ABN AMRO Gold Mine Cost Report Q1 2011

VM Group/Haliburton commodity research - June 2011

- **Q1 2011 cost roundup**
- **Yearly cost roundup**
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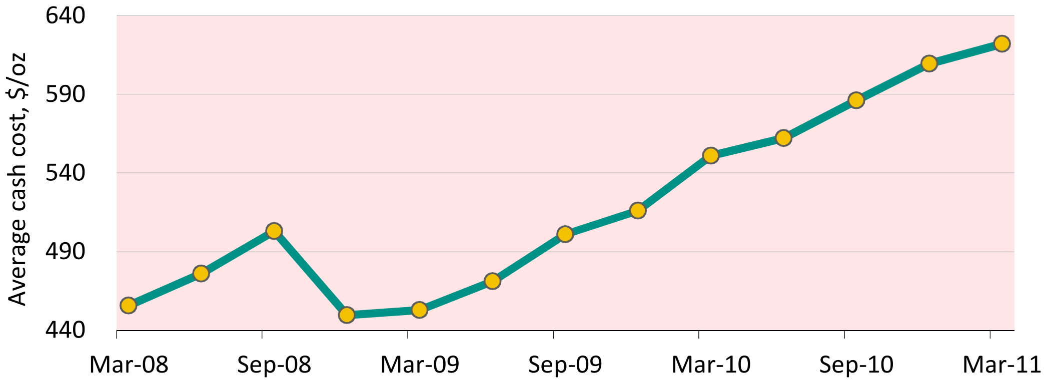
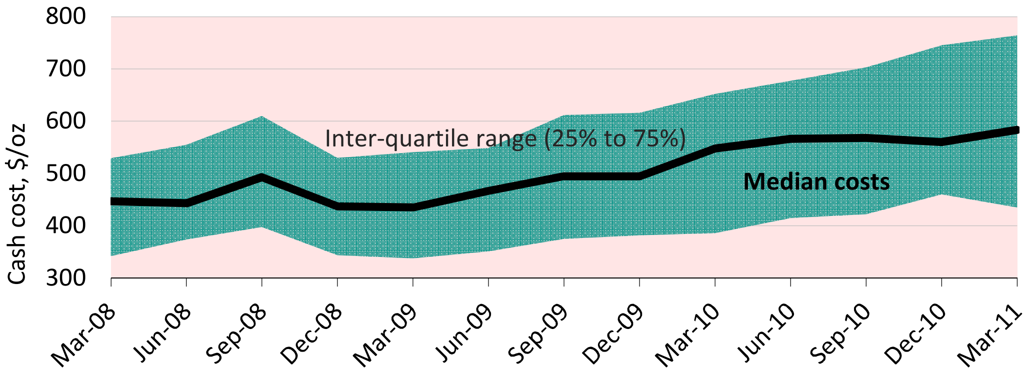
Average gold mine cash costs, Q1 08-Q1 11, $/oz



Q1 11 average gold mine cash costs rise $11/oz compared with Q4 10, to $620/oz

Source: VM Group, Haliburton Mineral Services

Median and inter-quartile cash costs, Q1 08-Q1 11, $/oz



Q1 11 median gold mine cash costs rise $21/oz Q-o-Q, while the inter-quartile range widens by $40/oz, to $325/oz

Source: VM Group, Haliburton Mineral Services

The Gold Mine Cost Report is produced as part of a joint venture between ABN AMRO Bank N.V. and VM Group/Haliburton Mineral Services. It surveys the gold production cash costs of 111 gold mining companies.

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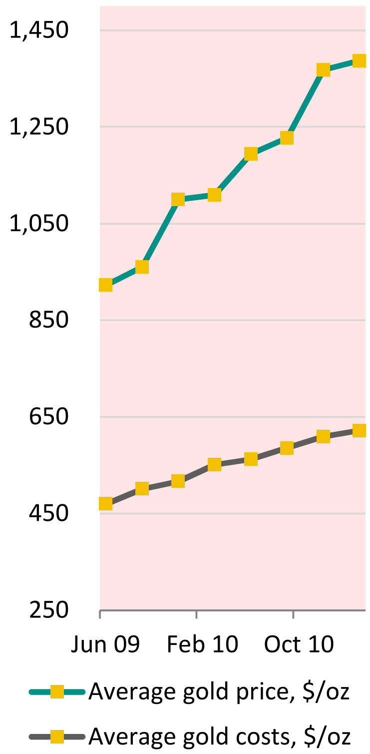
Methodology

Gold mine cash costs per ounce of production in this report are based on cost reporting from 111 gold mining companies worldwide, with a total of 274 mines existing in the most recent quarter. Although there is some variation in how companies report cash costs per ounce, most utilise the “Gold Institute Gold Cost Standard”. These costs include: direct mining and processing expenses; other onsite charges; third party smelting and refining charges; and royalties and production taxes net of by-product credits. Where reporting does vary from the Gold Institute Standard, recalculations have been made and in some cases estimates have been calculated and included where reliable data is not available. In our analysis we have excluded mines where gold produced is not the principal source of revenue.

The reader is cautioned that cash costs are only one component of total mine costs which, in addition to cash costs, would include depreciation, depletion, amortisation and reclamation and closure costs. Additionally at the corporate level there would be general and administrative expenses, as well as exploration expenses, etc.

Average quarterly gold price and cash costs, Q4 2008-Q1 2011, $/oz



Source: VM Group/Haliburton Mineral Services

Q1 2011 cost roundup

Average gold mine cash costs rise 1.8% to $620/oz[1] in Q1 2011

The gold mining industry's average cash[2] cost of production in Q1 11 was $620/oz, up by $11/oz or 1.8% from the previous quarter. This follows a 4.0% quarterly rise in costs in Q4 10. On a year-on-year basis, the average cash cost advanced by 13%, continuing the double-digit year-on-year growth seen in every quarter since Q3 2009, when costs fell by 0.4%. Median costs of production rose by almost 4%, to $583/oz in Q1 11, the largest quarterly increase since Q1 10 and a reversal of the slight decline seen in Q4 10. 9th decile high cost producers saw costs rise almost 11% on the quarter in Q1 11, to $959/oz. On a year ago comparison 9th decile costs are up 17% and, notably, 49% from two years ago. Lower quartile production costs fell for the first time since Q1 09, to $435/oz, down 5.4% from the previous quarter, while upper quartile costs advanced to $764/oz. This saw the interquartile range widen to a record $325/oz, up 14% quarter-on-quarter.

The net result saw the cost curve steepen as more mines moved into upper quartile and 9th decile ranges. One obvious factor in this rise in production costs over the past few years has been the weak US dollar – in which gold is priced. This is evident in the regional cost breakdown, where US production costs have significantly lagged increases elsewhere. Another important factor has been rising input costs. Energy and raw material costs have all increased, in part due to the vast amount of excess liquidity generated by various government stimuli measures following the financial collapse in Q4 2008. In South Africa, power supply bottlenecks have also weighed on gold miners' profits, while wage disputes and geological issues have also contributed.

Gold cash costs by year and quarter, $/oz unless stated

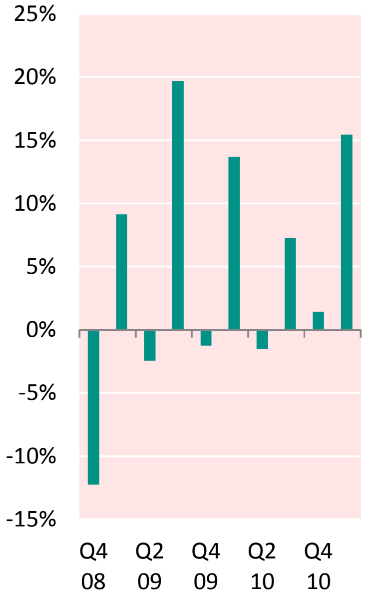
					2009			**2010**				**2011**
	2007	**2008**	**2009**	**2010**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**
Average cost	**394**	**470**	**485**	**579**	**471**	**504**	**517**	**551**	**562**	**589**	**609**	**620**
Ave gold price (pm fix)	695	872	972	1,225	922	960	1,100	1,109	1,194	1,227	1,368	1,387
Difference	*302*	*402*	*488*	646	451	456	583	558	632	638	758	767
Cost at various positions on curve												
25%	307	390	394	431	355	375	382	386	410	422	460	435
Median -50%	**385**	**460**	**476**	**565**	**467**	**495**	**495**	**550**	**566**	**575**	**562**	**583**
75%	458	560	574	699	549	614	625	652	677	705	745	760
90%	556	667	685	828	684	720	739	820	813	887	866	959
Costed production (Moz)	42.3	42.9	44.6	46.5	10.8	11.3	11.9	11.2	11.5	11.9	12.2	11.7
Costed production (tonnes)	1,315	1,335	1,388	1,430	336	351	372	347	357	370	379	364

Source: VM Group, Haliburton Mineral Services

[1] All costs are in US dollars per troy ounce unless otherwise indicated.

[2] The average cash cost of mine was calculated as follows: each mine's cash cost is multiplied by its production. This is determined for all 274 mines, and then divided by the total production of 11.7 Moz. For Q1 11 this gives a higher figure for average cash costs, $620/oz compared with the median, $583/oz.

Quarterly % change in inter-quartile range (upper quartile minus lower quartile), Q4 08-Q1 11

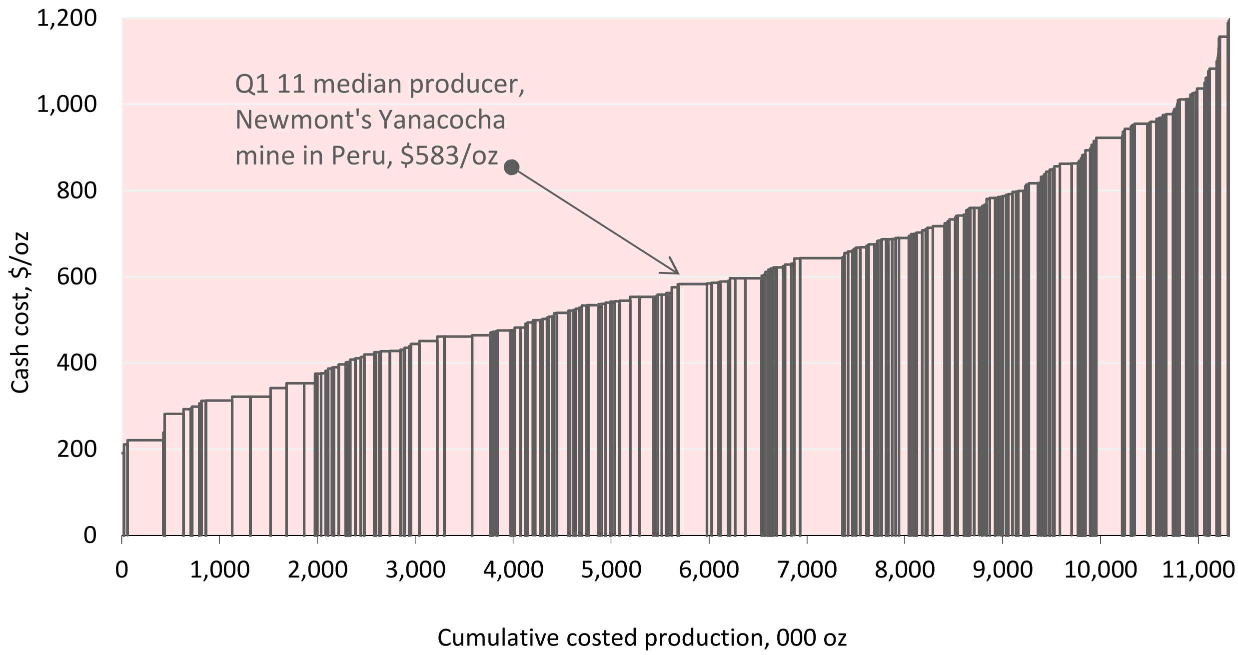


Source: VM Group/Haliburton Mineral Services

Despite rising costs, gold miners have never had it so good. Producer margins have widened significantly since the trough in Q4 2008. Globally, the difference between the average production cash cost and average gold price in Q1 2011 was a record $767/oz – up from $758/oz in Q4 10. This is also some $422/oz more than that seen by gold miners in Q4 2008. Hence for an average gold miner producing 100,000oz of gold each year, profits after production cash costs have been taken into account, are now $42m higher than in Q4 2008. For Barrick Gold, which produced 7.8 Moz of gold in 2010, using the Q1 2011 production costs to price differential and assuming the company had produced a similar amount of gold in Q4 2008, margins are up almost $3.3bn.

In South Africa, the difference between average South African gold mine production costs and the average gold price over Q1 11 fell to $518/oz, from a record $541/oz in the previous quarter. For the rest of Africa, however, the difference between the average cost of production of $647/oz (down 5% q-o-q) and the average gold price grew to a record $740/oz. Latin America remains the most competitive region with the production cost/price differential at a record $891/oz in Q1 2011, up 1% on the quarter, but – what with the weak US dollar – the North American region is fast catching up. The North American cost/price differential advanced to a record $841/oz in Q1 11, up almost 4% on the quarter. Since Q1 09 the cost/price differential has risen by 95%, compared with that of Latin America at 65%. The cost/price differential in ‘other Africa’ has grown by 93% and that of Oceania is up 51%, while South African margins are up by just 14%.

Cost curve for gold mines worldwide: Q1 11

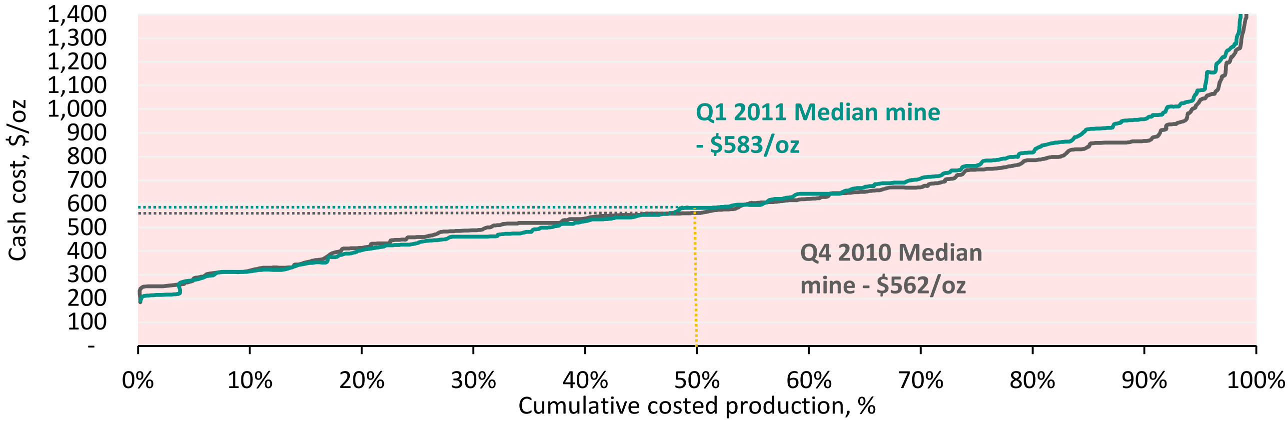


Source: VM Group/Haliburton Mineral Services

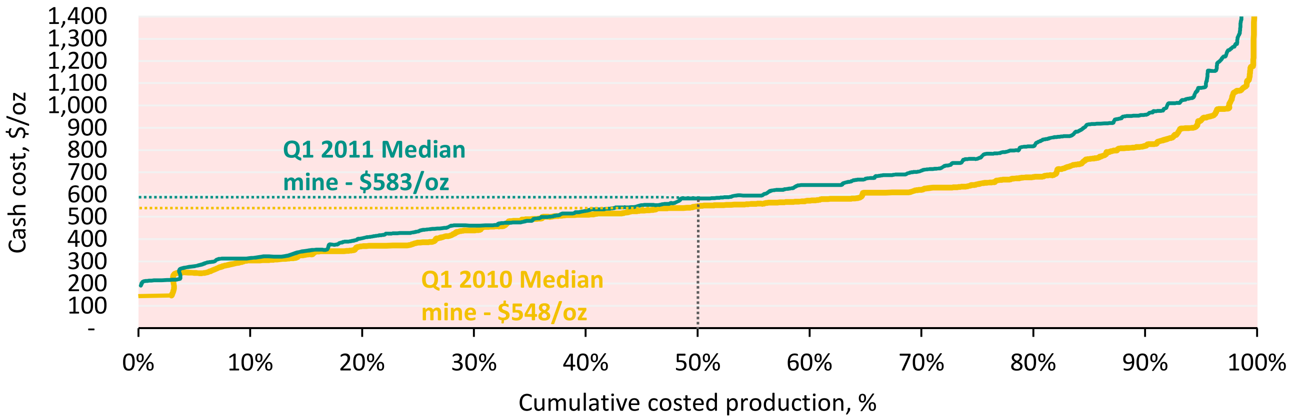
The cost curve

On a distributional basis the cost curve for Q1 11 shows each mine in our database ranked in order of production cash costs, from low to high. The width of the bars represents the production of gold (in '000 ounces) by each mine in Q1 11 and the height represents the cash cost per ounce. The median mine[3] on the cost curve in the quarter under review was Newmont's majority-owned Yanacocha operation in Peru, which produced 288,000 oz of gold in Q1 11 at a cash cost of $583/oz, compared with 336,000 oz the previous quarter at a cash cost of $559/oz. The broader lines show the largest operations by output. These are dominated by the larger mines, such as Newmont's Nevada complex in first position followed by Barrick Gold's Cortez mine in the US. Newmont's Yanacocha mine in Peru follows in third place before Barrick Gold's Goldstrike operation in the US. On a cash cost basis, Medusa Mining's Co-O mine in the Philippines remains the lowest cost producer, at $191/oz, while Barrick's Gold Ruby Hill mine in the US moves to second place for the first time, with costs at $211/oz for production in the quarter at 36,000oz.

Cost curve, % of production: Q1 11 and Q4 10, $/oz



Cost curve, % of production: Q1 11 and Q1 10, $/oz



Source: VM Group/Haliburton Mineral Services

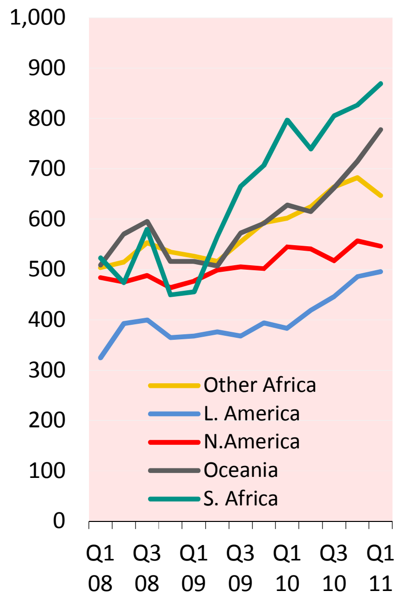
[3] The median cost ounce is the one that falls halfway along the horizontal axis, which - as total production from these mines was 11.7 Moz during the quarter – is calculated from the mine that produced the 5.85 millionth lowest cost ounce.

Average exchange rates v US dollar

	$/rand	$/Aus$	$/C$
Q1 11	6.99	0.99	0.99
Q4 10	6.88	1.01	1.01
Q3 10	7.30	1.10	1.04
Q2 10	7.53	1.13	1.03
Q1 10	7.49	1.11	1.04

Source: VM Group/Haliburton Mineral Services

Average cash costs of gold mine production by region over time, $/oz



Source: VM Group/Haliburton Mineral Services

Regional cost analysis

The US dollar weakened further against most major gold producing currencies in Q1 2011, putting upward pressure on production costs for miners. However, in South Africa the rand weakened for the first quarter since Q1 10 and by the most since Q4 2008. This did little though to prevent South African production cash costs from rising, with average costs up 5%, to $869/oz and median costs up 7%, to $922/oz. Of most note was the rise of 9th decile costs above the $1,200/oz level, indicating that should gold prices ease from current levels as much as 0.18 Moz per quarter of gold production would be placed in jeopardy. In the 'other Africa' region, the average cash cost of production was $647/oz in Q1 11, down 5% from the previous quarter but up 7.5% on the year. The interquartile range grew 15% as lower quartile costs fell 10% but upper quartile by just 2% during the period. Marginal costs rose 1%. The highest cost operation in the region was Lihir/Newcrest's Bonikro mine in the Ivory Coast, at $2,134/oz, as political unrest in the country forced the operation to close in March. Similarly, Cluff Gold, which only reports semi-annually, reported very high cash costs ($1,168/oz) at its Angovia mine in the Ivory Coast as it put the mine on care and maintenance also in March.

The average gold mine cash costs in Oceania rose by 9%, to a record $778/oz. In this region there were 32 mines producing 0.98 Moz of gold in the quarter under review whose production cash costs equalled or exceeded the global upper quartile limit of $760/oz, while there were just three mines producing 0.14 Moz at costs at or below the lower quartile range of $435/oz. The most significant lowest cost producer in the region was Newmont's Jundee mine in Australia, which produced 100,000 oz in the quarter at $420/oz. This was only bettered by Ramelius Resources' Wattle Dam operation and Exco Resources' White Dam mine, which are also both in Australia. In Latin America there were 15 mines at or above the upper quartile range producing 0.18 Moz of gold in Q1 11, while there were an equal number of mines below the lower quartile range producing more than 1 Moz. The lowest cost producer in this region was Barrick Gold's Luganas Norte mine in Peru, which produced 192,000 oz of gold in the quarter, while the

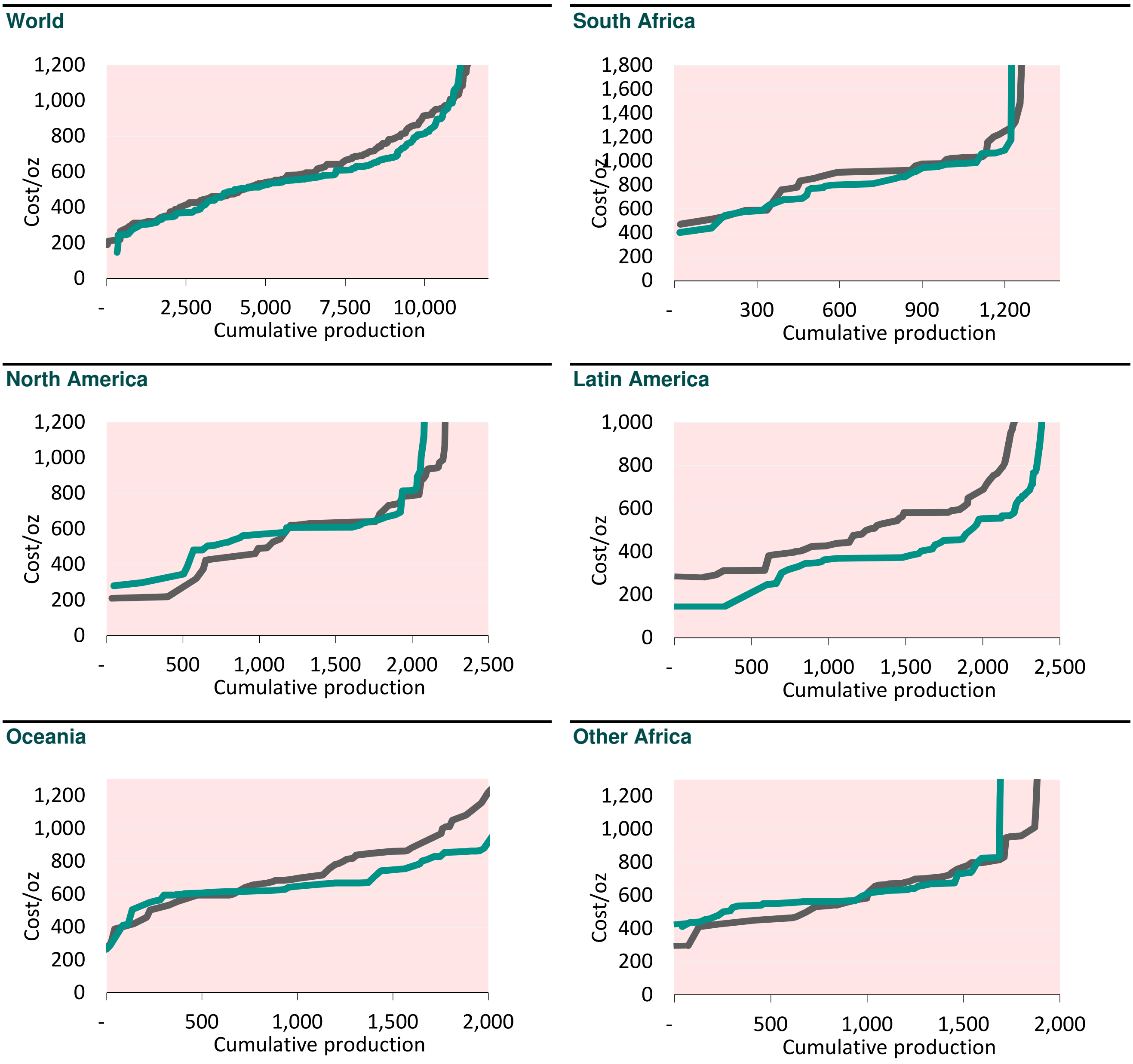
Gold mine production: cash costs by region, Q1 11, $/oz unless stated

	South Africa	Oceania	Other Africa	North America	Asia	CIS/ Europe	Latin America
Average cost ($/oz)	**869**	**778**	**647**	**546**	**489**	**491**	**496**
Cost at various positions on curve							
25%	589	596	464	322	353	342	313
Median -50%	**922**	**718**	**575**	**543**	**475**	**523**	**444**
75%	977	955	760	643	521	585	583
90%	1,202	1,157	959	792	759	649	711
Costed production (Moz)	1.3	2.1	2.0	2.2	0.9	1.1	2.2
Costed production (tonnes)	39	64	61	70	27	34	70

Source: VM Group/Haliburton Mineral Services

highest cost producer was Aura Minerals' Sao Vicente mine in Brazil, which was impacted by heavy rainfall during the period. In North America there were 17 mines above the upper quartile range producing 0.3 Moz of gold, while there were six mines below the lower quartile range outputting almost 0.7 Moz, while the pick of the bunch in Asia and CIS/Europe was Medusa Mining's Co-O mine in the Philippines at just $191/oz for 25,911 oz of gold in Q1 11. In total some 0.7 Moz of gold production fell at or below the lower quartile range in these two regions, while just 0.1 Moz were at or above the upper quartile range.

Cost curves by region, year-on-year (Q1 11: grey line, Q1 10: green line)



Source: VM Group/Haliburton Mineral Services

About the authors

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Founded in 2002, Haliburton Mineral Services is a private mining research and advisory business based in Toronto, Canada. The company’s President, Ted Reeve, has a background as a mining analyst and has published quarterly gold producer hedge surveys since 1990.

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