NCA in NDP 11; President's Botswana Economic Advisory Council includes progress on NCA in briefing pack for its biannual meetings</p>	<p>Target: State of the Nation Address (SONA) captures NCA</p> <p>Achieved: President's State of the Nation Address, national water policy, IWRM policy call for NCA; Government policy brief on water management calls for water accounts as management tool; Botswana hosts follow-up to 2012 Gaborone Summit to establish secretariat for NCA; NCA center stage at the National Water Pitso (water sector stakeholders consultations)</p>	<p>Target: State of the Nation Address (SONA) captures NCA</p> <p>Achieved: NCA in President's State of the Nation Address; NCA prominent in Water Pitso (water sector stakeholders consultations)</p>	<p>Target: MFDP commits to mainstream NCA in draft of NDP 11; NCA informs new fiscal rule for mineral revenues; NCA in new Long Term Vision; NCA infused in the framework for National Strategy for Sustainable Development (NSSD); NCA mainstreamed into Gaborone Declaration for Sustainability in Africa (GDSA)</p> <p>Achieved: Macro outline for NDP 11 incorporates NCA</p>

Global Results-Based Monitoring Matrix – PDO 2 (WAVES 5 Core Countries) (continued)

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Baseline June 2011	Prep year June 2012	Year 1 June 2013	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016
PDO 2. To incorporate natural capital accounting in policy analysis and development planning in core implementing countries						

Intermediate Outcomes Indicators

2:1 Country has policy notes and analytical work based on NCA	None	None	<p>Target: First report to update water accounts</p> <p>Achieved: Update of water accounts presented to BEAC; first technical water accounts report; DWA water policy brief</p>	<p>Target: Technical report on water accounts and policy note on water accounts; First preliminary report on mineral accounts and macro policy</p> <p>Achieved: Updated technical reports and new policy notes on water; first technical report on minerals & macro policy</p>	<p>Target: Second technical report, two policy briefs and two flyers on water accounts; Second technical report on macro-economic for sustainability;</p> <p>Achieved: Policy notes on water</p>	<p>Target: Technical Reports and Policy Briefs</p> <p>Achieved: Third water technical report and policy briefs for water and agriculture and water and irrigation developed</p>
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7. Result - Based Monitoring and Evaluation Plan (continued)

Global Results-Based Monitoring Matrix – PDO 2 (WAVES 5 Core Countries) (continued)

OBJECTIVES & OUTCOME (RESULTS) INDICATORS	Baseline June 2011	Prep year June 2012	Year 1 June 2013	Year 2 June 2014	Year 3 June 2015	Year 4 June 2016
PDO 2. To incorporate natural capital accounting in policy analysis and development planning in core implementing countries						
Intermediate Outcomes Indicators						
2.2 Country has capacity for using NCA in policy dialogue (evidenced by government staff trained in using NCA)	None	<p>Target: Policy makers workshop</p> <p>Achieved: Policy makers workshop for 35+ people during Rio +20</p>	<p>Target: Training by Technical Expert and at least three seminars in DWA</p> <p>Achieved: 5 staff attend water account training workshop; 3 internal training seminars on uses of water accounts at DWA</p>	<p>Target: 3 training seminars on water accounts at DWA Two workshops on NCA; Briefing on MFDP on minerals/macro accounts; initial training on ecosystem accounts</p> <p>Achieved: 2 workshops on NCA w for 40+ participants; 3 training seminars on water accounts at DWA; seminar on energy accounts; initial seminars held for all other TWGs</p>	<p>Target: Regional and national training workshops</p> <p>Achieved: 2 training courses on water accounts; 2 one-week training courses on ecosystem accounts; 3 seminars on mineral accounts and macro indicators; training on energy accounts; training on ecosystems accounts in Philippines for three people</p>	<p>Target: Regional and national training workshops</p> <p>Achieved: Two macro-economic indicators training workshops in March, April and May - One planned for June 2016</p>

PHOTO CREDITS:

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Wealth Accounting and the Valuation of Ecosystem Services

Wealth Accounting and the Valuation of Ecosystem Services (WAVES) is a global partnership led by the World Bank that aims to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts.

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