De Beers
Group of Companies

TURNING FINITE RESOURCES INTO ENDURING OPPORTUNITY

The economic contribution to Botswana of the Partnership between the Government of the Republic of Botswana and De Beers

This report explores the economic contribution to Botswana of the Partnership between the Government of the Republic of Botswana and De Beers. This is described both historically and specifically through an analysis of the economic contributions made by the Partnership in 2014. An embedded theme is the way in which the Partnership has endured for almost 50 years.

The research on which the report is based relied on both quantitative and qualitative techniques. Interviews were held with many of those involved with the Partnership and their insights have been incorporated in the report. De Beers would like to thank all those who participated for their invaluable contribution. The economic contribution of the Partnership in 2014 is calculated using input-output modelling techniques – and a full methodological description is provided in Appendix 1.

De Beers has authored this report with support from Genesis Analytics and PwC. Genesis Analytics facilitated a stakeholder engagement process, assisted with background information and provided development economics insights. PwC collected and analysed data from the Partnership, using internationally recognised methodologies to calculate the socio-economic impact of the Partnership in 2014. De Beers would like to thank Genesis Analytics and PwC for their contributions.

Several features of the study should be noted:

First, the contribution of the Partnership is measured at a national not a local level.[1]

Second, the measurement framework is socio-economic and does not include an assessment of environmental impact.

Third, the results for 2014 are a snapshot in time that cannot be used to predict long-term trends.

The year 2014 was selected for analysis as it was the last complete year and provided the most up-to-date results. This is recognised to have been a strong fiscal year for Botswana.

Finally, the report does not take into account the extent to which some or all of the noted contributions might have happened in the absence of the Partnership. In other words, no attempt has been made to assess the counterfactual or substitution effect that might have applied in the absence of the Partnership.

ABOUT THE PARTNERSHIP

The Partnership is referred to throughout the report. In 2014, the Partnership comprised four companies, all operating from Botswana (see Figure 2):

- De Beers Holdings Botswana, the exploration arm of De Beers in Botswana;
- Debswana, a 50/50 joint venture between the Government and De Beers. This is the primary producer of diamonds in Botswana;
- Diamond Trading Company Botswana (DTCB), a 50/50 joint venture between the Government and De Beers, which sorts and values rough diamonds mined by Debswana; and
- De Beers Global Sightholder Sales (DBGSS), the rough diamond sales arm of De Beers, which is responsible for selling the bulk of De Beers' global production to its rough diamond customers (called Sightholders).

Authors
This study has been produced by The De Beers Group of Companies, supported by Genesis Analytics and PwC UK.

In this document, 'PwC' refers to the UK member firm, and may sometimes refer to the PwC network. Each member firm is a separate legal entity. Please see www.pwc.com/structure for further details.

Genesis Analytics is a Johannesburg-based economic advisory firm. See www.genesis-analytics.com for further information on the firm.

In this document, 'De Beers' refers to The De Beers Group of Companies, except where the holding company, De Beers Société Anonyme (De Beers s.a.), is referenced.

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For more information, go online
www.debeersgroup.com/thebotswanareport

FOREWORD

As a relatively small nation, Botswana's economic development may not be familiar to many people around the globe. But, as this entrepreneurial southern African nation has been one of the world's leading diamond-producing countries over the past few decades, the chances are that many of you or your family members will own a piece of its history.

For millions of couples across the world, a diamond symbolises enduring partnership. And for Botswana and De Beers, they signify exactly the same.

When De Beers' geologists first discovered diamonds in Botswana in 1967 – only a year after the country gained its independence – few could have imagined the wealth hidden below ground. Fewer still could have imagined that these hidden treasures would transform the country so dramatically and that it would, as a consequence, experience one of the world's longest periods of economic growth.

Partnerships between the public and private sectors are not uncommon, but ones that endure for almost 50 years certainly are. At the heart of the Partnership between the Government of Botswana and De Beers is a single factor: commitment – to ensuring that each and every diamond produced creates value at each and every stage of the pipeline.

> “THE PARTNERSHIP HAS HELPED TAKE BOTSWANA FROM BEING ONE OF THE POOREST COUNTRIES IN AFRICA TO BEING ONE OF ITS BIGGEST MODERN ECONOMIC SUCCESS STORIES.”

Successful partnerships can only work with the full commitment of each partner. While Botswana committed itself to De Beers by becoming a shareholder, De Beers could not have made a bigger commitment to Botswana than by relocating its multi-billion dollar international sales function from London to Gaborone. Together with our continued investment in exploration, mine development and rough diamond sales to the domestic cutting and polishing sector, this ensures our long-term futures are interlinked.

We look at how the Partnership has helped take Botswana from being one of the poorest countries in Africa to being one of its biggest modern economic success stories. We look at how both Partners’ commitments have taken Botswana from being a country with no diamond sector to one that occupies every stage of the diamond pipeline and is now home to the modern diamond industry. And we look, ultimately, at how diamonds have enabled Botswana to build a more prosperous nation.

De Beers’ partnership with Botswana is a remarkable story of careful stewardship, wise investment and shared prosperity. We are proud to have played a role in its success story so far – and look forward to helping shape its future too.

I hope that, through this report, you will enjoy learning more about the Partnership. And I hope that next time you see an engagement ring on someone’s finger, you have a greater sense of how that diamond may have supported one of the world’s great modern economic success stories.

PHILIPPE MELLIER
CEO, DE BEERS GROUP

EXECUTIVE SUMMARY

IN THE 50 YEARS SINCE INDEPENDENCE, BOTSWANA HAS EXPERIENCED REMARKABLE ECONOMIC GROWTH. THIS GROWTH HAS BEEN UNDERPINNED BY THE PARTNERSHIP BETWEEN BOTSWANA AND DE BEERS.

Botswana's diamond-led development story is widely celebrated as an African success story. In just 50 years, the country has transformed itself from one of the poorest nations in the world into a modern, upper middle-income country.[2] By any measure, this is an achievement of which Botswana can be proud.

This economic and social progress has been built largely on a diamond foundation, enabled by high standards of governance, political stability, and the judicious investment of diamond-generated wealth.

While historically resource-rich economies often grow more slowly than resource-scarce economies, the reverse has been true for Botswana. This has been largely due to the fact that it has managed its resource with long-term development goals in mind.

Importantly, it has avoided the worst effects of Dutch Disease (a sharp currency appreciation that makes other exports less competitive). It did this in a number of ways. Firstly, it introduced a revenue stabilisation fund in 1970 to even out revenue fluctuations and to store budget surpluses. Secondly, it accumulated international reserves and introduced a national currency, the Pula, which was pegged to a basket of currencies to prevent rapid currency appreciation. Thirdly, it established a sovereign wealth fund as an offshore investment vehicle for diamond revenues, which could be drawn on in times of crisis.

Moreover, a decision was taken to partner with the private sector in developing the diamond resource. Engaging private capital and expertise was an unusual decision in an era when nationalisation and a preference for state-led development was common in much of Africa.

Diamonds have made a hugely positive contribution to Botswana through the application of a simple partnership formula: locate and mine diamonds efficiently and provide a steady supply; grow the demand for diamonds and maintain high product equity; sell rough diamonds to the world's leading diamantaires; maximise exposure to the diamond value chain within Botswana; and invest diamond revenues wisely.

Capital expenditure on mines helped to kick-start other sectors, including construction, financial services and transport. Growth of the economy increased development investment and lifted national wealth levels rapidly. From 1966 to 2014, Botswana's GDP per capita grew at an average rate of 5.9 per cent a year (measured in purchasing power parity which is used worldwide to compare the income levels in different countries), one of the highest rates in the world in that period.

WHILE HISTORICALLY RESOURCE-RICH ECONOMIES OFTEN GROW MORE SLOWLY THAN RESOURCE-SCARCE ECONOMIES, THE REVERSE HAS BEEN TRUE FOR BOTSWANA.

The Ministry of Minerals, Energy and Water Resources in Gaborone, Botswana.

EXECUTIVE SUMMARY

CONTINUED

THE PARTNERSHIP IS THE LARGEST SINGLE CONTRIBUTOR TO THE BOTSWANA ECONOMY, BESIDES GOVERNMENT ITSELF.

High levels of public spending created a better quality of life for many Batswana, providing access to free public healthcare, free education, transport, energy and water infrastructure.

Botswana's success in the diamond industry has been supported by a five-decade partnership between the Government of Botswana (the Government) and The De Beers Group of Companies (De Beers), referred to as the Partnership in this report. This is one of the world's longest existing public-private partnerships.

Starting with mining, the Partnership later extended operations further down the value chain to the sorting, valuing and selling of rough diamonds in Botswana. This ultimately led to the relocation of De Beers' international sales function – De Beers Global Sightholder Sales (DBGSS) – from London to Gaborone at the end of 2013.

The success of the Partnership, and what that success has meant to the growth of Botswana, has been underpinned by a shared understanding by both the Government and De Beers that diamonds are unique and require a long-term view. They are a finite resource and are ultimately a luxury product.

Perhaps most importantly, the Partnership has endured because it has linked the success of one partner with the success of the other. Partnership interests have become intertwined over time with the establishment of two 50/50 joint ventures and the Government's increased shareholding in De Beers' main holding company, De Beers Société Anonyme.

De Beers has provided capital, technology, skills transfer and an effective route to market, while the Government has ensured a stable and supportive operating environment. De Beers has also respected and supported the broader developmental aspirations of Botswana, while the Government has granted De Beers long-term access to diamond supply.

THE PARTNERSHIP HAS MADE, AND CONTINUES TO MAKE, A SIGNIFICANT SOCIO-ECONOMIC CONTRIBUTION TO BOTSWANA, SUPPORTING MORE THAN A 500 TIMES INCREASE IN NOMINAL GDP SINCE 1960 AS WELL AS A SUBSTANTIAL IMPROVEMENT IN THE HUMAN DEVELOPMENT INDEX.

This analysis – the first of its kind – examines the value generated by the Partnership in 2014, and demonstrates the shared long-term vision of the respective partners. It demonstrates a shared understanding that as much value as possible should be generated from the activities of the Partnership in Botswana, for Batswana.

On Partnership revenues of almost US$7 billion in 2014, the Partnership directly generated US$4 billion of value to the economy, which was the equivalent of 25 per cent of GDP for the year. Put into context, the Partnership contributed nearly double that of the entire wholesale and retail trade sector combined in Botswana to the country's GDP.

When the direct contributions of the Partnership to the economy are combined with the contribution through the supply chain and employee spending, the total economic contribution grows to US$4.4 billion, or 27 per cent of Botswana's GDP in 2014.

With taxes, royalties and dividends combined, the total distribution of Partnership revenues to the Government represents a significant proportion of its total revenue raised in 2014.

These revenues help to provide employment and support skills development, which is strongly supported by the Partnership. In total, the Partnership contributed more than 34,000 jobs in Botswana. Directly, it employed almost 8,000 people in 2014, of whom 96 per cent were Botswana citizens, including almost 85 per cent of management. A further 12,870 jobs in the broader economy were supported through the Partnership's supply chain contribution. Another 13,400 jobs were supported by the spending of employees of the Partnership and its suppliers' employees.

In total, the Partnership supported one in every 20 jobs in Botswana. In addition, the Partnership spent approximately US$6 million on 550,000 hours of training and skills development for employees.

2014 was the first full year that DBGSS operated from Botswana. The revenues generated from the sale of De Beers' supply of rough diamonds to international diamantaires contributed US$380 million, or nine per cent of the Partnership's total direct contribution to GDP. In addition, through supplier and employee expenditure, DBGSS added another US$30 million to GDP, representing 2.5 per cent of Botswana's GDP.

This analysis suggests that the Partnership is the largest single contributor to the Botswana economy, besides the Government itself.

MINDFUL STEWARDSHIP OF BOTSWANA'S DIAMOND RESOURCE HAS PROVIDED A STRONG FOUNDATION FOR FURTHER GROWTH AND ECONOMIC DIVERSIFICATION.

Botswana has managed to turn the promise of resources below ground into opportunities above ground. A previously poor, small nation has achieved economic and social progress that is a modern success story. The foundations of this have been political stability, good governance, and the wise investment of diamond revenues in the long-term development of infrastructure and human capital.

The Partnership between the Government and De Beers has played an important role in funding this progress by securing and realising high value from Botswana's natural resource.

Few can dispute that diamonds have been positive for Botswana, but they have not been a panacea.

The Government has been quick to recognise that past achievements do not automatically translate into future successes. Challenges such as unemployment, high levels of income inequality, residual poverty and an over-reliance on diamonds still need to be overcome. Progress is, however, being made. This is particularly true with regards to economic diversity, with the non-mining sector now making up 70 per cent of total value added to GDP compared with less than 50 per cent in 2002.

The Partnership can help Botswana to move further down this path. Arguably, its first responsibility is to continue to maximise the value of every Botswana diamond yet to be mined and sold. This will provide the fiscal basis to support further developmental investment, improve health and education, provide social safety nets and, importantly, support new, more sustainable sectors.

This will require the extraction of diamonds as efficiently and safely as possible, making use of new technologies; exploring for new reserves; and investing in new assets such as Cut-8 at the Jwaneng Mine. The Partnership will need to continue to invest in building global demand for diamonds, safeguarding their image and guarding against challenges from other luxury products and synthetics.

It must also continue to support and promote Botswana as a global diamond hub, and use its considerable power in the economy to build linkages to local businesses, as well as to support initiatives outside of diamonds with enterprise development programmes such as Tokafala.

The Partnership provides a model of how public and private interests can work together in the long term. The key is to have an aligned vision: in this case, a deep appreciation of diamonds as a finite, luxury product, and a long-term approach to creating value from one of nature's treasures. The partners will need to retain this long-term vision in order to deliver the next 50 years of development.

The challenge that Botswana faces is to build on a foundation of wise development to create new areas of competitiveness and employment, while moving to a post-diamond era. But these challenges should not detract from the success the Partnership has had in spurring the country's socio-economic development. By translating the potential of resources below ground into enduring value above ground, Botswana has succeeded where many others have failed.

1 IN 20

Jobs in Botswana supported by the Partnership

1. BUILDING ON DIAMONDS

Botswana's President, His Excellency Ian Khama, after being appointed as the Southern African Development Community (SADC) chairperson during the 35th SADC ordinary summit of heads of state and government in Gaborone on 17 August 2015.

1. BUILDING ON DIAMONDS

The modern history of Botswana is closely linked to the story of diamonds. This, in turn, is linked to the story of the Partnership, formed in 1969 between the Government of Botswana and De Beers.

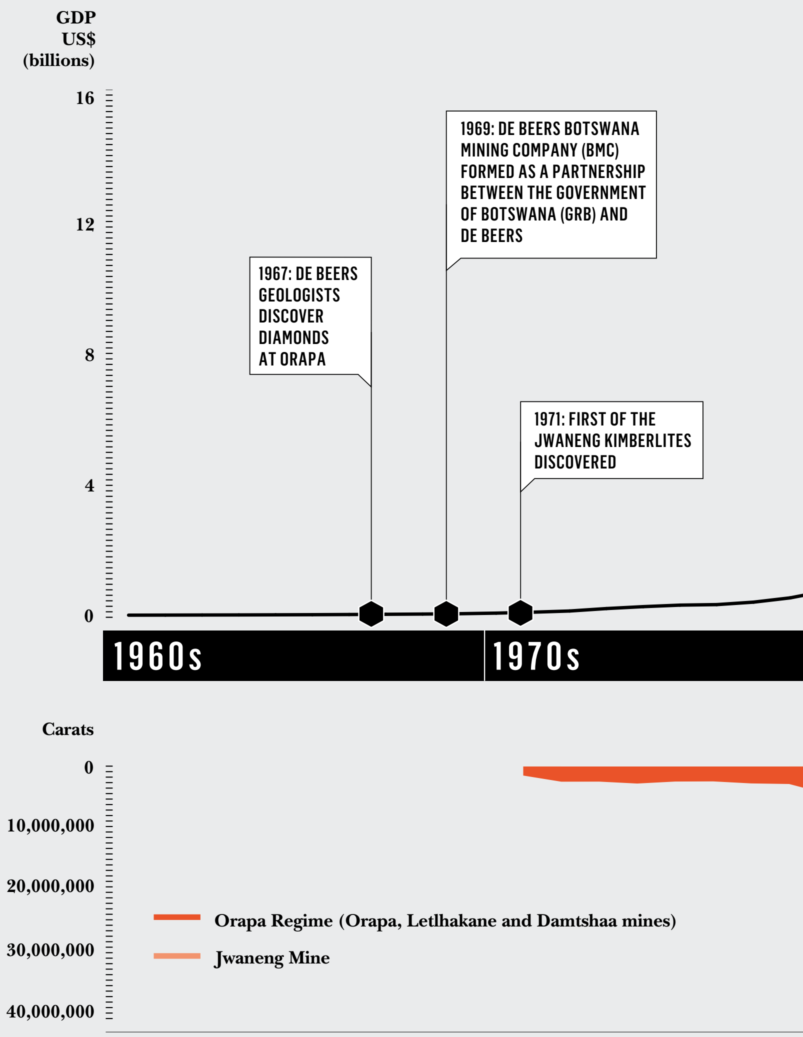
These intertwined stories are captured in Figure 1, which shows the close relationship between Botswana's GDP growth from the 1970s onwards (above the horizontal axis) and the growing supply of diamonds produced by Debswana's mines (below the axis). Over nearly five decades, the Partnership has recovered 708 million carats of diamonds. The more the Partnership has mined, the more it has supported Botswana's socio-economic development.

The yellow line shows that, over this time, Botswana has improved its score in the United Nations Human Development Index, a composite statistic of life expectancy, education and income indices, and a broad measure of human development.

500x

Increase in nominal GDP growth since 1960

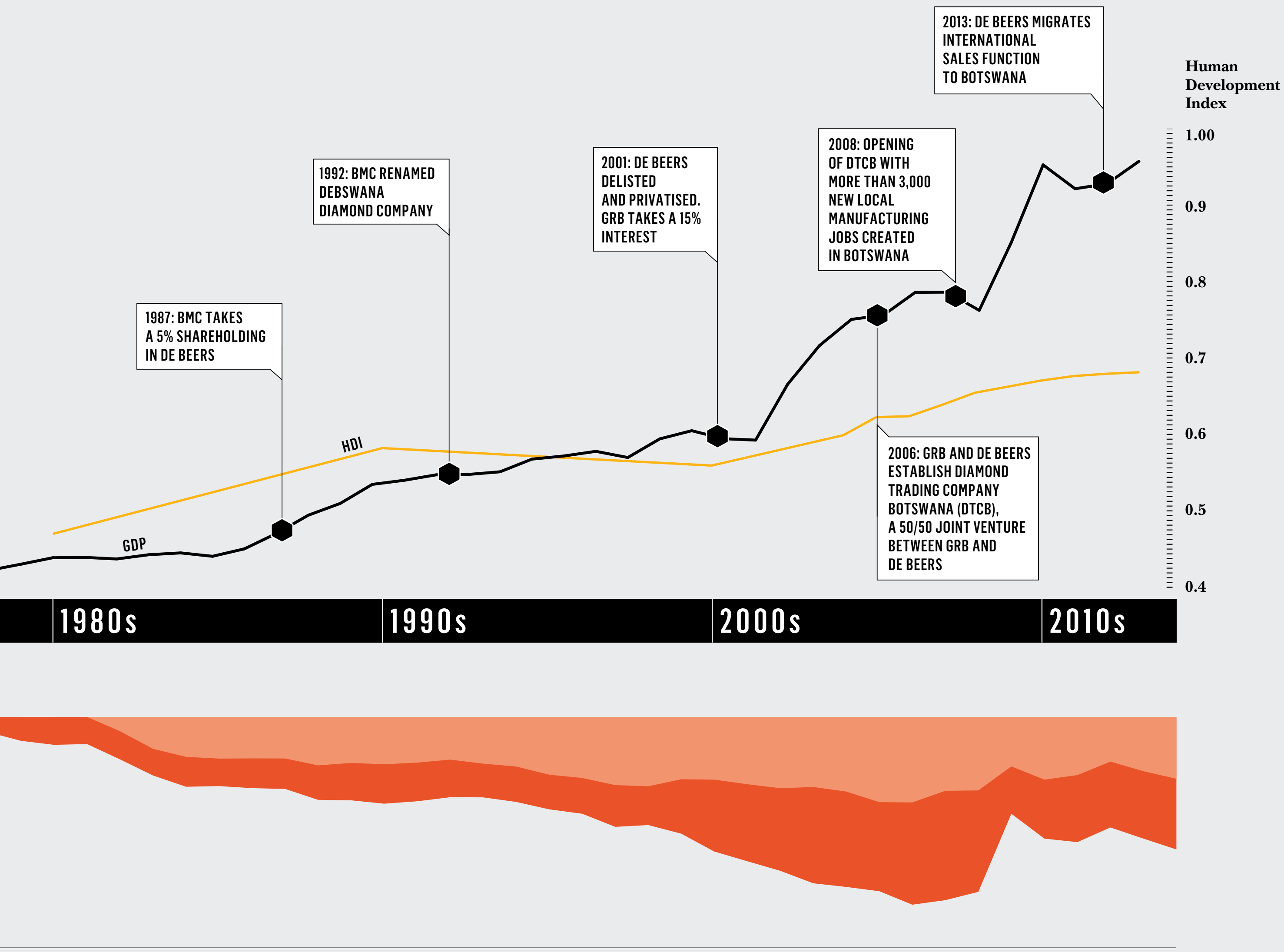
FIGURE 1: GDP, HUMAN DEVELOPMENT AND CARATS EXTRACTED



Source: World Bank (2015) and United Nations Development Porgramme (2014)

De Beers was established as a diamond mining company in South Africa in 1888, following the Kimberley diamond rush. Today, De Beers is the largest diamond producer in the world by value (approximately 34 per cent),[3] and it is active in the exploration, mining, sorting, valuing, sales, marketing and retailing of diamonds employing nearly 23,000 people worldwide.[4] De Beers has mining operations in Botswana, Canada, Namibia and South Africa.

THE MORE THE PARTNERSHIP HAS MINED, THE MORE IT HAS SUPPORTED BOTSWANA'S SOCIO-ECONOMIC DEVELOPMENT.



1. BUILDING ON DIAMONDS

CONTINUED

The footprint of the Partnership in Botswana has expanded over time.

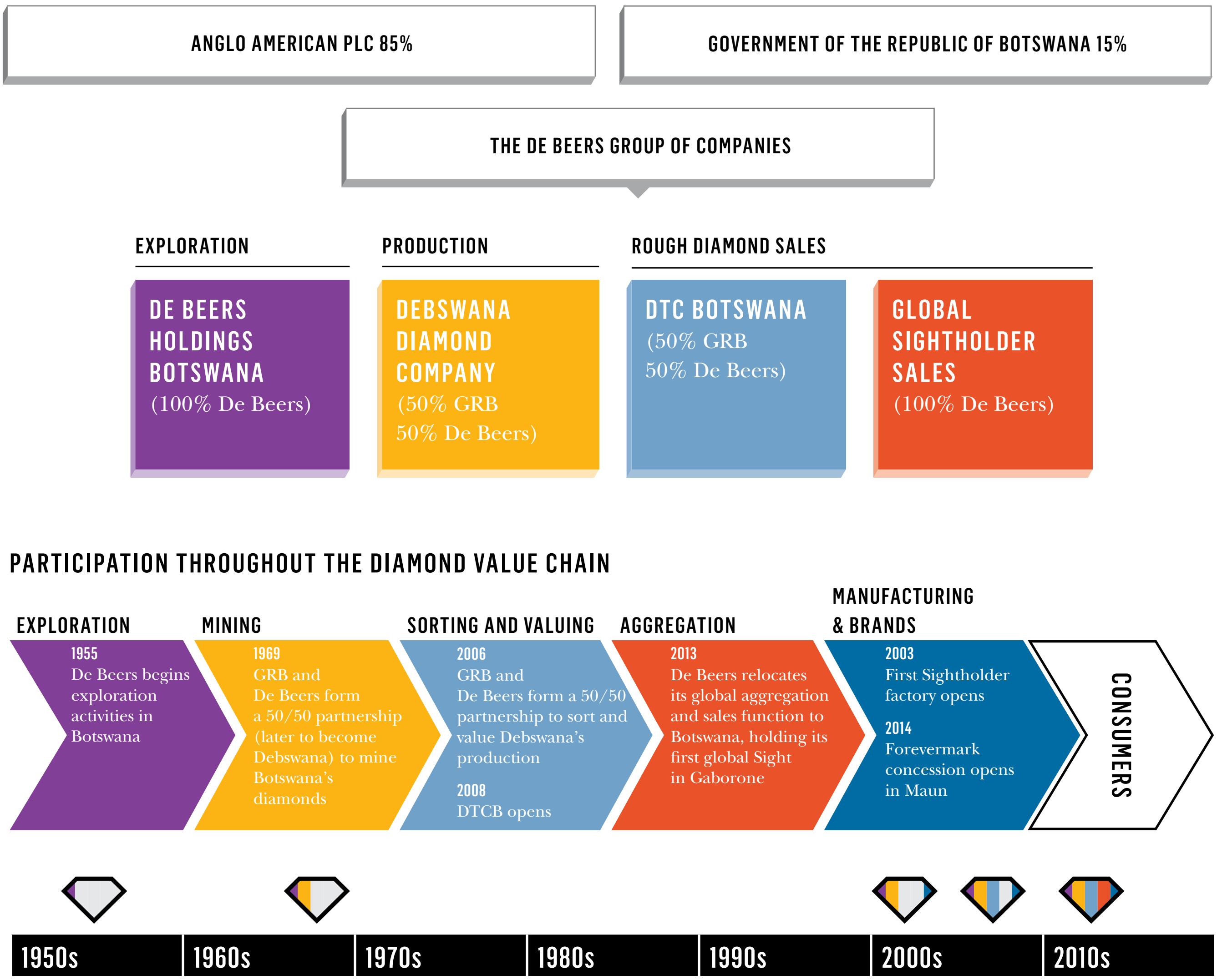
Together, De Beers and the Government established Debswana, then the De Beers Botswana Mining Company, as a joint venture in 1969. The Government held 15 per cent of the company at its founding, increasing its shareholding to 50 per cent in 1975. The name of the company became the Debswana Diamond Company (Pty) Ltd (or Debswana) in 1992.

From mining, the Partnership extended operations down the value chain. In 1971, the Botswana Diamond Valuing Company was formed as a 50/50 joint venture for the sorting and valuing of Debswana's diamonds. This was replaced in 2006 with the formation of Diamond Trading Company Botswana (DTCB) (a 50/50 joint venture) in order to provide a regular supply of diamonds for local manufacture by Sightholders and further domestic diamond beneficiation. In 2008, DTCB opened the largest and most sophisticated rough diamond sorting and valuing facility in the world.[5]

The most recent development in this story of increased participation in the diamond value chain was the relocation of De Beers' international sales function – De Beers Global Sightholder Sales (DBGSS) – to Gaborone from London at the end of 2013.

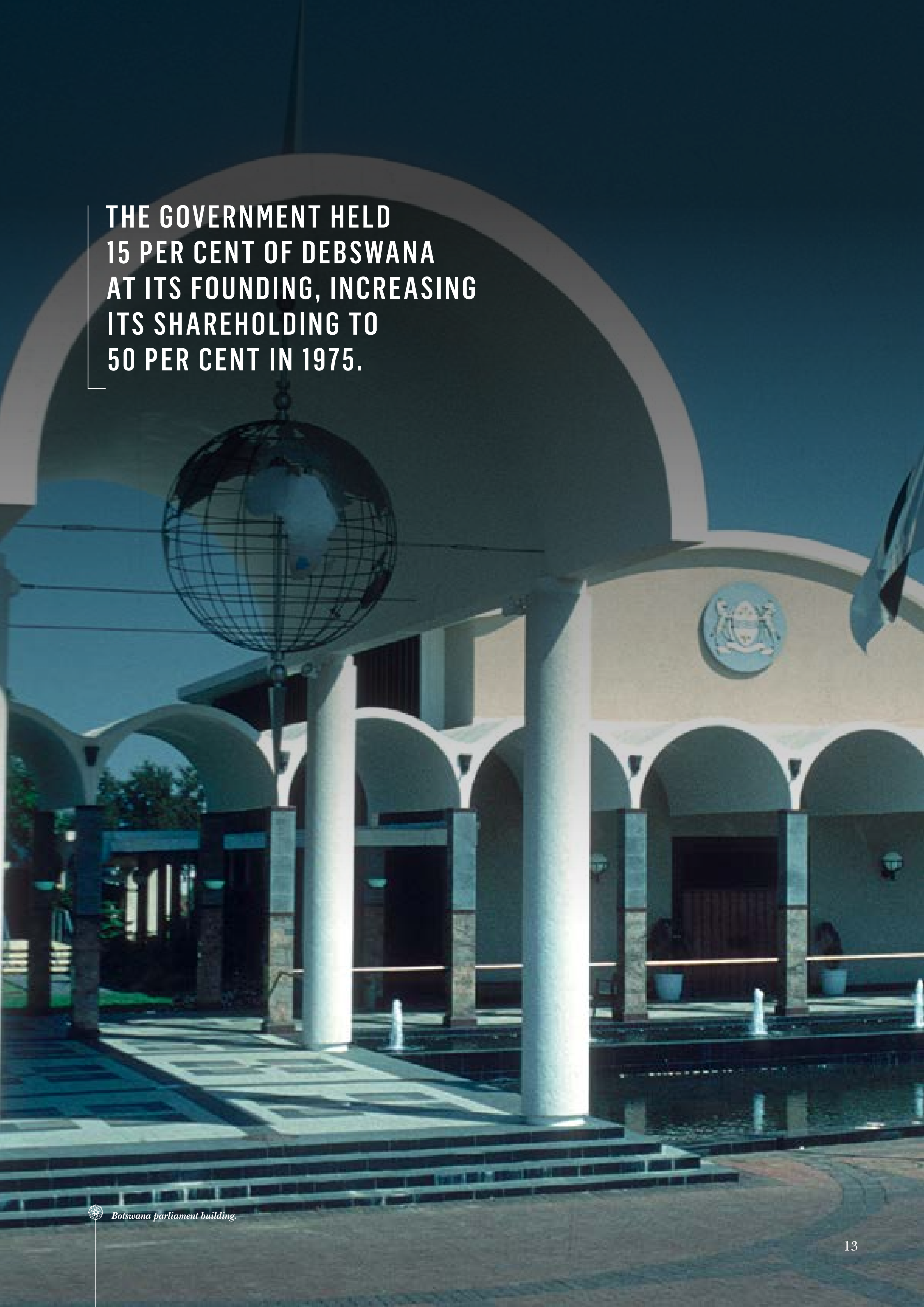
The activities of the Partnership companies, and the flow of diamonds through their operations, are depicted in Figure 2.

FIGURE 2: THE ORGANISATIONAL STRUCTURE AND ACTIVITIES OF THE PARTNERSHIP IN BOTSWANA



Note: The Government's 15 per cent ownership was not included within this study.

THE GOVERNMENT HELD 15 PER CENT OF DEBSWANA AT ITS FOUNDING, INCREASING ITS SHAREHOLDING TO 50 PER CENT IN 1975.



Botswana parliament building.

1. BUILDING ON DIAMONDS

CONTINUED

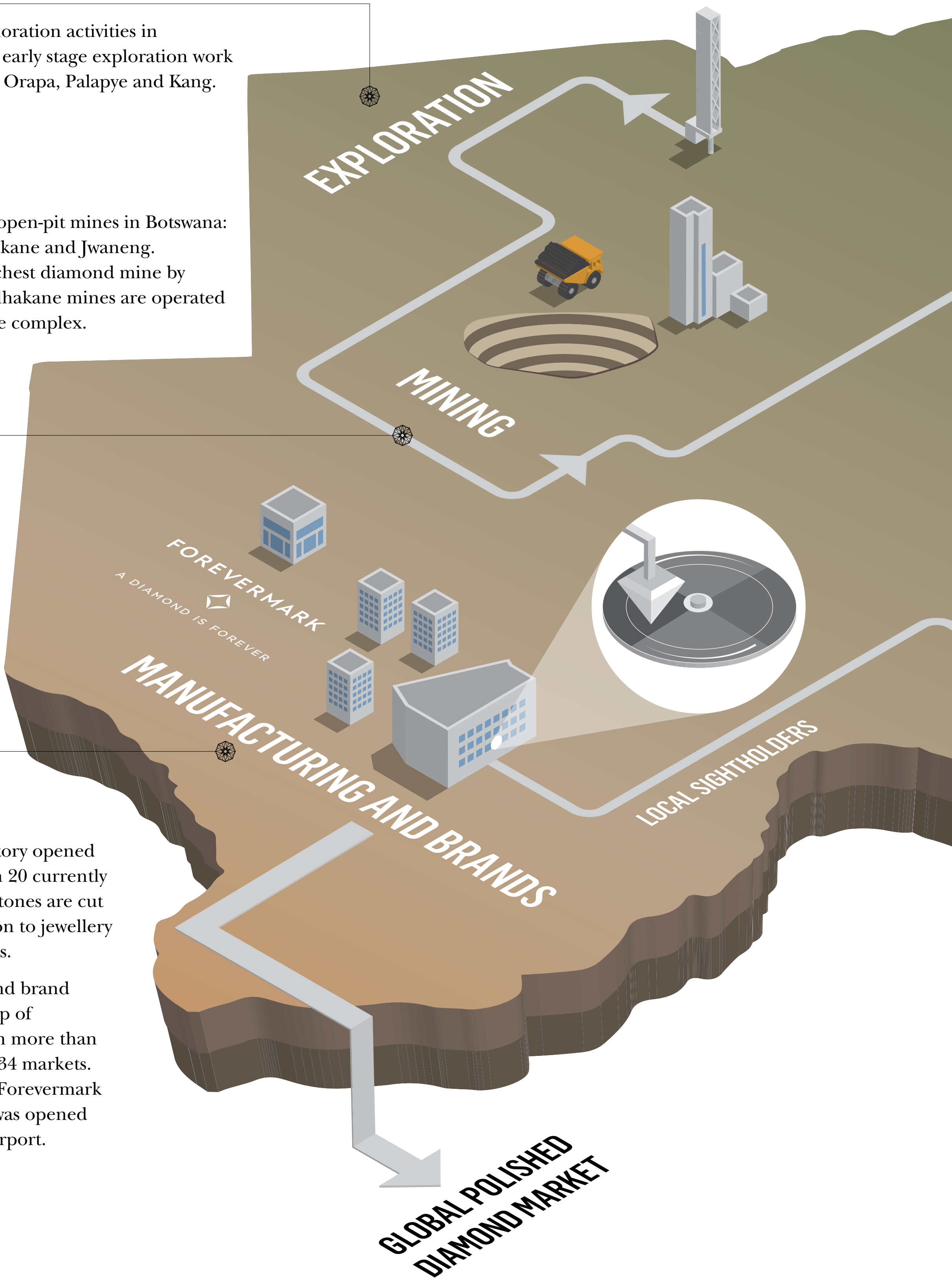
FIGURE 3: THE PIPELINE IN BOTSWANA FROM EXPLORATION TO MANUFACTURING

EXPLORATION

Currently, De Beers' exploration activities in Botswana are focused on early stage exploration work programmes in Tsabong, Orapa, Palapye and Kang.

MINING

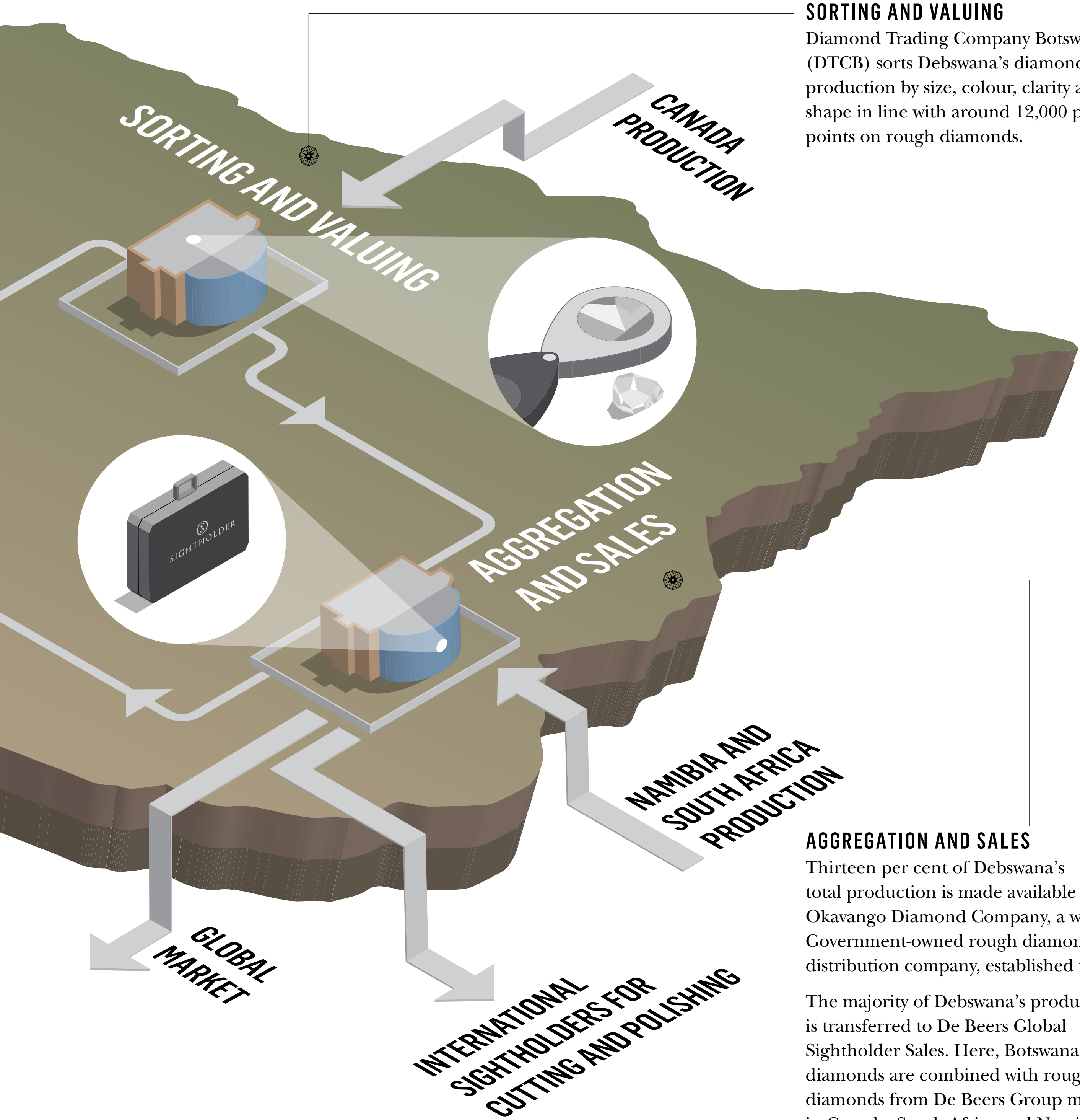
Debswana operates four open-pit mines in Botswana: Orapa, Damtshaa, Letlhakane and Jwaneng. Jwaneng is the world's richest diamond mine by value. Damtshaa and Letlhakane mines are operated as part of the Orapa Mine complex.



MANUFACTURING AND BRANDS

The first Sightholder factory opened in Botswana in 2003, with 20 currently operating. Here, rough stones are cut and polished, then sold on to jewellery manufacturers and others.

Forevermark, the diamond brand from The De Beers Group of Companies, is available in more than 1,600 retail stores across 34 markets. In August 2014, the first Forevermark concession in Botswana was opened at Maun International Airport.



SORTING AND VALUING

Diamond Trading Company Botswana (DTCB) sorts Debswana's diamond production by size, colour, clarity and shape in line with around 12,000 price points on rough diamonds.

AGGREGATION AND SALES

Thirteen per cent of Debswana's total production is made available to the Okavango Diamond Company, a wholly Government-owned rough diamond distribution company, established in 2012.

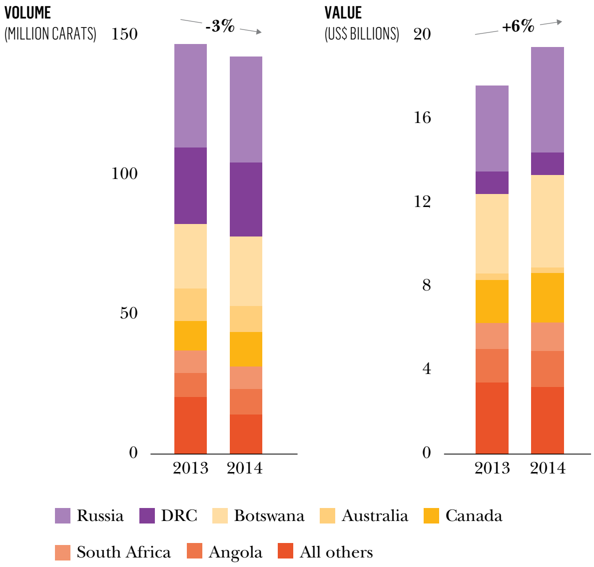
The majority of Debswana's production is transferred to De Beers Global Sightholder Sales. Here, Botswana's diamonds are combined with rough diamonds from De Beers Group mines in Canada, South Africa and Namibia. This aggregated production is then prepared in bespoke assortments for the world's leading diamantaires – known as Sightholders – either to be cut and polished internationally or locally in Botswana to support beneficiation.

1. BUILDING ON DIAMONDS

CONTINUED

JWANENG IS THE WORLD'S RICHEST DIAMOND MINE BY VALUE.

FIGURE 4: ROUGH DIAMOND PRODUCTION BY MAIN PRODUCING COUNTRIES, 2013 AND 2014



Source: De Beers Diamond Insight Report (2015)

Botswana is one of 22 diamond producing countries. It is the second-largest producer in the world by value and third largest by volume (see Figure 4).

While some junior diamond miners operate in Botswana, the vast majority of the country's production comes from Debswana's Orapa and Jwaneng mines, with Jwaneng Mine being the world's richest diamond mine by value.[6] This is supplemented with additional production from Debswana's Damtshaa and Letlhakane mines, which are part of the Orapa mining complex.

Debswana's production is sorted and valued by DTCB and up to 15 per cent of its production is made available for sale to Okavango Diamond Company, a company established by the Government in 2012 to sell some of Debswana's diamonds independently. The remaining 85 per cent of Debswana production is combined with De Beers' global production from Canada, Namibia and South Africa in a process called aggregation. Aggregation creates a larger, more diverse and more consistent assortment of rough diamonds, allowing rough diamond parcels to be prepared to meet buyers' specific requirements on a consistent basis.

The creation of bespoke assortments of diamonds – in different value categories depending on size, shape, colour and quality – to suit the needs of diamond manufacturing is an important step in maximising diamond value.

These assortments are at the heart of De Beers' sales model, in which the majority of its rough diamond customers – called Sightholders – qualify for three-year supply contracts for the supply of a specific profile of diamonds.

Since the end of 2013, De Beers Sights – international rough diamond sales events held 10 times per year – have taken place at a newly-built facility in Gaborone. In addition to its global supply contracts, De Beers also sells rough diamonds to customers with factories in Botswana for cutting and polishing in-country, thereby supporting the development of a domestic cutting and polishing sector.

The Partnership is actively involved in exploration, mining, sorting, valuing and selling functions in Botswana, while also supporting activity in the local cutting and polishing industry.

The allocation of revenues and profits between the Government and De Beers is set out in long-term agreements that run broadly in parallel with the 25-year mining licences for the Debswana mines.

1.1. THE CONTRIBUTION OF DIAMONDS TO BOTSWANA'S DEVELOPMENT

A challenging beginning

"Bechuanaland: An impoverished, arid and hungry land without hope of achieving economic stability makes its debut this week among the community of nations. The new blue, white and black flags are flying everywhere in Gaborone, its incongruous capital city. But elsewhere in the vast, trackless wasteland that will take the name of Botswana, there is little to celebrate. Two years of disastrous drought and crop failure have brought havoc and hunger to its widely scattered agricultural inhabitants. More than one fifth of the population is literally being kept alive by emergency feeding and the numbers are rapidly increasing."

Charles King, Southern Africa News Service in Gaborone 28 September 1966

Botswana, previously a British Protectorate, secured full independence from Britain in 1966. As it was poor and undeveloped, there was some scepticism about its prospects as an independent nation. The second president, His Excellency Sir Ketumile Masire, was fond of saying, *"When we asked for independence, people thought we were either very brave or very foolish."* [7]

The Republic of Botswana is landlocked, arid, sparsely populated and, at independence, had limited economic potential. Although it was a democracy, it was surrounded on three sides by minority regimes in South Africa, the then South West Africa (Namibia), and Rhodesia (Zimbabwe). The country's finances were heavily dependent on foreign aid from Britain.[8]

Economic possibilities were minimal as the people were rural and agrarian, raising cattle in a climate prone to drought and disease. An abattoir for beef exports that opened in Lobatse in the 1950s was the only formal industry in the country.[9] A drought in the 1960s had destroyed one third of the national cattle herd and many workers had left Botswana to seek waged labour in neighbouring South Africa. Income levels were low, even by the standards of other poor African countries. The national infrastructure was virtually non-existent with no energy generation capacity and only 12 kilometres of tarred roads in a country with a land mass larger than that of Spain.[10]

Human capital was also grossly underdeveloped. The first government secondary school was built in the year before independence.[11] It has been estimated that in 1966 there were about 40 university graduates and about 100 secondary school graduates in a population of 595,000.[12] Records from 1960 show the presence of only one doctor for every 47,652 people.[13]

With daunting economic, infrastructural and human capital challenges to overcome, and with no discernible driver for development, Botswana faced an uncertain future.

250x

Percentage growth of graduates in 2014 compared with 1966

1. BUILDING ON DIAMONDS

CONTINUED

THE DISCOVERY OF DIAMONDS

Prospects changed just one year after independence, when promising deposits of diamonds were discovered. De Beers had secured prospecting rights in Botswana in 1938 and was exploring consistently by 1955. After 10 long and unsuccessful years, De Beers considered withdrawing, when its lead geologist, Dr Gavin Lamont, persuaded his seniors to continue searching for one more season. The team had instructions that, if diamonds were not found by the end of winter 1966, exploration would end.

Two months before the deadline, the team found the first kimberlite pipe in the Mochudi area. One year later, diamonds were discovered at Orapa. This marked the start of an exciting period during which all of today's major mines, Orapa, Letlhakane and Jwaneng, were discovered by De Beers. Jwaneng, a dusty scrubland, was to become the world's richest diamond mine by value.

THE RIGHT CHOICES

The success of Botswana was not inevitable as resource-rich economies often grow more slowly than resource-scarce economies. Windfall discoveries of minerals or oil can, in fact, become a 'resource curse'.[14] This paradox has been attributed variously to negative effects such as Dutch Disease (a sharp currency appreciation that makes other exports less competitive), the loss of incentives to invest in human capital, the volatility of commodity prices which makes planning difficult, and political factionalism or an armed struggle for control of the resource.

Botswana managed to avoid the worst effects of the resource curse by developing and managing its diamond resources with long-term development goals in mind. Consequently, a significant body of literature now recognises Botswana as an example of how good political institutions and prudent economic policy can promote sustainable resource-led growth and development.[15]

The foundation stones of this success story were political stability, respect for the rule of law, and democratic leadership, drawn from the traditions of Batswana culture in which the will of the people is recognised, and in which high levels of consultation and consensus-seeking are common.

A second feature was the careful planning and investment of all diamond resources in infrastructure and human capital development. Five-year National Development Plans have been introduced since the time of independence, and these have consistently directed mining rents to investment in water and transport infrastructure, education and healthcare.[16] Public spending on social services, still heavily funded by diamond revenues, remains high today.

The worst effects of Dutch Disease, which are common in heavily resource-dependent economies, were mitigated in Botswana by a number of actions:

1. The introduction of a revenue stabilisation fund in 1970 to even out revenue fluctuations and store budget surpluses.
2. The accumulation of international reserves, and the introduction of a national currency, the Pula, in 1976, pegged to a basket of currencies to prevent rapid currency appreciation.
3. The establishment of a sovereign wealth fund as an offshore investment vehicle for diamond revenues, to be drawn upon in times of crisis.

THE SUCCESS OF BOTSWANA WAS NOT INEVITABLE AS RESOURCE-RICH ECONOMIES OFTEN GROW MORE SLOWLY THAN RESOURCE-SCARCE ECONOMIES.

Prospecting in Tati, Botswana, 1970.

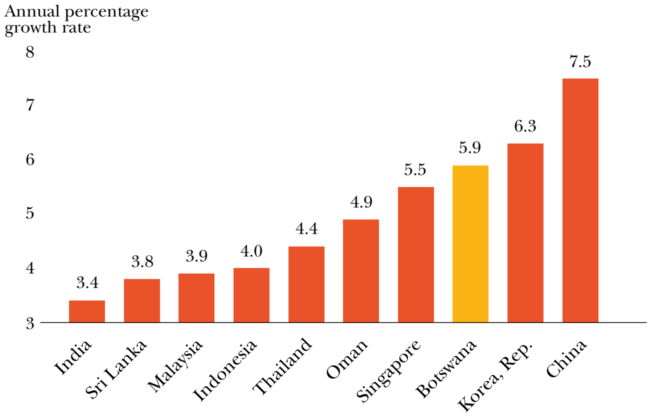
1. BUILDING ON DIAMONDS

CONTINUED

ECONOMIC GROWTH

Capital expenditure on mines helped to kick-start other sectors, notably construction, financial services and transport. Growth in the economy increased revenue, allowing for further developmental investment, and lifted national wealth levels rapidly. From 1966 to 2014, Botswana's GDP per capita (a basic measure of national wealth) grew at an average of 5.9 per cent a year (measured in purchasing power parity), one of the highest rates in the world over that period (see Figure 5). Diamond mining accounted for a large portion of the value added to the economy from the mid-1970s to the mid-2000s.

FIGURE 5: TOP 10 COUNTRIES WITH THE FASTEST GROWING GDP PER CAPITA PPP 1966-2014

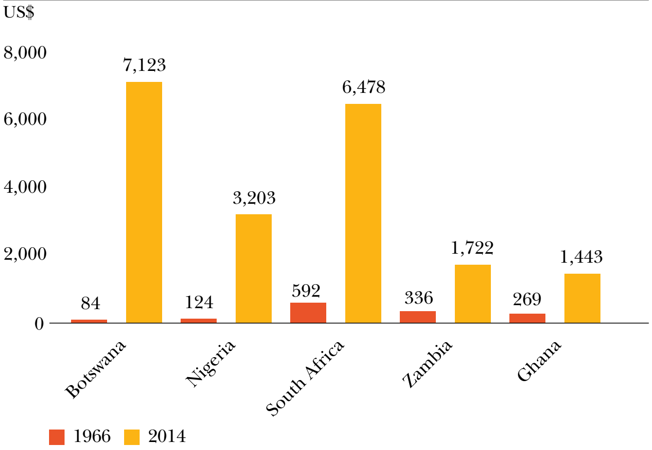


Source: The World Bank (2015)
Note: Only countries with a full data set from 1966 to 2014 are included, except for Oman which is missing the latest 2014 figure.

Botswana has had 11 general elections since independence and is a stable democracy. It has the best sovereign credit rating on the continent and continues to score well on indices of good governance, political stability and control of corruption. Income levels have surpassed countries that started with much higher rates 50 years ago.

> FIVE DECADES OF GROWTH AND HIGH LEVELS OF PUBLIC SPENDING HAVE CREATED A BETTER STANDARD OF LIVING FOR MOST BATSWANA.

FIGURE 6: GDP PER CAPITA, 1966 AND 2014 (CURRENT US$)



Source: The World Bank (2015)

HUMAN DEVELOPMENT

Five decades of growth and high levels of public spending have created a better standard of living for most Batswana. Public services and facilities that were only aspirational at independence have been developed. These include free public healthcare; access to free primary and secondary education; and the development of transport, energy and water infrastructure. The ratio of one doctor for every 47,652 people in the 1960s has now improved to one doctor for every 3,300 people.[17] Botswana was also the first country in Africa to provide free anti-retroviral therapy (ART) to all citizens, and it is estimated that 90 per cent of those requiring treatment for HIV/AIDS are receiving ART.[18] Access to schooling and the pupil/teacher ratio in both primary and secondary schools in Botswana have improved steadily. From just 40 tertiary graduates and 100 secondary school graduates at independence, Botswana produced 10,668 tertiary[19] and 8,268 secondary school graduates in 2013.[20]

CHALLENGES

The Government of Botswana has stressed continually that past achievements may not translate into future successes. Challenges that are common in many developing nations must still be overcome, including unemployment, high levels of inequality, residual poverty, and the over-reliance on diamonds.

The unemployment rate in Botswana is just below 20 per cent and the youth unemployment rate may be as high as 35 per cent.[21] A consequence of rapid growth has been a steep rise in levels of inequality. Poverty has decreased but has not been eradicated. The World Bank estimates that more than 13 per cent of the population still lives on less than US$1.90 a day, the Bank's measure of absolute poverty.[22]

As a relatively new country, Botswana faces challenges as it works to maximise the value of diamonds while also diversifying the economic base away from this resource by improving private sector competitiveness. The economy remains heavily dependent on diamonds for fiscal and export revenue, with the resource accounting for 86 per cent of export revenues in 2014.[23]

Botswana stakeholders interviewed as part of the research for this report commented that the wealth generated by diamonds may have created some complacency about growing other sectors, and had made some citizens overly dependent on the State. The Government acknowledges that growth, impressive as it has been, was mostly dependent on capital accumulation from diamonds rather than improvements in productivity, competitiveness and growth in employment.[24]

Therefore, in the past two decades, there has been much attention given to diversification of the economy in order to move beyond a dependency on diamonds. The 2008 Strategy for Economic Diversification noted that future policies must foster the emergence of competitive, sustainable private enterprises, and should develop skills needed by an open and competitive economy.[25] The current National Development Plan 10 (2010 to 2016) also seeks to strengthen economic diversification away from reliance on diamond mining to broader private sector growth.

86%

Of export revenues in 2014 attributed to diamond resources

There has been some success with diversification policies, and mining is no longer as dominant as it once was. In 2012, the non-mining sector accounted for 70 per cent of the total value added to GDP compared with less than 50 per cent a decade earlier.[26]

These challenges should not diminish the extraordinary success Botswana has had in generating rapid economic growth off a minimal base and improving the basic living conditions of most Batswana in just two generations. Botswana has managed, where many others have failed, to translate the potential of resources below ground into enduring value above ground.

Orapa Mine – Pharmacy Technician Lebogang Lekagane dispenses medicines at the Orapa Hospital Pharmacy.

1. BUILDING ON DIAMONDS

CONTINUED

1.2. PRINCIPLES OF PARTNERSHIP

To understand the story of Botswana's growth is to understand the story of its vast diamond resource and the Partnership that transformed it into a driver of development. The Partnership is, of course, codified in various agreements and contracts, but its longevity and success are due to something deeper, namely a mutual understanding that diamonds are unique and require a long-term view; that they are a finite resource whose value must be maximised while it lasts; that they are ultimately a luxury product; and that true partnership requires shared incentives. This section examines these fundamentals in more detail.

1.2.1. A LONG-TERM VIEW

Diamond mining is a capital-intensive undertaking with long-term horizons. Finding and mining diamonds in remote areas requires a large investment in exploration, project development, infrastructure, mining equipment and human capital. It can take many years to find and develop a resource, and a mine can operate for decades.

In the case of Orapa, the first mine to be developed in Botswana, exploration took 11 years, with another four years to bring the mine to production. Letlhakane took eight years from discovery to production and Jwaneng 11 years.[27] The ability to develop and maximise diamond supply necessarily requires a long-term perspective and confidence in the operating environment. This, in turn, depends on political stability, predictable policies and respect for the rule of law.

In 1967, the new and relatively inexperienced leadership of Botswana had to make long-term choices about how to develop and manage its newly-found diamond resource. A windfall of such magnitude could have started a struggle for control of the diamonds. This was avoided by strong leadership. His Excellency Sir Seretse Khama, the first President, saw that the potential of diamonds would not be realised without a long-term vision for national benefit. He persuaded the Council of Chiefs, the Dikgosi, to relinquish individual tribal rights over diamond discoveries in favour of ownership of the diamonds by the Republic for the benefit of all Batswana. This far-sighted view provided the political basis to develop the diamond industry with stability and confidence.

The early leadership also understood that Botswana did not have the capital or expertise to develop and manage diamond mines alone.[28] The Government therefore chose to form the partnership with De Beers, which had discovered the diamond deposits. In mining policy generally, the Government has struck an effective balance between securing the public good and incentivising private capital and skills inflows.

The first production of Debswana from Orapa Mine started in 1971, followed by Letlhakane in 1977, Jwaneng in 1982 and the smaller Damtshaa Mine in 2003. This required ongoing investment in capital-intensive projects as well as the technology required for more efficient mining and diamond recovery processes.

A further major investment was made in 2008 to allow for the next expansion of the Jwaneng open pit. The project is known as Cut-8 as this is the eighth cut, or expansion, of the pit. The cut requires the excavation of more than 500 million tonnes of waste rock before the associated diamond-bearing ore can be accessed at depth. Cut-8 provides access to approximately 105 million carats from around 89 million tonnes mined.[29]

2030

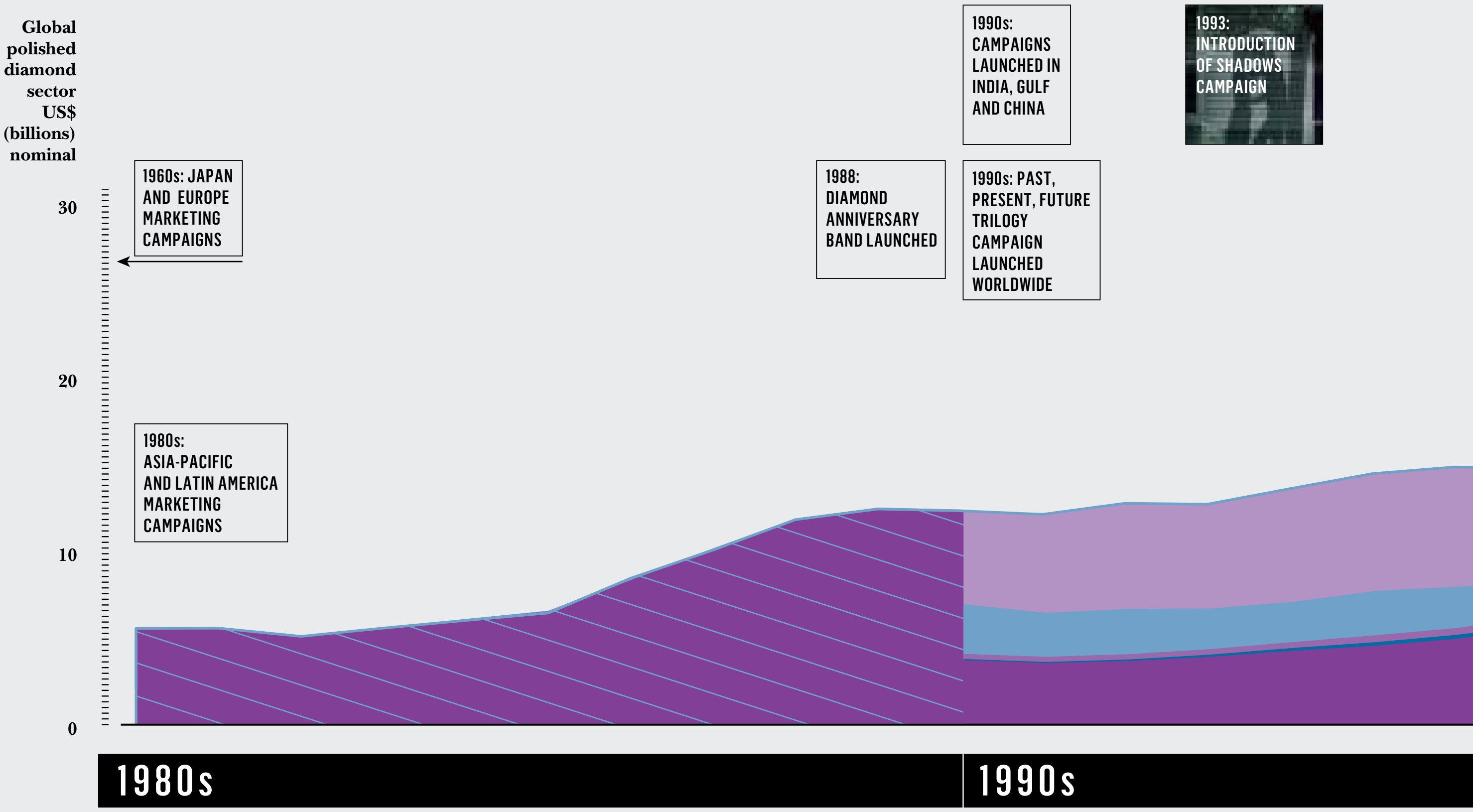
Beyond when operations at Jwaneng Mine are expected to continue

Cut-8 is expected to continue to yield diamonds until 2029, and stockpile and Tailing Mineral Resource mining will continue beyond 2030.[30] The 2015 Life of Mine plan is currently in progress and will inform a new resource and reserve compilation at the end of 2015. This investment will enable the Partnership to continue to invest directly in skills and training, education and healthcare and local enterprise development.

In addition to the diamond revenues provided to the Government, both Partners have chosen to harness the core business of the companies in the Partnership and set aside significant funds for social investment in order to support shared development goals. For example, the hospitals at Orapa and Jwaneng mines both serve the surrounding communities, with Orapa Hospital recording more than 82,000 patient visits in 2014. Through bursaries, as well as local employment with ongoing training and skills development, the Partnership has sought to grow the ultimate natural resource of Botswana – its people.

A view of the Jwaneng Mine pit, which is expanding with Cut-8.

FIGURE 7: KEY MARKETING CAMPAIGNS AND GROWTH IN POLISHED DIAMOND VALUE

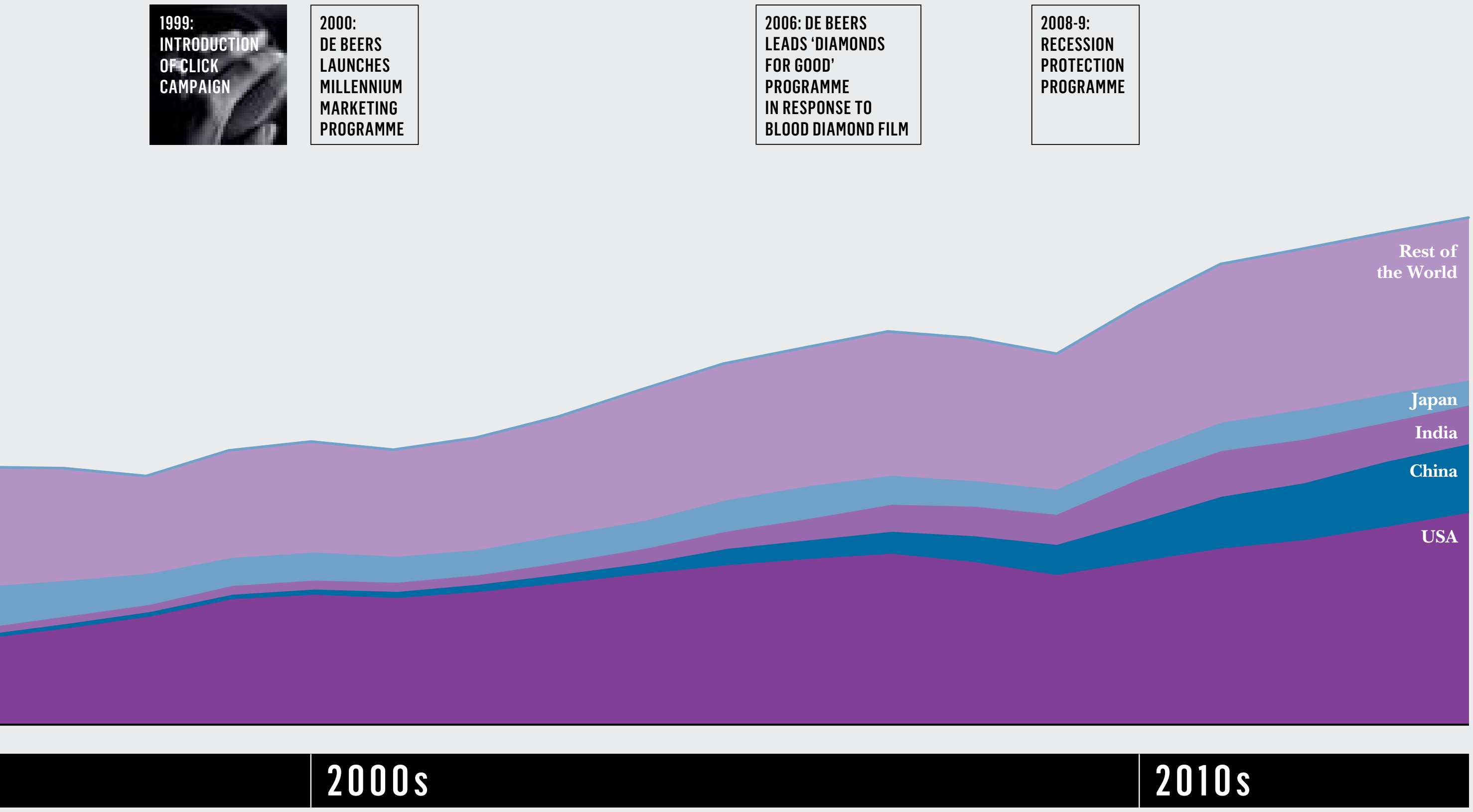


Sector by market data not available pre-1990

THE PARTNERSHIP IS COMPELLED TO SEE EACH DIAMOND AS IRREPLACEABLE, AND TO MAXIMISE THE VALUE OF EVERY CARAT IT RECOVERS.

1.2.2. A FINITE RESOURCE

It is a paradox that one of the undeniable characteristics of diamonds that gives them lasting value is that production will not last forever. When combined with the importance of diamonds to Botswana's prosperity, the Partnership is compelled to see each diamond as irreplaceable, and to maximise the value of every carat it recovers. Specifically, this means growing demand for diamonds around the world and leveraging the country's leading producer position to expand its participation further down the value chain.



GROWING DEMAND

The long-term investment in Botswana's production is only part of the story. Steadily increasing production of rough diamonds from the 1970s would have accounted for much less if supply had not been matched, or exceeded, by global demand. Diamonds have deep symbolic meaning for many people and De Beers' well-documented investment over decades to capture that symbolism and transform it into tangible markers in people's lives has served as the foundation of the modern diamond industry. These efforts have included significant investments in marketing and advertising, building on the success of the 1940s 'A Diamond is Forever'[31] campaign and growing new markets in the United States (1940s/1950s), Japan and Europe (1960s), Asia-Pacific and Latin America (1980s) as well as in China and India (1990s/2000s). According to De Beers data, the polished diamond sector grew by more than 400 per cent from 1980 to 2014. Over the past 15 years, De Beers has invested more than US$1.6 billion in global marketing campaigns. This growth in consumer demand has expanded the end market for Botswana's diamonds and increased the value of them.

EXPANDING PARTICIPATION IN THE VALUE CHAIN

As a producer nation, Botswana has always understood that greater potential can be captured if more value is added to diamonds domestically. This helps to create ancillary industries in Botswana to support diamond activities. This strategy of beneficiation has been a Government priority from the start and remains a major focus for the Partnership. Many resource-rich developing countries have the same goals but have found that moving from mining to added beneficiation can be challenging.

1. BUILDING ON DIAMONDS

CONTINUED

Sustainable beneficiation occurs in very few of the countries in which diamonds are mined. Most of the world's diamonds are mined in Russia, Botswana, Canada, Angola, the Democratic Republic of Congo, and South Africa. However, most cutting and polishing takes place in India especially, also China and Israel, while most diamond jewellery manufacturing takes place in India and China, as well as in the main consumer markets. This is because competitiveness in diamond manufacturing does not necessarily translate into competitiveness in cutting and polishing as costs and productivity drivers may be very different. Successful and sustainable beneficiation therefore depends on the ability to establish global competitiveness in the new activity.

Even so, the Partnership has managed to secure more participation in beneficiation in Botswana. Some stakeholders interviewed for this research felt that De Beers could have thrown its weight behind in-country cutting and polishing sooner, although the important role played by relatively recent technology developments in enabling the establishment of sustainable cutting and polishing industries in producer countries should not be discounted.

Nevertheless, in the 2000s, strategic decisions were taken to support beneficiation. Implementation of the strategy included the formation of DTCB in 2006, which was set up to sort and value Debswana's production. It also included making a supply of rough diamonds available to Sightholders willing to manufacture diamond locally. Currently, 20 Sightholders have cutting and polishing factories in Gaborone.

THE MIGRATION OF DE BEERS' INTERNATIONAL SALES FUNCTION FROM LONDON TO GABORONE IN 2013 HAS BROUGHT A SIGNIFICANT TRANSFER OF ECONOMIC ACTIVITY TO BOTSWANA.

Moreover, the migration of De Beers' international sales function from London to Gaborone in 2013 has brought a significant transfer of economic activity to Botswana. De Beers' international rough diamond supply had been sold in London for more than 70 years, and the relocation of the global sales function to Botswana was a huge logistical undertaking involving the building of a new secure sales facility in Gaborone, new security services, the renegotiation of export taxes, the transfer of technology and systems, and the migration of 80 staff members and their families from London to Gaborone.

The Government also upgraded the international airport and improved access roads to support the expected increase in business and trade as well as the movement of people. Ten times a year, about 200 representatives of the world's leading diamond manufacturers and traders from places such as

The Kimberley Process Certification Scheme is an inter-governmental framework to prevent conflict diamonds from entering the legitimate value chain.

Belgium, Israel, the United States, India and China now travel to Gaborone to buy rough diamonds from De Beers. Botswana has seen the value of rough diamonds traded in-country rise from under US$1 billion annually before the relocation to more than US$6 billion since then.

The relocation of the De Beers' international sales function was a coup for Botswana's beneficiation strategy. The Minister of Minerals, Energy and Water Resources at the time, Dr Ponatshego Kedikilwe, hailed the agreement as a major step in securing the future of Botswana's economy, saying, "Botswana and De Beers have today renewed one of the most successful public-private partnerships in the world. This agreement, and the tangible outcomes it will deliver, will enable Botswana to achieve its aspiration to be a major diamond centre engaged in all aspects of the diamond business."[32]

In addition to the employment created by the relocation of De Beers' sales arm DBGSS, and new ancillary services in sectors such as hospitality and retail, the move provided Botswana with direct access to the diamond market.

Of course, Botswana's increased exposure to the global diamond market heightens its vulnerability to the market's increasing volatility. For example, while one new local manufacturing factory opened in 2015, another three closed as the rough diamond sector experienced a downturn.

However, in just 15 years, the Partnership has succeeded in positioning Botswana as a global rough diamond hub, with several more decades at least to build its offering before the supply from mining is depleted. The intention is that the economic momentum will allow these parts of the diamond industry to persist even after the last diamond has been mined in Botswana.

US$6BN

Value of rough diamonds traded in-country in 2014 from under US$1 billion annually before the relocation of DBGSS

1.2.3. A LUXURY PRODUCT

A diamond's allure is based on an association with purity, love, commitment and a sense of the eternal. Consumers have come to expect verifiable assurances of the origin and provenance of their luxury purchases. The diamond producers and the diamond industry have a responsibility to provide real assurances, particularly as diamonds face competition from other luxury goods, changing consumer spending preferences and potential confusion caused by the emergence of synthetic diamonds.

Furthermore, the 'purity premium' associated with diamonds requires the constant safeguarding of diamonds as a responsible and positive product. The Partnership has played an important role in protecting the reputation of diamonds. In the 1990s, this reputation was threatened by an association with civil wars and child labour in some countries with large artisanal diamond deposits. In the early 2000s, governments, civil society and industry leaders (including from De Beers) came together under the auspices of the United Nations to establish the Kimberley Process Certification Scheme, an inter-governmental framework to prevent conflict diamonds from entering the legitimate value chain. Now, more than 99 per cent of the world's diamonds are certified conflict-free.[33]

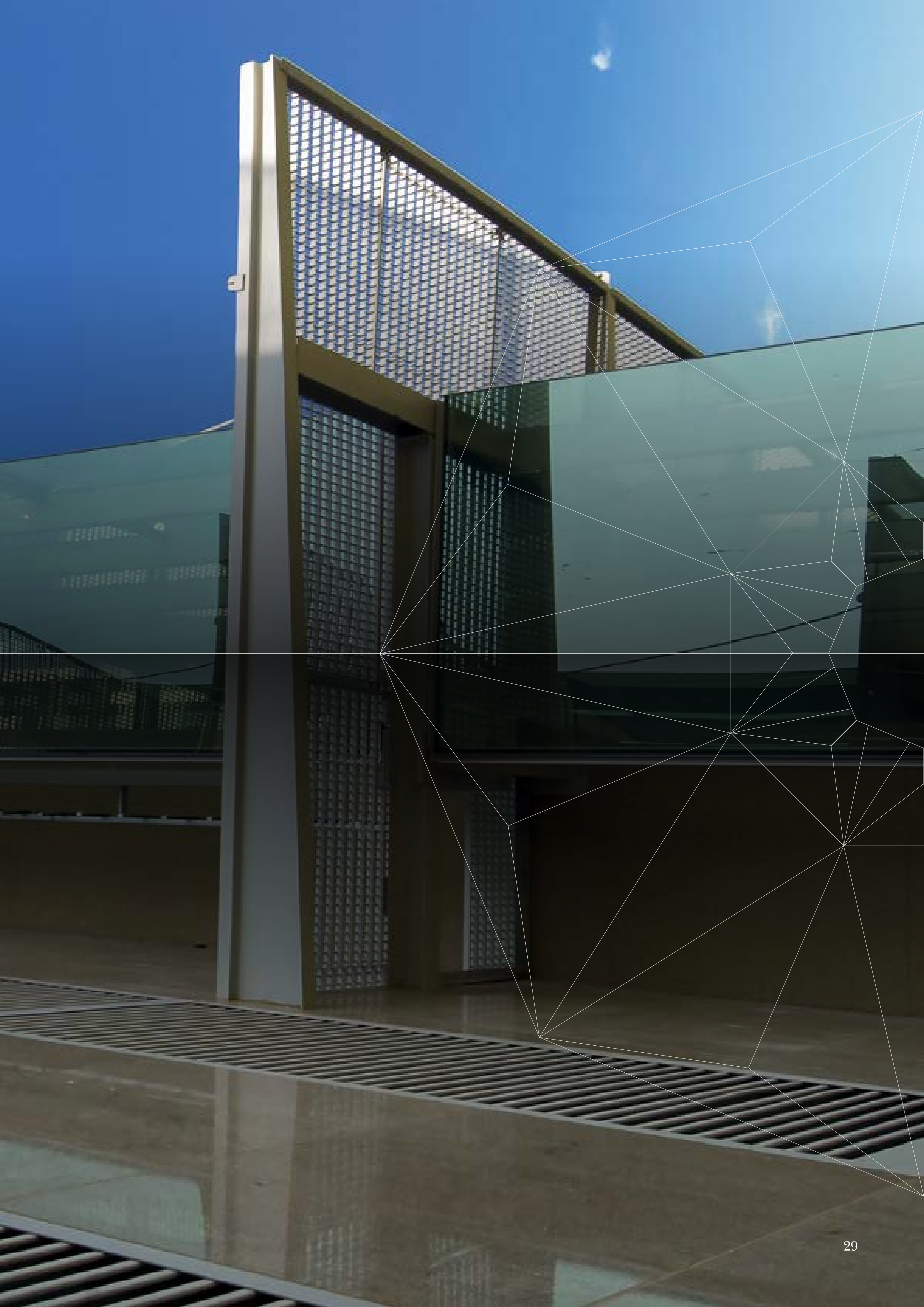
Around the same time, De Beers also moved to formalise the introduction of responsible business practices and ethical standards in its diamond supply chain. In 2003, De Beers initiated the Best Practice Principles Assurance Programme (BPPs), a mandatory business conduct code that applies to all De Beers' operations as well as to De Beers Sightholders and substantial diamond contractors involved in diamond cutting, polishing and jewellery manufacturing. Meeting these standards is a contractual requirement of supply from De Beers, and compliance is audited externally.

In 2009, the BPPs were aligned with the Responsible Jewellery Council standards to promote responsible ethical, human rights, social and environmental practices in the gold and diamond industries. De Beers estimates that the BPPs directly and indirectly cover approximately 370,000 people working in the diamond industry globally.

Of course, while it is important that the frameworks developed to ensure diamonds (and the revenues accrued from them) do no harm, perhaps most important is recognising the real-world story of the positive role a prudently managed natural resource can play in the development of a nation. Botswana is testament to this, and the Partnership has worked to turn this story of responsible sourcing into a brand premium that can simultaneously protect and enhance the value of Botswana's diamonds in a highly competitive luxury landscape.

2. THE CONTRIBUTION OF THE PARTNERSHIP IN 2014

DTC Botswana, the largest and most sophisticated diamond sorting and valuing centre in the world.



2. THE CONTRIBUTION OF THE PARTNERSHIP IN 2014

While the significance of diamonds in Botswana's development is well known, this is the first study undertaken to quantify the economic value generated by the Partnership in Botswana in any one year.

First, this section analyses the Partnership's impact on Botswana's economy in 2014. The Partnership contributes to GDP and employment both directly and through its supply chain and employee spending. The section then describes DBGSS's move to Gaborone in 2013 and its share of the Partnership's total contribution to GDP and employment. It also shows the Partnership's contribution to Government revenue through taxes, royalties and dividends.

Secondly, this section describes how the Partnership aims to continue contributing to Botswana's economy in the future by supporting local suppliers through its local procurement programme; building skills within Botswana by investing in training and development programmes; and continuing to invest in capital projects. The results indicate that the Partnership is a large contributor to the Botswana economy, making a significant contribution to employment, taxes and the creation of economic value.

2.1. THE PARTNERSHIP'S REVENUE

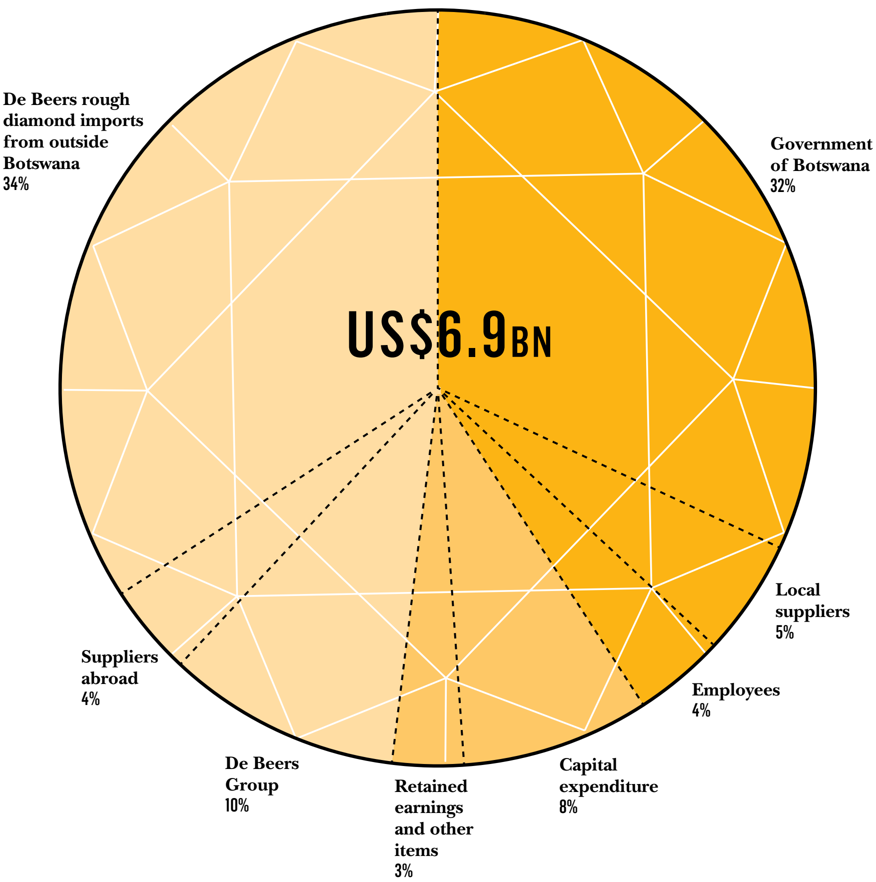
In 2014, the Partnership generated a total revenue of US$6.9 billion. The way in which this revenue was distributed is illustrated in Figure 8.

US$0.3 billion was paid in wages to employees and US$0.6 billion was paid for goods and services to suppliers in Botswana and overseas. In addition, US$2.2 billion was paid to the Government through taxes, royalties and dividends, while US$0.7 billion was available for distribution to shareholders in the form of dividends. Capital expenditure accounted for US$0.5 billion, part of which was used to extend the life of the mines. The largest proportion, however, was the US$2.3 billion spent on diamond imports, which involved buying diamonds from De Beers' entities in Namibia, Canada and South Africa to bring them to Gaborone for aggregation by DBGSS in order to be sold to Sightholders in Botswana. The remaining US$0.3 billion was kept as retained earnings and other items, which includes retained earnings and other unrealised non-cash items such as forex losses/gains.

THE PARTNERSHIP IS A LARGE CONTRIBUTOR TO THE BOTSWANA ECONOMY, MAKING A SIGNIFICANT CONTRIBUTION TO EMPLOYMENT, TAXES AND THE CREATION OF ECONOMIC VALUE.

De Beers Global Sightholder Sales reception, Gaborone.

FIGURE 8: BREAKDOWN OF THE DISTRIBUTION OF THE PARTNERSHIP'S REVENUES, 2014



Source: PwC analysis

2. THE CONTRIBUTION OF THE PARTNERSHIP IN 2014

CONTINUED

The following sections explain the economic impact of the Partnership's revenue distribution on Botswana.

2.2. THE PARTNERSHIP'S CONTRIBUTION TO GDP

The Partnership's contribution to GDP can be estimated at three levels: the direct contribution, supply chain spend contribution (indirect), and the employee spend contribution (induced).

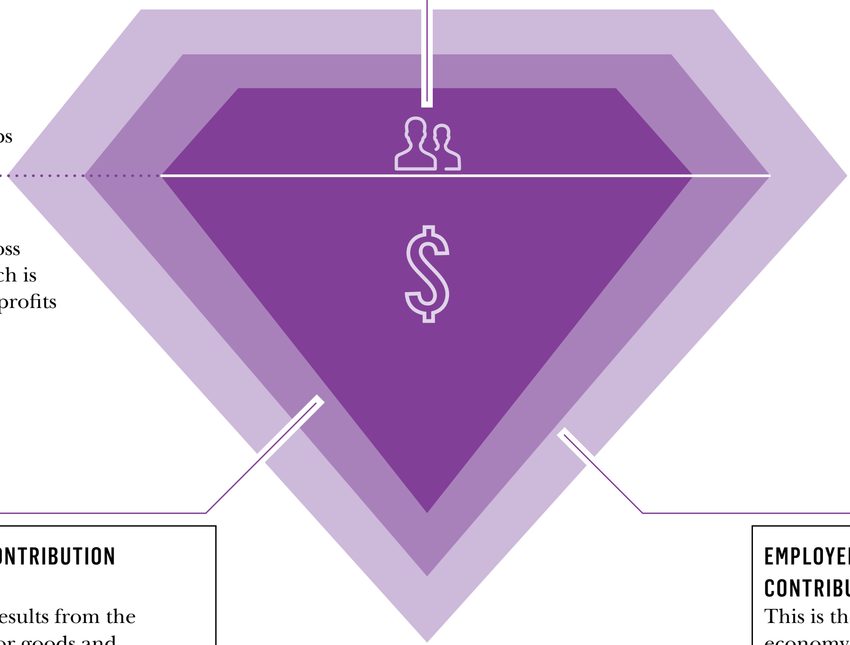
FIGURE 9: MEASURES OF ECONOMIC CONTRIBUTION

DIRECT CONTRIBUTION
This is the GDP resulting from the supply of the Partnership's goods and services. It is equal to the GVA generated by the Partnership which is made up of the wages paid by the Partnership to its employees and the profit generated (before tax is deducted).[34]

Data was not available on the wages and benefits paid to contractors. Therefore, total wages and benefits have been estimated using the average wage and benefits of an employee in the Botswana mining sector in 2014, based on Statistics Botswana data.

EMPLOYMENT SUPPORTED
Expressed as the number of full-time equivalent jobs

CONTRIBUTION TO GDP
Measured in terms of Gross Value Added (GVA), which is made up of a company's profits and wages before tax.



SUPPLY CHAIN SPEND CONTRIBUTION (INDIRECT)
This is the GDP which results from the Partnership's demand for goods and services from its suppliers and their suppliers. This contribution is generated when the Partnership's expenditure with its suppliers enables a 'multiplier' effect across its entire value chain. The Partnership has important linkages with the wider economy as it purchases goods and services from other companies in Botswana. The Partnership purchases: mining consumables; repairs and maintenance services; and utilities, as well as many other items, from local suppliers.

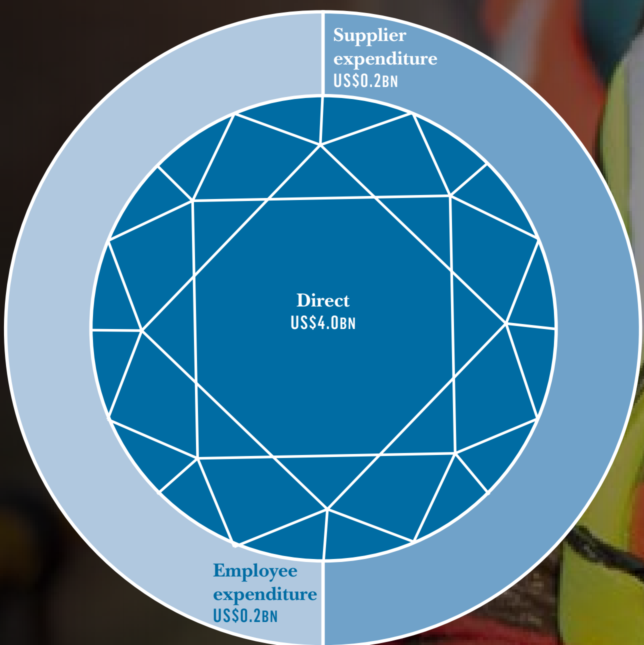
EMPLOYEE SPEND CONTRIBUTION (INDUCED)
This is the GDP in the wider economy which results from wages being spent by the employees of the Partnership and its suppliers. Spending of wages in the local economy, by employees of the Partnership and its suppliers, also makes an important contribution to Botswana's GDP.

Source: PwC

PwC has estimated the supply chain and employee spend contributions to GDP using an economic model of Botswana's economy 'which is internationally recognised by institutions such as the United Nations Department for Economics and Social Affairs' (see Appendix 1 for more details on the methodology used).[35]

When the direct, supply chain spend and employee spend contributions are combined, the total economic contribution of the Partnership was US$4.4 billion in 2014 as shown in Figure 10. This was equivalent to 27 per cent of Botswana's GDP in 2014.

FIGURE 10: THE PARTNERSHIP'S CONTRIBUTION TO GDP



TOTAL CONTRIBUTION TO GDP: US$4.4BN OR 27% OF BOTSWANA'S GDP

Source: PwC analysis

Tebogo Kwtuso is a trainee Mining Engineer working at Orapa Mine.

2. THE CONTRIBUTION OF THE PARTNERSHIP IN 2014

CONTINUED

2.2.1. DIRECT CONTRIBUTION TO GDP

The Partnership directly generated US$4 billion of value to the economy. This was the equivalent of 25 per cent of Botswana's GDP for the year. Of this, 86 per cent (or US$3.5 billion) was generated by Debswana. De Beers Holdings Botswana makes a loss; as an exploration company, its operating costs were greater than revenue. This loss, however, is offset by the amount it pays its employees, leading to a direct contribution to GDP, which rounds to zero.

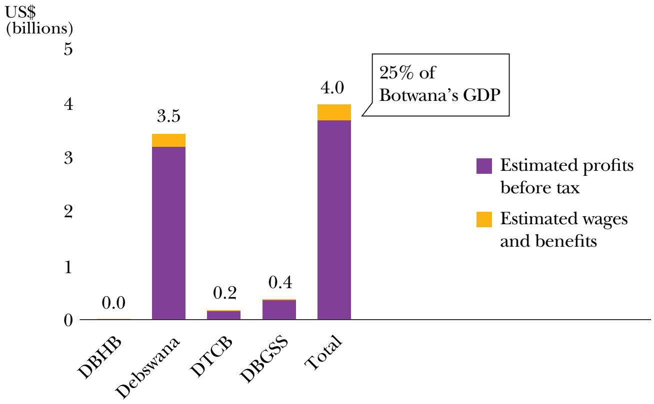
The Partnership's direct contribution to GDP of US$4 billion is nearly twice that of the entire wholesale and retail trade sector, which includes hotels and restaurants, and more than four times that of the manufacturing and construction sectors. This is illustrated in Figure 11.

2.2.2. SUPPLY CHAIN AND EMPLOYEE SPEND CONTRIBUTION TO GDP

The Partnership's direct contribution is only part of its total contribution to GDP. In order to estimate the total contribution of the Partnership, the direct contribution needs to be combined with the contribution generated through its supply chain spend (indirect) and the spending of the employees of the Partnership and in its supply chain (induced). The total contribution is illustrated in Figure 12.

The supply chain and employee spend effects are small compared with the direct contribution to GDP of the Partnership. The main reason for this is the high value added to a diamond after it has been mined. This means that the direct contribution to GDP is significantly greater than the value of the goods and services being supplied to produce diamonds and on which employees are spending their wages.

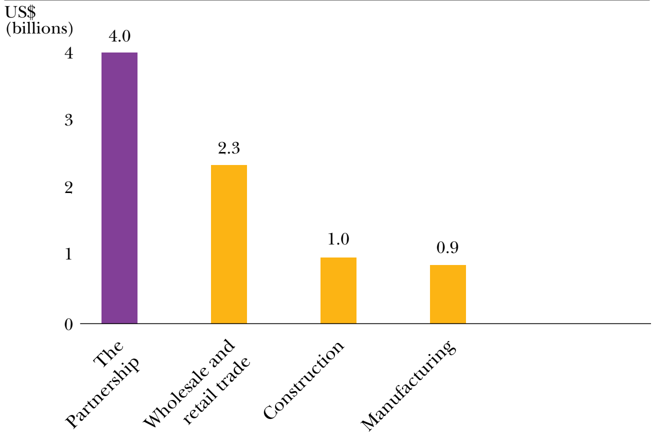
FIGURE 11: DIRECT CONTRIBUTION TO GDP, 2014



Source: PwC analysis

THE PARTNERSHIP'S DIRECT CONTRIBUTION TO GDP OF US$4 BILLION IS NEARLY TWICE THAT OF THE ENTIRE WHOLESALE AND RETAIL TRADE SECTOR.

FIGURE 12: DIRECT CONTRIBUTION TO GDP – COMPARISON WITH OTHER SECTORS, 2014



Source: PwC analysis

2.3. THE PARTNERSHIP'S CONTRIBUTION TO EMPLOYMENT

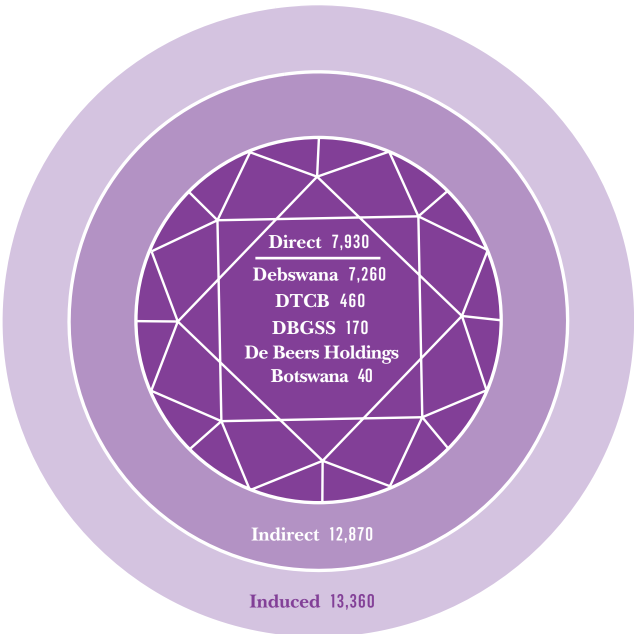
The Partnership's contribution to employment can also be estimated at three levels: the direct contribution, the supply chain spend contribution (indirect), and the employee spend contribution (induced) as shown in Figure 13. PwC has estimated the supply chain and employee spend contributions to employment using the same model of Botswana's economy as the one used to estimate the impact on GDP (see Appendix 1 for more details on the methodology used).

In total, the Partnership supported 34,160 jobs in the economy in 2014. This means that one in every 20 jobs in Botswana is linked to the activities of the Partnership.

2.3.1. DIRECT CONTRIBUTION TO EMPLOYMENT

In 2014, the Partnership directly employed almost 8,000 people in Botswana, including nearly 2,000 contractors. The split between the different parts of the Partnership is shown in Figure 14. The Partnership's direct employment represented two per cent of formal employment in Botswana, and four per cent of formal non-government employment in 2014.[36] Of these employees, 96 per cent of the workforce and 85 per cent of the management were Botswana citizens.

FIGURE 13: THE PARTNERSHIP'S CONTRIBUTION TO JOBS



TOTAL CONTRIBUTION TO JOBS: 34,160

Source: PwC analysis

34,160

Jobs supported in the economy in 2014

2. THE CONTRIBUTION OF THE PARTNERSHIP IN 2014

CONTINUED

2.3.2. SUPPLY CHAIN AND EMPLOYEE SPEND CONTRIBUTION TO EMPLOYMENT

Beyond those directly employed by the Partnership, 12,870 jobs were supported in the rest of the economy by the spending of the Partnership with local suppliers. This includes nearly 4,250 outsourced contractors who worked for the Partnership in 2014. Most of these jobs were generated in the manufacturing sector, as a large percentage of the value of the Partnership's purchases are manufactured goods.

Spending of the wages and salaries of the employees of the Partnership and of its suppliers' employees supported a further 13,360 jobs. Most were in the wholesale and retail sector (which includes hotels and restaurants), reflecting employees' spending on retail trade goods such as food. Employee spending also supported a significant number of jobs in the banking, financial, social and personal services sectors. This reflects the strong links with the trade sector.

HUMAN CAPITAL DEVELOPMENT HAS BEEN A CENTRAL PILLAR OF BOTSWANA'S ECONOMIC DEVELOPMENT STRATEGY, AND THIS HAS BEEN STRONGLY SUPPORTED BY THE PARTNERSHIP.

2.4. THE CONTRIBUTION OF DE BEERS GLOBAL SIGHTHOLDER SALES

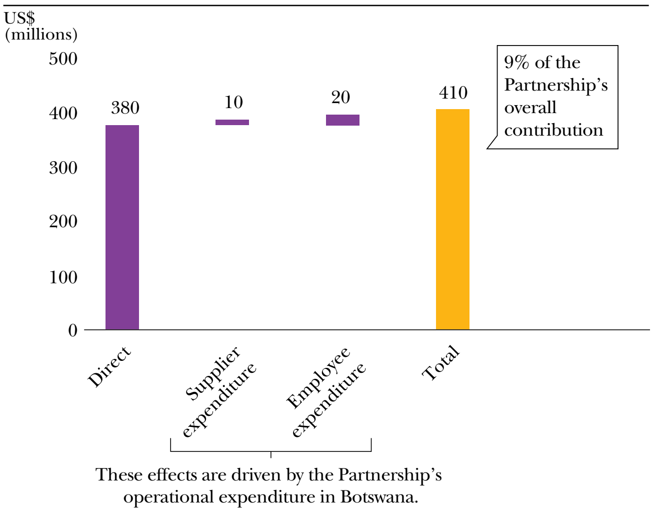
In late 2013, DBGSS relocated from London to Gaborone and the aggregation of diamonds began to take place in Botswana for the first time. As a result, diamond imports from De Beers operations in Canada, South Africa and Namibia accounted for the largest portion of the Partnership's revenue in 2014, 34 per cent (approximately US$2.3 billion). These were aggregated and sold by DBGSS in Botswana. This means that there were more diamonds coming into Botswana to be aggregated and sold, which in turn resulted in more jobs and revenue.

In 2014, DBGSS completed its first full year of operation in Botswana and directly contributed US$380 million (nine per cent of the Partnership's total direct contribution) to GDP. This was more than the whole agriculture sector.[37] Spending in the supply chain and by employees of the Partnership and their suppliers meant that the activities of DBGSS contributed another US$30 million to Botswana's GDP.

In total, DBGSS contributed US$410 million to Botswana's GDP in 2014 (2.5 per cent of GDP)[38] (see Figure 14).

Ten times a year, around 200 of the world's leading diamantaires from Belgium, Israel, China, the United States, India and elsewhere congregate for up to a week in Gaborone to buy aggregated rough diamonds from DBGSS, where previously they would have attended the Sight in London. This has helped develop ancillary businesses in sectors including hotels, restaurants and chauffeur services.

FIGURE 14: OVERALL CONTRIBUTION TO GDP OF DBGSS, 2014



Source: PwC analysis

2.5. THE PARTNERSHIP'S CONTRIBUTION TO GOVERNMENT AND SHAREHOLDERS

Anglo American data on the taxes borne (including income taxes and royalties) and collected (such as employement taxes) by De Beers entities in Botswana was used to determine the Partnership's total tax contribution.[39]

Of total revenue, over one third (around US$2.2 billion) was distributed by the Partnership to the Government. This amount was made up of taxes and royalties (US$1 billion) and dividends paid to the Government by virtue of its 50 per cent shareholding in Debswana and DTCB (US$1.2 billion).[40]

Combining taxes, royalties and dividends, the Partnership's total distribution to the Government was around 39 per cent of the total revenue it raised in 2014. This is more than the entire healthcare budget and all social welfare programmes combined in 2014.

In comparison (as shown in Figure 8), of the total revenue generated (nearly US$7 billion), about 10 per cent (US$0.7 billion) was distributed to De Beers Société Anonyme and was available to be distributed to its shareholders as a dividend in 2014.

2.6. INVESTING IN PEOPLE

The Partnership has had a long and continuing commitment not only to creating employment for local communities, but also to providing training and skills development. Human capital development has been a central pillar of Botswana's economic development strategy, and this has been strongly supported by the Partnership. Employment and skills development are primary ways to enable people to shape opportunities for themselves and their country.

In 2014, the Partnership spent approximately US$6 million on more than 550,000 hours of training and skills development. The Partnership is also committed to providing bursaries for students to study at the world's leading universities. Many beneficiaries of the bursary programmes, of which there have been more than 1,000, have become leading figures both within the Partnership and in the wider economy, government and industry (see case study – Balisi Bonyongo).

Balisi Bonyongo

Managing Director, Debswana

FROM CONCRETE MIXER DRIVER TO A MANAGING DIRECTOR

Balisi Bonyongo grew up in the small village of Marobela. He was raised by his mother, who worked as a cleaner. The primary school in Marobela was under construction at the time, so Balisi received his primary education under a tree, using sticks and stones to learn mathematics.

One day, a young Balisi watched a concrete mixer arrive to pour concrete for the construction of the new school. This impressed him greatly and he resolved that one day he would be a driver of a concrete mixer truck. But there was much more in store for him.

A few years later, he saw an advertisement for the Debswana Bursary Programme and was encouraged by his teacher to apply. He won a full scholarship to study towards his A-levels at the Maru a Pula International School in Gaborone.

Thereafter, the programme sponsored Balisi to attend Leeds University in the UK to study mineral process engineering. This was his first time abroad and it was hard for him to understand the Yorkshire accent and contend with the cold weather.

In 1992, he started his first job at Debswana at Orapa Mine, where he was put on a mentorship programme with dedicated training advisors. Over 18 months, he worked on every section of the Orapa plant under the supervision of senior metallurgists.

Balisi's career moved quickly thereafter and by 1998 he was plant manager at Jwaneng Mine in charge of 200 people. To strengthen his management skills, Debswana sponsored Balisi to complete an MBA at the University of Cape Town in South Africa.

He returned to Jwaneng Mine where he was to become General Manager. He later became Chief Operating Officer of Debswana and was appointed Managing Director of Debswana in 2014 and a member of the De Beers Executive Committee.

2. THE CONTRIBUTION OF THE PARTNERSHIP IN 2014

CONTINUED

2.7. SUPPORT OF LOCAL SUPPLIERS

As previously mentioned, the Government has long sought to increase the value added locally in Botswana from its diamonds by developing the diamond value chain both downstream, through the beneficiation of rough diamonds, and upstream, through suppliers to the industry. Government has also prioritised the diversification of the economy away from diamonds.

As an important buyer in the economy, the Partnership stimulates and supports local mining inputs. In 2014, it spent five per cent of its revenue with local suppliers. Local procurement programmes run by the Partnership support the development of a resilient local supply chain and the creation of a viable, self-sufficient economy beyond the life of the mines. For example, Debswana's local procurement strategy ensured that 'at least half of the Cut-8 project-related contracts were awarded to citizen-owned or Botswana-based companies'.[41]

Of the Partnership's total spending with suppliers (excluding diamond imports) in 2014, 54 per cent was estimated to have been spent with local suppliers and 46 per cent with foreign suppliers. However, accurately defining local supplier spend is difficult to do, as many stakeholders interviewed for this study recognise that the local manufacturing sector in Botswana is underdeveloped, and many locally registered suppliers are probably distribution agents for overseas companies rather than local manufacturers. Therefore, in order to estimate this ratio, a conservative approach was adopted by including all spending on goods and services from companies that were Batswana-owned, and estimating the amount of money that stays in the country when spent with Botswana counterparts that have foreign owners.[42]

To encourage local enterprise development, the Partnership, along with Anglo American plc, established an enterprise development programme called Tokafala in 2014. The programme aims to promote economic development and stimulate job creation by supporting small, medium and micro enterprises (SMMEs) through mentorship and advisory services, complemented by access to market and financial support (see case study – Gardson Mazonde). In addition, it seeks to improve small companies' access to and links with business opportunities with Debswana, DBGSS and other partners. Tokafala aims to help up to 250 SMMEs and support over 2,200 jobs in three years from 2014 to 2016. Negotiations are also under way with the Government to expand the programme to 2018 so that it can support a further 650 businesses and 3,000 jobs.

2.8. CAPITAL EXPENDITURE

In 2014, the Partnership spent eight per cent (US$0.5 billion) of its revenue on capital expenditure.

Gardson Mazonde

Managing Director, Primeone (Pty) Ltd

TOKAFALA – PRIMEONE

Gardson Mazonde is passionate about his business, Primeone, which cleans air ducts, chimneys and extraction units for many well-known businesses around Gaborone. Gardson started Primeone in 2011 and, in just two years, single-handedly grew it from a start-up into a one million pula-a-year enterprise.

Despite his early success, Gardson knew that he needed other business skills to take the company to the next level. So he joined up with Tokafala on a seven-month enrolment. With 90 hours of support from his mentor and a financial specialist, he focused on improving his financial management skills, identifying new markets and looking for complementary products.

One year on, as the company entered new markets, grew sales and improved financial management, Primeone's top-line revenue had grown by 30 per cent.

For Gardson, this is only a first step. Now that the business has a solid base, he wants to take his services to other cities in Botswana.

"At Tokafala, it was like we were given a new life," he said. "All the topics had a substantial impact. It changed the whole tradition of how we are doing things, from finance to bookkeeping to marketing."

AT LEAST HALF OF THE CUT-8 PROJECT-RELATED CONTRACTS WERE AWARDED TO CITIZEN-OWNED OR BOTSWANA-BASED COMPANIES.

Pauline Phologolo is the owner and manager of Group Pee. Her company, enrolled in Tokafala since 2014, makes corporate wear, protective clothing and school uniforms.

3. THE NEXT CHAPTER

Orapa Mine – Haul trucks transporting kimberlite ore from the pit to the primary crusher at Plant 1 at the mine.

3. THE NEXT CHAPTER

Every diamond recovered and sold from Botswana is one diamond less available for future generations. The Partnership, therefore, has a responsibility to secure maximum value from each and every diamond it mines, both now and in the future.

In order to do that successfully, significant and continued investment will be required across Botswana's diamond pipeline and, in many areas, this is already in evidence.

Already the world's richest diamond mine, infrastructure construction began in 2009 to expand Jwaneng Mine. The project, Cut-8, is one of the largest ever investments by the Partnership.

Estimated to provide access to approximately 105 million carats of mainly high quality diamonds from approximately 89 million tonnes mined, Cut-8 is a crucial project for long-term global diamond supply, which is forecast to decline after 2020.[43] It is also a crucial project for Botswana's economy and for job creation. Cut-8 is expected to contribute directly more than US$28 billion (in 2014 prices) to Botswana's economy and generate more than 1,000 jobs[44] during the operational phase (2017-2029) when diamonds are extracted from the ground.

Carats of high quality diamonds from approximately 89 million tonnes mined

Based on these projections, PwC estimates that the project is expected to generate an additional contribution of US$3 billion (in 2014 prices) over the same period due to expenditure by suppliers and employees. Therefore, the total contribution of Cut-8 to Botswana's economy during the operational phase is estimated to be more than US$31 billion (in 2014 prices). For every person employed directly on the project, at least three jobs are estimated to be supported elsewhere in Botswana's economy. In total, Cut-8 is projected to support more than 4,500 jobs per year during the operational phase, either directly or indirectly.

CUT-8 IS EXPECTED TO CONTRIBUTE DIRECTLY MORE THAN US$28 BILLION TO BOTSWANA'S ECONOMY.

US$31BN

Total contribution of Cut-8 to Botswana's economy during the operational phase

4,500

Projected jobs to be supported per year during the operational stage, either directly or indirectly

3. THE NEXT CHAPTER

CONTINUED

As Jwaneng continues to expand, the Partnership is also looking at expansion options for the Orapa Mine, which has the potential to deliver further socio-economic benefits to the country.

While diamonds are a finite resource, Botswana remains one of the most prospective countries in the world for diamond exploration. The Partnership currently has three exploration projects under way in the country. Even at the early stages of exploration, these projects benefit the areas in which they are based, often by improving infrastructure and employing Batswana and suppliers. As investment upstream will help unlock the potential value of Botswana's diamonds, investment further downstream is essential to realise and preserve the value.

Almost all of Botswana's diamonds end up as jewellery, so increasing consumer demand for diamonds is the foundation of the Partnership's future success. More must be done to stimulate demand in both developed and emerging markets, especially given the increasing competition from other luxury products.

Allied to this is safeguarding the integrity of diamonds. The Partnership has already pioneered detection technology for synthetics and, with the pace of change becoming ever quicker, this must be maintained to uphold consumer confidence and protect Botswana's natural resource.

BUILDING BOTSWANA AS A GLOBAL DIAMOND HUB

The move by De Beers of DBGSS to Gaborone in 2013 firmly established Botswana as one of the world's major diamond centres, acting as a catalyst to stimulate other parts of the economy. The challenge facing the country now, however, is how to generate greater value from the move.

Although around a quarter of De Beers' Sightholders have beneficiation factories in Botswana, the challenges in the diamond industry's midstream sector during 2015 have caused some to close their operations in Botswana.

While it is clear that there is not a single solution to this issue, it is incumbent upon all stakeholders to work together to help deliver sustainable solutions that will ensure the long-term viability of these operations.

It is also important that focus is maintained on training and skills development in all areas of the diamond value chain so that Batswana can continue to occupy positions at all levels. As this analysis shows, the Partnership has long been committed to providing training and skills, but this must be maintained if Botswana is to develop capabilities that enable it to compete more effectively in the global market.

USING DIAMOND REVENUES TO CONTINUE DIVERSIFYING THE ECONOMY

The Partnership has played an important role in funding social and economic progress by securing and realising high value from Botswana's natural resource. The challenge that Botswana now faces is to build on a base of wise development to create new areas of competitiveness and employment, while eventually moving to a post-diamond era.

With the non-mining sector now making up 70 per cent of the total value added to GDP, compared with less than 50 per cent in 2002,[45] progress is being made. It is nevertheless clear that Botswana's economy remains heavily dependent on the diamond sector and on mining in particular, which is not labour intensive.

This creates a problem when demand for rough diamonds falls, as Botswana's economic fortunes are so closely entwined with diamond revenue. While prudent Government action in the last 50 years has mitigated this impact to some extent, a more balanced economy would insulate it.

The Partnership can play a part in helping Botswana achieve greater economic diversity, but it cannot do so alone. Arguably, its first responsibility is to continue to maximise the value of every Botswana diamond yet to be mined. This will provide the fiscal base to support further developmental investment, improve health and education, provide social safety nets and, importantly, support new, more sustainable sectors. As this analysis notes, the service sector was spurred by the relocation of DBGSS, and a number of small businesses have flourished as a result.

In addition, the Partnership must maintain its involvement with enterprise development. Tokafala is a good example. The three-year partnership between the Government, Debswana, De Beers and Anglo American is intended to foster the growth of commercially viable SMMEs in Botswana.

The Partnership provides a model of how public and private interests can work together for the long term. Central to this is an aligned vision, namely a deep appreciation of diamonds as a finite, luxury product, and a long-term approach to creating value from one of nature's treasures. The Partners will need to retain this long-term vision in order to deliver the next 50 years of development.

BOTSWANA REMAINS ONE OF THE MOST PROSPECTIVE COUNTRIES IN THE WORLD FOR DIAMOND EXPLORATION.

Diamond sorting at DTC Botswana.

GLOSSARY

DBGSS	De Beers Global Sightholder Sales.
Direct contribution	The employment which results from the supply of the Partnership's goods and services. This is equal to the number of its employees.
DTCB	Diamond Trading Company Botswana.
GDP	Gross Domestic Product – a measure of output of all final goods and services produced within a country's borders in a given year. It includes all private and public consumption, Government outlays, investments and exports less imports that occur within a country.
GRB	Government of the Republic of Botswana.
GVA	Gross Value Added – the company-level equivalent of GDP which is made up of a company's wages and profits. Adding up the GVA of all individual companies in the economy is equivalent to a country's GDP after adjusting for taxes and subsidies on products, a component of GDP which is not included in the calculation of GVA.
Indirect contribution	The employment which results from the Partnership's demand for goods and services from its suppliers and their suppliers.
Induced contribution	The employment in the wider economy which results from wages being spent by the employees of the Partnership and its suppliers.
ODC	Okavango Diamond Company.

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APPENDIX 1: DETAILED MODELLING METHODOLOGY

OVERVIEW

PwC completed the data capture and modelling for this report using internationally recognised methodology, as detailed below and illustrated in Figure 15.

The Partnership's contribution is defined in terms of its contribution to GDP and employment supported.

Contribution to GDP is measured in terms of Gross Value Added (GVA). GVA is a monetary measure of the value a company adds during its production process. Hence, it is the difference between the price of its products (outputs) and the price of the inputs it uses in producing these (or intermediate consumption).

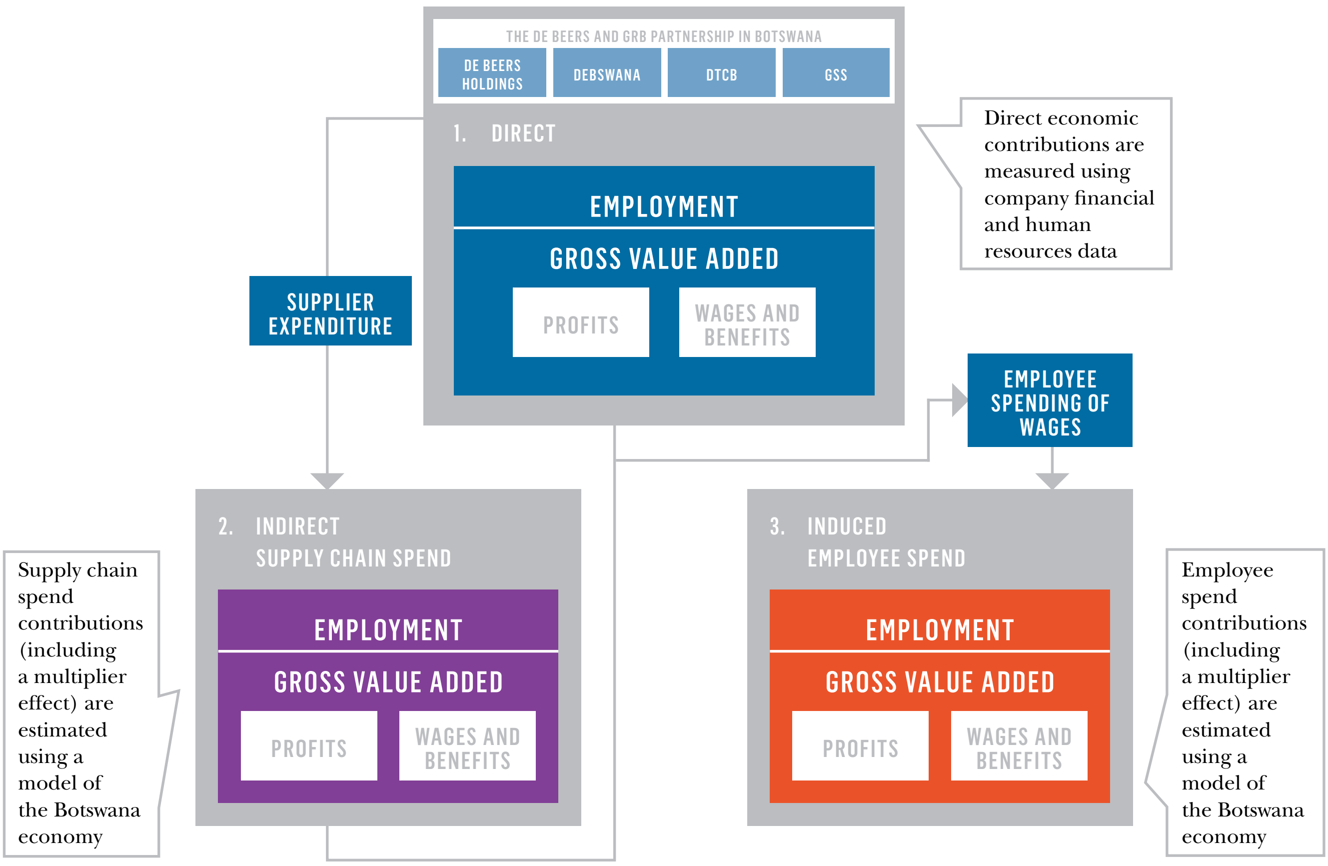
Adding up the GVA of all individual companies in the economy is equivalent to a country's GDP after adjusting for taxes and subsidies on products, a component of GDP which is not included in the calculation of GVA. As such, GVA is the company- and industry-level equivalent of GDP.

The contribution to GDP and employment is estimated at the direct, indirect and induced levels. The direct contribution results from the company's own operations, and includes the people employed directly by a company as well as the economic value the company creates. The indirect contribution is generated in a company's supply chain through the procurement of inputs. The induced contribution is generated through the spending by employees throughout the value chain from their earnings. It includes the spending of both the Partnership's own employees and those in its supply chain. In our report, these contributions have been called direct, supplier expenditure and employee expenditure to make it easier for readers not familiar with the economic terminology.

The Partnership's direct contribution to GDP is measured using an income approach from data contained in each entity's financial accounts, which are prepared on an accruals basis for the financial year rather than relating to the cash spent during the year. The following equation is used:

Direct contribution to GDP=
(profit before interest and taxation + employee costs + deprecation + amortisation)

FIGURE 15: CALCULATING THE PARTNERSHIP'S ECONOMIC IMPACTS



APPROACH TO ESTIMATING INDIRECT AND INDUCED ECONOMIC CONTRIBUTION

Indirect and induced economic contributions are estimated using an input-output model which was constructed using an input-output table of the Botswana economy.

The input-output table provides information on each sector's intermediate consumption. Intermediate consumption is the value of the goods and services consumed as inputs by the process of production. It is assumed that the intermediate consumption values from the input-output table are typical of the average inputs a business in each sector requires for producing one unit of output. This enables an understanding of how industries relate to each other. On this basis, it is possible to estimate how spending by one company stimulates economic activity elsewhere in the economy.

The indirect contribution is estimated using the Partnership's operational expenditure data. This spending data is then mapped to a sector of the economy. It is therefore possible to estimate each supplier's inputs from other sectors required to produce the product or service purchased by the Partnership. In this way, it is possible to estimate the Partnership's input requirements through the entire supply chain, and to estimate the total output stimulated. This process of one company stimulating economic activity in other companies is referred to as the multiplier effect.

In addition to the indirect and induced effects, an input-output table provides data on the share of output that constitutes profit and wages for each sector. This ratio can be applied to the total output stimulated. Hence, the total GVA in the supply chain can be estimated.

Similarly, the input-output tables have been combined with sectoral employment data. As the output stimulated in each sector is known, it is possible to estimate the output to employment ratio. This can be applied to the total output stimulated in the supply chain. This allows the employment supported in the supply chain (the indirect employment) to be estimated.

These steps are repeated to estimate the induced contribution, but by using compensation of employee data to estimate how much production is stimulated in the supply chain that supports the products employees buy, eg, accommodation, food and entertainment.

MODEL DATA SOURCES

The input-output model is based on an input-output table built in 1993/94. Input-output tables are typically based on data collected through business surveys undertaken by national statistics offices on an infrequent basis. The reference 1993/94 input-output table has therefore been combined with national statistical data for 2014 (or the latest available where 2014 data is not yet released). A list of data used is provided in the Table 1 below.

While 2014 data is used to inform the total size of each sector of the economy, it does not capture how relationships between sectors have changed. The distribution of spending between sectors is therefore based on the 1993/94 reference table.

Estimating an input-output model for a recent year is difficult. A standard approach is to start with a consistent input-output table for a particular prior period and to update it for a later period. Updates were made to labour and capital productivity and the GVA of different sectors from the national accounts. Information on intermediate consumption – buying and selling – between sectors still depends on the original data.

This approach is described in Robinson, Cattaneo and El-Said (1998) and is used in several recent studies (eg, Sanjay et al (2013) and Arita et al (2013)).

TABLE 1: KEY DATA SOURCES FOR INPUT-OUTPUT MODELS

Data	Source
Input-output tables	GTAP (Narayanan, G., Badri, Angel Aguiar and Robert McDougall, Eds. 2012. Global Trade, Assistance, and Production: The GTAP 8 Data Base, Center for Global Trade Analysis, Purdue University)
Botswana GVA and GDP	Bank of Botswana Financial Statistics – March 2015
Botswana compensation of employees and gross output	Statistics Botswana National Accounts – 2012
Employment	Bank of Botswana Annual Report 2014, People and Housing Census 2011 and Statistics Botswana Household Surveys
Exchange rates	The World Bank

APPENDIX 1: DETAILED MODELLING METHODOLOGY

CONTINUED

KEY ASSUMPTIONS AND NOTES

All data presented is in 2014 prices.

All analysis is done in gross terms. The net contribution of the Partnership to the economy is not assessed.

Data from De Beers and Anglo American has been used to perform this analysis. PwC has not tested or audited any of the data provided by De Beers, and PwC provides no assurance over that data or any outputs based on that data.

Where 2014 national statistics are not available, 2014 estimates have been derived using the latest data available, scaled by the growth rate of GVA over the period that is missing.

DBGSS is currently not captured in the national accounts. DBGSS's direct contribution to GDP has therefore been added to the GDP data provided by the statistics authorities.

The latest employment data for Botswana only captures formal employment. The People and Housing Census conducted in 2011 provides the latest complete picture of total employment in Botswana. To estimate how this has changed, the ratio of formal to informal employment is calculated and is assumed to have remained constant since 2011. This ratio has been applied to the 2014 formal employment data to estimate the total employment in Botswana.

De Beers is a group of entities. Payments made between the Partnership's entities are not included in intermediate consumption tables to avoid double counting contributions. These payments are adjusted using an Inventory Valuation Adjustment approach, in which they are treated as inventory rather than intermediate consumption.

Non-cash accounting items have been removed from the Partnership's income statements as agreed with De Beers. This is to make sure the analysis only captures the contribution of the Partnership's spending in Botswana.

ENDNOTES

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34. GVA is the company-level and sector-level equivalent of GDP and adding up the GVA of all individual sectors in the economy gets you to a country's GDP (after adjusting for taxes and subsidies on products.
35. United Nations (1999) Handbook of Input-Output Table Compilation and Analysis, Series F No. 74, Accessed from: http://unstats.un.org/unsd/publication/SeriesF/SeriesF_74E.pdf#) (Accessed 20 October 2015).
36. Based on estimates of formal employment in 2014. Formal employment data is only available from Statistics Botswana until 2012. Formal employment is taken from the Bank of Botswana and excludes working proprietors, unpaid family workers and small businesses with fewer than five employees.
37. World Bank, (2014). World Development Indicators. Actual figures for Botswana's GDP in 2014 was US$14.98 billion with Agriculture responsible for 2.4 per cent.
38. In 2014, DBGSS's output was not captured in Botswana's national accounts. Therefore DBGSS's direct contribution to GDP has been added to the GDP data provided by the statistics authorities in the modelling of Botswana's economy.
39. This is consistent with the methodology used in the Anglo American Sustainable Development Report and Tax & Economic Contribution Report and is in line with industry best practice.
40. Note that dividends payable in respect of the Government's 15 per cent shareholding in the broader De Beers Group are not included in this report, as they are generated outside of Botswana.
41. Debswana Report to Society (2014), available at: http://www.debswana.com/Media/Reports/Debswana%20Report%20to%20Stakeholders%202014.pdf (Accessed 8 October 2015).
42. The figures presented on operational spending with local suppliers and operational spending with international suppliers differ from those recorded in the Debswana Report to Society due to differing definitions, the exclusion of CAPEX and the fact this is referring to the whole group of companies rather than just Debswana.
43. Goodman, S., Bratt, M., & Brantberg, L. (2014). Perspectives on the Diamond Industry. Mckinsey and Company, Print.
44. Cut-8 is projected to employ several part-time employees. The hours worked by the part-time employees has been used to convert the number of part-time jobs into the equivalent number of full-time jobs.
45. Jefferis, K., et al (2013).

LIST OF FIGURES

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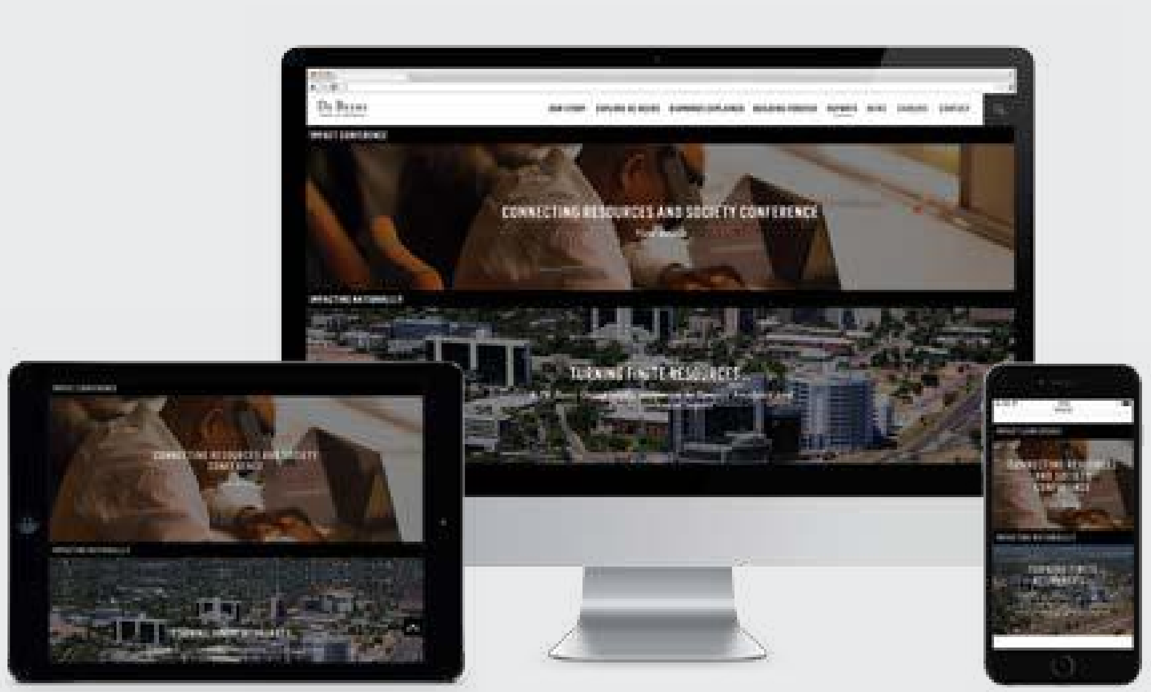

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