SGS Bateman
Diamond Capability







August 2021

1. Diamond Experience

1.1 Introduction

SGS Bateman is a global operating company within SGS Natural Resources, which is in turn a business within the SGS Group. SGS is the world's leading inspection, verification, testing and certification company. SGS has an annual revenue of approximately USD 6 billion and is recognised as the global benchmark for quality and integrity. With more than 89 000 employees, SGS operates a network of over 2 600 offices and laboratories around the world.

Founded in South Africa in 1921, SGS Bateman has served the minerals industry in South Africa and globally for the last 100 years. SGS Bateman is a uniquely differentiated project execution Group in terms of its focus on "process engineering" in the minerals industry. This process competence together with an extensive and well proven suite of design and project management systems and procedures equips SGS Bateman well to execute global projects. The group has a worldwide reputation for the development and execution of minerals projects for a large number of Clients, in a range of geographical situations in over 50 countries and under a variety of contractual structures.

A key factor in the success of SGS Bateman projects has been its applied in-house engineering capabilities in unit processes. SGS Bateman's ability to provide cost-effective facilities for processing ores is based strongly upon its technological capability and project know-how of minerals processing, smelting and refining operations.

With systems and procedures aligned to ISO 9001:2015 and ISO 45001:2018, SGS Bateman has the competence and experience to support its Clients through the full life cycle of their minerals projects - from initial test work of drill samples, through laboratory and pilot programmes, feasibility studies, front-end engineering, procurement, and construction to commissioning of fully operational plants. These services may be offered on EPCM, EPC or LSTK terms to suit the requirements of Clients.

SGS Bateman is a Level 2 B-BBEE company and in all of its developing world project locations SGS Bateman aims to positively engage communities where the projects are sited and to create value and build sustainable capacity within those communities. SGS Bateman sees the community as a vitally important stakeholder in the project and its support as essential to the success of the project as well as the Owner's ongoing business activities.

1.2 History

Bateman's involvement in diamond process plant supply started in 1967 with the provision of a small portable 10 tph heavy media plant to Brazil Diamante. This was rapidly followed by a 30 tph plant for the same client. Both projects were executed successfully and drew the attention of larger operating companies such as De Beers.

In 1968 two more portable 15 tph Dense Media Separation (DMS) plants plus ancillary equipment were supplied for pilot plant sampling purposes at the newly discovered Orapa diamond pipe in Botswana. Success with these projects led to a contract award for a 400 tph plant in Namibia at Consolidated Diamond Mines. This was soon followed by a similar DMS plant as well as the final recovery plants at Orapa.

In the early 1970s, international recognition was achieved through the provision of DMS and X-ray recovery plants to Diamang, Angola and with the supply to Miba, Zaire of a transportable DMS plant. With the international expansion of the SGS Bateman Group the range of applications, supplied equipment and project size developed dramatically.

The Finsch project valued at upwards of US$65 million was at that stage the largest of its kind in the world and was completed in less than two years. This project was executed by combining the process design and project management expertise within SGS Bateman, a philosophy which became the foundation for future business development.

The Argyle project in Western Australia was widely regarded as a milestone. SGS Bateman executed the A$400 million project on time and under budget - an incredible feat considering the remote location. Subsequently, in JV with an Australian partner, SGS Bateman executed an expansion programme enabling Argyle to become the world's largest diamond producer at more than 40 million carats per year.

During an otherwise quiet period in the diamond industry SGS Bateman was awarded the detailed process and engineering design and commissioning of the 420 tph Recrush DMS plant for the Jwaneng Mine in Botswana. The plant featured a high degree of automation and was designed to be controlled and monitored remotely with minimal operator attendance.

SGS Bateman's expertise was further enhanced by involvement in the 780 tph Venetia Main Treatment Plant Project for De Beers. After completing an initial cost estimate study, SGS Bateman was awarded a contract to carry out the detailed process and engineering design of the plant, procurement and commissioning functions. The plant incorporates state of the art technology, and is designed to operate with a very low level of operator attendance. A fully distributed control system involving local

programmable logic controllers, sometimes with hot standby support, is interfaced to the plant operator via supervisory computers.

1.3 Recent Projects

Some of SGS Bateman's more recent diamond projects include:

- Debswana Large Diamond Plant from concept study to execution and commissioning completed in 2018
- Execution engineering on the US$450M Debswana Jwaneng Cut 8 project is currently in progress and due for completion in 2011.
- Finsch treatment plant upgraded to 7.2 Mtpa completed in 2008 (US$65M).
- Letseng No.2 diamond Treatment Plant upgrade from 2.6 to 5.2 Mtpa completed in 2008 (US$44M).
- The Trans Hex Baken Alluvial Diamond Treatment Plant in South Africa.
- Fitment of a processing plant on the MV Peace in Africa (De Beers Marine) completed in 2007 (US$21M)
- Dump Retreatment Plant for Namdeb completed in 2007 (US$9M).
- Debswana Damtshaa Kimberlite Diamond Treatment Plant expansion from 200 t/h to 400 t/h of kimberlite in Orapa Botswana (US$12M) completed in 2006. SGS Bateman bulit the original plant built in 2002.
- Replacement of the Venetia Mine primary crusher (US$31M) completed in 2006.
- The Elizabeth Bay Liberation Project which is a SCADA controlled crushing, milling and screening plant for Namdeb in Elizabeth Bay Namibia (US$50M) completed in 2004.

In addition, SGS Bateman has designed a range of modular, semi-transportable heavy medium cyclone and X-ray plants suitable for either small operations or for remote locations. These have proved especially successful and form a separate business unit. Currently a range of standard plant designs from 1 tph to 350 tph modules are available. These plants feature proven technology with each being pre-assembled and water tested prior to delivery. The development of these reliable and cost effective modular plants has attracted a number of international clients and in the past ten years plants have been installed in Botswana, Namibia, DRC, Angola, South Africa, Canada, Russia, Australia and the Middle East.

Some recent clients include:

- SACIM - DRC
- Catoca - Angola
- Debswana - Botswana
- De Beers – South Africa

- Namdeb - Namibia
- Sonop – South Africa
- Oryx Resources - DRC
- Miba – DRC
- Escom – Angola.

All these are repeat customers which testifies to SGS Bateman's quality of work. The diamond plant references for the past 5 years are listed below:

Client	Location	Project Description	Scope of Supply	Year
SACIM	DRC	150 tph Front End & 100 tph DMS Plant	EP	2018
Debswana	Botswana	Large Diamond Pilot Plant Execution	EPC	2018
Debswana	Botswana	Large Diamond Pilot Plant Detailed Design	Engineering	2017
Debswana	Botswana	Large Diamond Pilot Plant Design	Engineering	2016
Debswana	Botswana	Recovery of Fine Diamonds Concept Study	Concept Study	2015
De Beers	South Africa	Venetia Chute Design	Engineering	2015
Debswana	Botswana	Daamtsha Mixing Box Design	Engineering	2014
Debswana	Botswana	X-ray Technology Trade-off Study	Trade-off	2014
Debswana	Botswana	Jwaneng Cut 9 Concept Study	Concept Study	2014
Debswana	Botswana	Orapa Electrical, Platework & Piping Assessment	Consulting	2013
Debswana	Botswana	Large Diamond Recovery Solution DFS	DFS	2013
Debswana	Botswana	Large Diamond Recovery Solution Concept Study	Concept Study	2012
Debswana	Botswana	Jwaneng Cut-8	Execution Engineering	2011
Debswana	Botswana	Jwaneng Recrush Disggloeration - FS	Study	2010
Gem Diamonds	Angola	Gem Chiri - PFS	Study	2009
Debswana	Botswana	Jwaneng Cut-8 - FS	Study	2009
De Beers - DBCM	South Africa	Finsch Mine 7.2 million t/y	EPCM	2008
Koidu Holdings	Angola	200 tph Plant	Study	2008

Debswana	Botswana	Jwaneng Recrush Dissagglomeration - PFS	EPCM	2008
Gem Diamonds	Lesotho	Letseng Mine 350 t/h	EPCM	2008
Alrosa	Angola	Camatchia PFS	Study	2008
Diamond Core Resources	South Africa	Silverstreams DMS Plant 50 t/h	EPC	2007
Diamond Core Resources	South Africa	Paardeberg East DMS Plant 50 t/h	EPC	2007
De Beers Marine	South Africa	SASA Vessel	EPCM	2007
De Beers - DBCM	South Africa	Kimberley CMR facility	DSPC	2007
Debswana	South Africa	Jwaneng MTP - PFS	Study	2007
Gem Diamonds	Lesotho	Letseng Mine	DSPC	2007
De Beers - DBCM	South Africa	Finsch Mine 7.2 million t/y	DSPC	2008
De Beers - DBCM	South Africa	Venetia Mine Fire Escape	DSPC	2006
De Beers - DBCM	South Africa	Venetia Mine Resources	DSPC	2006
De Beers - DBCM	South Africa	Venetia Mine Dismantling	DSPC	2006
Debswana	South Africa	Orapa Plant No. 3 FS	Study	2006
De Beers	Botswana	AK6 Mine Study	Study	2006
Debswana	Botswana	Orapa Bulk Sample – Desktop Study	Study	2006
Debswana	Botswana	Damtshaa Double-up 400 t/h Implementation	EPCM	2006
Namdeb	Namibia	No 3 Plant Upgrade – Dump Treatment	DSPC	2006
Metallon	Angola	Luachisse Scoping Study	DSPC	2006
De Beers - DBCM	South Africa	De Beers Marine SASA Main pit – doc express vessel	DSPC	2006
De Beers - DBCM	South Africa	Venetia Mine Ramp-up	Study	2006
Debswana	Botswana	Damtschaa double-up FS	Study	2005
De Beers - DBCM	South Africa	Kimberley Mines	Study	2005
De Beers - DBCM	South Africa	Kimberley Mines – CRDF Feasibility Study	Study	2005
Debwana	Botswana	Orapa & Lethlakane Mines	Study	2005

De Beers - DBCM	South Africa	De Beers Marine – SASA ML3 Study	Study	2005
Debswana	Botswana	Damtshaa Double-up	DSPC	2004
De Beers - DBCM	South Africa	Finsch Mine – Class III FS	Study	2004
Namdeb	Namibia	Namdeb Dump Re-treatment – Oranjemund	Study	2004
De Beers - DBCM	South Africa	Finsch Mine – Feed Preparation Study	Study	2004
Kansai Mining Corp.	Venezuela	70 tph Front-end, 10tph DMS and Recovery Plant	DSPC	2004
Escom Groupo Espirito Dos Santos	Angola	Front-end, DMS Upgrade & Recovery Plant	DSC	2004
De Beers	N. Cape	Kimberley Coarse Rejects Dump Facility Study	Study	2004
Camutue	Angola	140 tph ROM, 50 tph DMS & Recovery Plant	DSC	2004
De Beers - DBCM	South Africa	Kimberley Mine – CTP Plant Upgrade FS	DPCS	2004
De Beers	N. Cape	Kimberley NTP Plant Upgrade Study	Study	2004
Superstone Diamonds	N. Cape	Grease and X-ray Recovery Plant	DSC	2004
De Beers - DBCM	South Africa	Venetia Mine – Feasibility Study	Study	2004
Venetia	Limpopo	Primary Crusher Feasibility Study	DSC	2004
Miba NLK2	DRC	Scrubbing screening and crushing with 200 tph DMS	Study	2004
Debswana	Botswana	FeSi Plant Study	DSC	2004
Oryx Resources	DRC	Tchibue Expansion Project, Diamond Treatment Plant	DSC	2004
Catoca Mining	Angola	1 x 30 tph DMS	DSC	2004
Catoca Mining	Angola	2 x 40 tph DMS	DSPC	2004
Namdeb	Elizabeth Bay Namibia	Crushing milling & screening project	DSPC	2004
Shore Gold	Canada	10 tph Front-end, DMS & recovery Diamond Sampling Plant	DSPC	2004