

# The Sparkling History of Botswana



Chobe National Park, Botswana.

By Chris Cann

**H**istorically high commodity prices have made Africa – home to serious mineral wealth – a far more attractive mining destination in recent years. Many previously obscure countries have risen to prominence as the lure of world-class discoveries outweighs the political risk usually associated with the Dark Continent, the [Democratic Republic of Congo](#) or [Mozambique](#) to name a couple.

However, the landlocked nation of [Botswana](#), sandwiched between [Namibia](#) and [Zimbabwe](#) and situated above South Africa, has been an established mining province for close to 40 years. In contrast to many of the politically fragile and war-torn countries of

Africa, Botswana is a haven for foreign investment. It has figured at the head of international sovereign risk surveys, such as the [Behre Dolbear](#) risk survey, for years, while other African nations have been consumed by domestic turmoil, and the current boom has only served to strengthen Botswana's position.

Botswana is most famous for its diamond industry, which is dominated by South African diamond giant, [De Beers](#), in partnership with the [Botswana Government](#). De Beers began exploring for diamonds in Botswana in 1955, when the country's economy survived on agriculture. The [Orapa pipe](#) - currently the second largest pipe in the world with a surface diameter of 262

acres - was discovered in 1967, only a year after Botswana's independence and, a year later, two smaller pipes were found 40 km away at Letlhakane.

The [Jwaneng](#) discovery followed in 1972, one year after the Orapa mine was commissioned, and the [Letlhakane](#) mine was

commissioned four years later in 1975. De Beers agreed to build the Jwaneng mine in 1978 in partnership with the Botswana Government. At the same time, the

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**The mineral landscape of [Botswana](#) is far from one-dimensional; however, diamonds continue to drive the nation's economy and attract international investment ahead of any other commodity.**

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company and the Government established [Debswana](#), a separate entity half owned by De Beers and half-owned by the Government, which was to hold the diamond mining rights of the nation. Along with Orapa, Letlhakane and Jwaneng, Debswana also commissioned [the Damtshaa mine](#), in 2002.

Debswana currently delivers about 30% of the world's gem diamonds. In 2006, Jwaneng produced 15.6 Mct. In the coming years, production will vary between some 12.5 Mct/y and 15 Mct/y, according to De Beers' mine plan. "[The] excellent rate of recovery, combined with the very high quality of the diamonds, continues to make Jwaneng mine the richest diamond mine in the world, by value," the company boasts. In 10 years, the

Jwaneng mine is planning to move from an open pit operation to an underground operation. This second phase of mining

at Jwaneng is designed to extend the life of the operation by another 10 to 15 years.

[Orapa](#), Debswana's oldest running diamond mine, is a conventional open pit operation about 240 km west of [Francistown](#). Orapa's production continues to contribute significantly to Debswana's total carat output, with 17.3 Mct recovered in 2006, according to company data. In 2006, diamonds recovered at the Letlhakane mine were 1,089 Mct. The mine is managed from the larger Orapa operation. Prospecting in the region of the Orapa kimberlite pipe continues. Damtshaa has been forecast to yield 5 Mct from 39 Mt of ore that are to be mined over a 31-year projected mine life. Some 228,000 ct were recovered at Damtshaa in 2006, although engineering firm Bateman was looking at the feasibility of almost doubling that production to 400,000 ct.

"The carat profile for Damtshaa is not smooth through the years due to the varying grades of the different rock types in the pits. This has resulted in an average of 161,000 ct/y," Debswana stated.

All the Debswana mines use dense media separation (DMS)-based processing plants, designed by [Bateman Engineering](#). Orapa, Letlhakane and Damtshaa concentrate is put through the multi-storey completely automated recovery plant (CARP) at Orapa, while Jwaneng concentrate undergoes the same process on site. The Jwaneng CARP is part of the Aquarium project that reached full capacity during 2003 and added the fully integrated sort house (FiSH) to handle the diamonds recovered by both CARPs. The FiSH has been handling material from all the Debswana's diamond operations since October, 2003. The Jwaneng mine Aquarium plant is the first of its kind in the diamond mining industry.

Fellow South African company [African Diamonds](#) (AFD), in a joint venture with De Beers, submitted a mining licence application covering the development of the AK6 discovery to the Government in September last year. The AK6 kimberlite diamond discovery is in the Orapa region of Botswana and is majority owned by De Beers with AFD holding a minority interest. This comprehensive six-volume application envisages production start up in late 2009 at an annual production rate of 2.7 Mt/y of kimberlite, rising to 4.2 Mt/y in 2011. The first phase capital cost is estimated at some \$220 million (including project contingency).

The mine could produce about 1 Mct/y, when in full production. A financing package to meet the capital cost has been put in place. [ASX-listed DiamonEx](#) had targeted mining to begin before the end of 2008 for initial diamond production in February, as Managing Director Dan O'Neill told delegates at the 2007 [Paydirt World Diamond Conference](#) in Perth late last year.

"The company is obviously entering a very exciting time in its history," he told delegates.

"Our Lerela kimberlite project has a JORC-compliant Indicated resource of 3.7 Mct at 27 ct/100 t, with the potential to produce 330,000 ct/y. At today's market rate, we expect to have operating cash flow of about \$100 million on \$230 million revenue over 10 years. Lerela will be a low capital and low operating cost mine with a life of about 10 years."

UK-based [Firestone Diamonds](#) is also joint ventured with De Beers, having laid claim to fresh holdings within the Jwaneng

and Orapa regions. The joint venture covers tenements over 4,900 km<sup>2</sup> and 3,700 km<sup>2</sup> at Orapa and Jwaneng respectively. In both instances, De Beers is earning a 61%-interest by funding all exploration and evaluation work up to completion of a bankable feasibility study.

Of greater significance to the company is its [Tsabong project](#), 240 km southwest of Jwaneng, which is one of the largest diamondiferous kimberlite fields in the world, according to Firestone. "Tsabong is noted for the exceptionally large size of many of its kimberlites, in particular the 180 ha MK1 kimberlite, which is one of the largest diamondiferous kimberlites known. The Tsabong field also contains five kimberlites larger than 50 ha and 30 kimberlites between 20-50 ha in size," the company stated.

Gem Diamonds purchased Gope Exploration, which was established as a joint venture between De Beers and Xstrata, in May last year. Gem now has the rights over a significant known kimberlite deposit at Gope with an Indicated resource that has increased by 23% since the acquisition to 97 Mt, which stretches to a depth of 400 m below surface at a grade of 19 ct/100 t. With the 18.8 Mct resource at an Indicated level, Gem considered the resource related risk to be low. The relatively high value of the diamonds – a parcel of 3,400 ct recovered during sampling was valued at \$121/ct – the property is extremely attractive. ■

*Adapted from Chris Cann's article in [International Mining](#), Feb. 2008*

## Links and References

- [African Diamonds](#)
- [Australian Securities Exchange listed companies](#)
- [Bateman Engineering](#)
- [Behre Dolbear](#)
- [Botswana Country Profile](#)
- [Botswana Government](#)
- [Damtshaa Mine](#)
- [Debswana](#)
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- [Democratic Republic of Congo](#)
- [Firestone Diamonds](#)
- [Francistown](#)
- [Jwaneng](#)
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