

# OPERATIONAL PROFILE 2017



**OBUASI**  
GHANA

Obuasi, which has been primarily an underground operation, mining to a depth of 1,500m, is located in the Ashanti Region, approximately 60km south of Kumasi. The mine was placed on limited operations towards the end of 2014, and has been on care and maintenance since 2016, pending commencement of the redevelopment project. A study into the redevelopment of the mine has been completed. It is envisaged that the planned redevelopment will deliver a modern, mechanised underground mining operation. Redevelopment work is imminent as agreement has been reached with the government of Ghana for the mine's redevelopment, subject to ratification by Ghana's parliament of the relevant fiscal and development agreements. These agreements have been signed by the government.



# HIGHLIGHTS

## REDEVELOPMENT STUDY COMPLETED

## OBUASI TO BE MODERNISED AND MECHANISED

## AGREEMENT REACHED

with Government of Ghana

As at 31 December 2017:

- **MINERAL RESOURCE**

of 34.05Moz (inclusive)  
(7.11Moz below infrastructure)

- **ORE RESERVE** of 5.86Moz

(1.13Moz below infrastructure)



### Obuasi redevelopment – an update

Obuasi, which was placed on care and maintenance in 2016, remained so throughout 2017. The cost of Obuasi’s care and maintenance programme was \$62m in 2017 (2016: \$70m).

The invasion of a part of the mine by illegal miners in 2016, as reported on extensively in our Integrated Report 2016, has been resolved and the mine’s operational area has been cleared of illegal miners. Public security agencies provided security at the mine throughout 2017, and continue to do so.

AngloGold Ashanti was in discussions with the government of Ghana throughout 2017

to secure the necessary agreements and permits for the possible redevelopment of the mine. The boards of AngloGold Ashanti (and its relevant subsidiaries) have approved the redevelopment of Obuasi, now expected to commence subject to ratification by Ghana’s parliament of the relevant fiscal, development and security agreements. These agreements have been signed by the government of Ghana.

The board therefore approved interim funding of \$31m to cover the first six months to enable the project team to be established and to set-up the front-end engineering and design, so as not to delay the project.

The study into Obuasi’s redevelopment was completed with improvements in returns and payback period. This was achieved with an improved geological model, phased capital expenditure and the supportive agreements signed with the government of Ghana.

The redevelopment will establish Obuasi as a long-life, modern, mechanised underground mining operation. This is a fundamental departure from the mine’s previous operating model. The redevelopment will deliver a mine that makes use of automation and controls for improved operational efficiencies and consistency in performance. It envisages a smaller but more skilled workforce that can operate in the planned mechanised and automated environment.

The detailed feasibility study covers every aspect of the mine, including operating methods, systems and processes, environmental management and mine rehabilitation, organisational design, human resource strategy and social responsibility, among others.

**Obuasi project: key metrics**

Gold produced (economic footprint)	<b>Moz</b>	<b>8.59 over 21 years</b>
Annual gold production (steady state – first 10 years)	000oz	<b>350 – 400</b>
Annual gold production (second 10 years)	000oz	<b>400 – 450</b>
Average annual tonnage treated (steady state)	Mt	<b>1.6 – 1.8</b>
Average head grade	g/t	<b>8.8</b>
Gold price assumption (Real)	\$/oz	<b>1,240</b>
Cash cost per ounce (money terms at approval)	\$/oz	<b>590 – 680</b>
All-in-sustaining cost (money terms at approval)	\$/oz	<b>750 – 850</b>
Initial project capital expenditure (three years)	\$m	<b>450 – 500</b>
2018	%	<b>25</b>
2019	%	<b>55</b>
2020	%	<b>20</b>
Extended project capital expenditure over six years (includes initial project capital)	\$m	<b>540 – 590</b>
Capitalised operating cost	\$m	<b>64</b>
Internal rate of return (\$1,100 – \$1,240/oz)	%	<b>16 – 23</b>
Payback period	years	<b>6.5</b>
All-in sustaining cost margin	%	<b>38</b>

For more information, see the Regional review – Continental Africa in the <IR> 2017.

**Sustainability performance**

For further information on sustainable development activities related to Obuasi, including safety and health, employee relations, the environment, communities, and security and human rights, refer to:

- *Regional reviews – Continental Africa* in the <IR>, available at [www.aga-reports.com](http://www.aga-reports.com)
- <SDR>, also available at [www.aga-reports.com](http://www.aga-reports.com)



## OBUASI – KEY STATISTICS

	Units	2017	2016	2015
<b>Operational performance</b>				
Cut-off grade <sup>(1)</sup>	oz/t	<b>0.120</b>	0.128	0.146
	g/t	<b>4.10</b>	4.40	5.00
Recovered grades	oz/t	–	0.023	0.043
	g/t	–	–	1.47
Tonnes treated/milled <sup>(2)</sup>	Mt	–	–	1.0
Gold production <sup>(2)</sup>	000oz	<b>3</b>	3	53
Total cash costs <sup>(2)</sup>	\$/oz	–	167	966
All-in sustaining costs	\$/oz	–	440	1,185
Capital expenditure <sup>(2)</sup>	\$m	–	6	23
Productivity <sup>(2)</sup>	oz/TEC	–	–	5.76
<b>Safety</b>				
No. of fatalities <sup>(2)</sup>		<b>0</b>	0	1
All injury frequency rate (AIFR) <sup>(2)</sup>	per million hours worked	–	0.30	1.28
<b>People</b>				
Total average no. of employees		<b>1,066</b>	766	856
– Permanent		<b>277</b>	299	710
– Contractors		<b>789</b>	467	146
<b>Environment</b>				
Water use <sup>(3)</sup>	ML	–	–	3,129
Water use efficiency	kL/t	–	–	3.28
Energy consumption <sup>(3)</sup>	PJ	<b>0.26</b>	0.30	0.56
Energy intensity	GJ/t	<b>0.00</b>	0.00	0.59
Greenhouse gas (GHG) emissions	000t	<b>36</b>	41	79
GHG emissions intensity	t CO <sub>2</sub> e/t	<b>0</b>	0	83
Cyanide use	t	–	0	1,065
No. of reportable environmental incidents		<b>2</b>	0	2
Total rehabilitation liabilities	\$m	<b>211</b>	216	210

<sup>(1)</sup> Based on the Ore Reserve.

<sup>(2)</sup> Obuasi was placed on limited operations at the end of 2014. In 2016, Obuasi was on care and maintenance.

<sup>(3)</sup> Sold effective 30 June 2014.