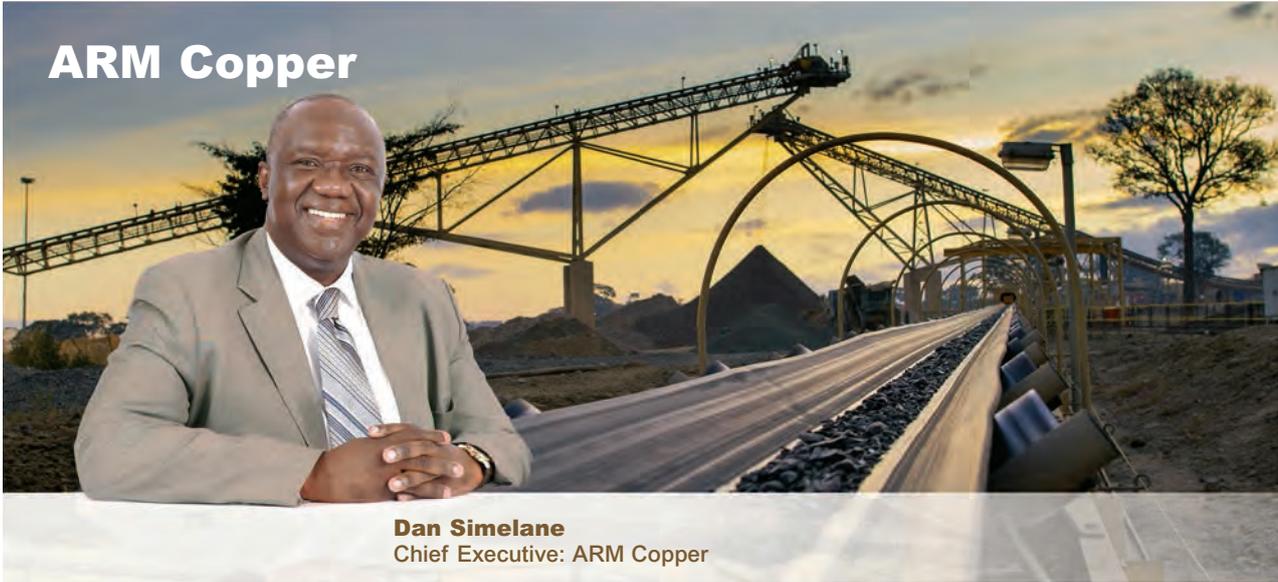
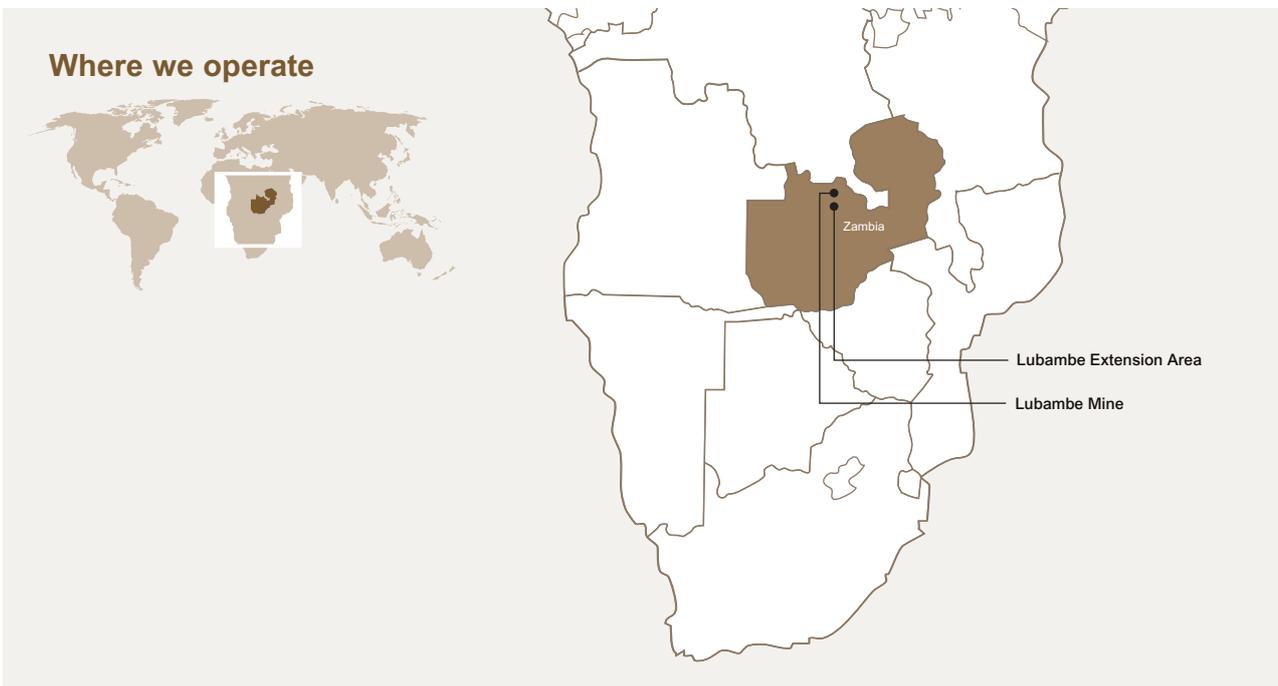
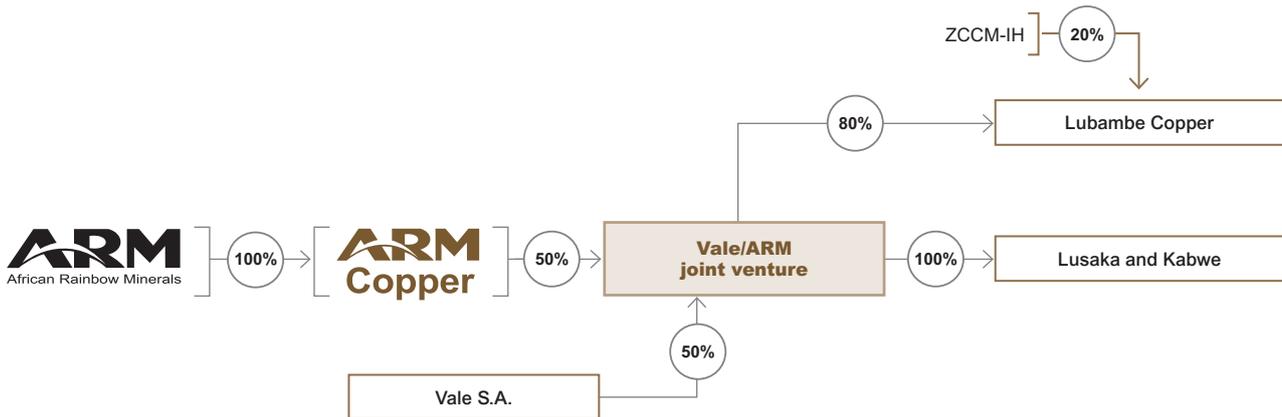


## Operational review



### Divisional structure



## Scorecard

F2014 objectives	F2014 performance	F2015 objectives
<b>Lubambe Copper Mine</b>		
Continue ramping up output from the concentrating plant with a focus on recovery and quality enhancements.	Lubambe Copper Mine increased its mill throughput by 49% to 1.6 Mt compared to F2013. Recoveries from the plant increased to 77.6% yielding 23 791 tonnes of copper in F2014.	Continue ramp-up to full production per annum by producing 36 000 tonnes of copper in F2015.
Continue with the ramp-up and continue to improve mine design and ore extraction efficiencies.	Stoping from underground was more than double that of the previous year with very good technical services systems developed to better understand and extract the ore body effectively.	Improve the understanding of the complex ore body and ramp-up to full production on a monthly basis towards the end of F2015.
<b>Lubambe Extension Area</b>		
Drill a large hole in the vicinity of the anticipated new vertical shaft complex to conduct a hydrogeological study.	The drilling of a large diameter hole commenced in August 2013. The rods however got stuck at 570 metres. A new hole is currently being drilled.	Continue with the drilling of the large hole in the vicinity of the anticipated new vertical shaft complex to conduct a hydrogeological study.

Sustainability overview (100% basis)		F2014	F2013	% change
LTIFR*		0.19	0.16	19
CSR spend**	R million	95	26	264
Electricity consumption	000 MWh	118	73.5	61
Water consumption	million m <sup>3</sup>	1.10	0.86	28
Total Scope 1 and Scope 2 emissions (attributable)	tCO <sub>2</sub> e	4 435	5 581	(21)

\* LTIFR Lost Time Injury Frequency Rate per 200 000 man-hours.

\*\* CSR: Corporate Social Responsibility.

All figures on a 100% basis except Scope 1 and Scope 2 emissions (tCO<sub>2</sub>e), which is attributable to ARM (as per the Carbon Disclosure Project submission).

## Review of the year

ARM Copper incurred a headline loss of R309 million as the Lubambe Mine ramped up production. Capitalisation of cost ceased on 30 April 2013.

### Lubambe Copper Mine

The main vertical shaft was commissioned in September 2014 and ore flow constraints were experienced in the refurbished shaft rock pass systems as well as through the main tips at the East Decline. Modifications were done to the shaft system and a mineral sizer was installed at the main ore tip at the East Decline. By 30 June 2014, 1 558 390 tonnes of copper bearing ore had been milled which was 49% higher than the preceding year. Recoveries from the concentrator plant are stabilising and were 77.6% for the year on average.

Copper concentrate deliveries to the Zambian Smelters have been in line with the off-take agreements and all concentrate produced during the 2014 financial year on the mine has been sold and processed in Zambia. The concentrate quality is suitable and complies with the specification for treatment at the Konkola Copper Mine (KCM) Smelter and the Chambishi Copper (CCS) Smelter.

Mechanised development is progressing well with ore drive development still ahead of schedule. Longitudinal Room and

Pillar (LRP) Stopping methods are still being utilised to extract all the stopping tonnes from the mine.

The relocation of informal settlements on the potential subsidence area of the mine will be completed in August 2014 and the first 80 families were moved to their new houses in March 2014.

Capitalised expenditure to 30 June 2014 amounted to US\$478 million comprising project capital expenditure amounting to US\$448 million and pre-production costs capitalised amounting to US\$29.4 million.

Challenges are being experienced with the mill head-grade as a result of dilution, these are however being addressed through improvements in plant efficiencies and adjustments in the mining lay-out to optimise extraction and improve hanging wall stability.

The mine's throughput design for both the South and East Limb ore bodies remains at 2.5 Mtpa of ore at an average mill head grade of 2.3% copper, which will result in the production of 45 000 tonnes of contained copper in concentrate per annum for 28 years. The copper concentrate produced will be toll smelted and refined in Zambia.

This project is the first phase of the exploitation of the total resource presently known on mining licence 7061 – HQ – LML (Previously LML 20), covering an area of 240.29 km<sup>2</sup>.

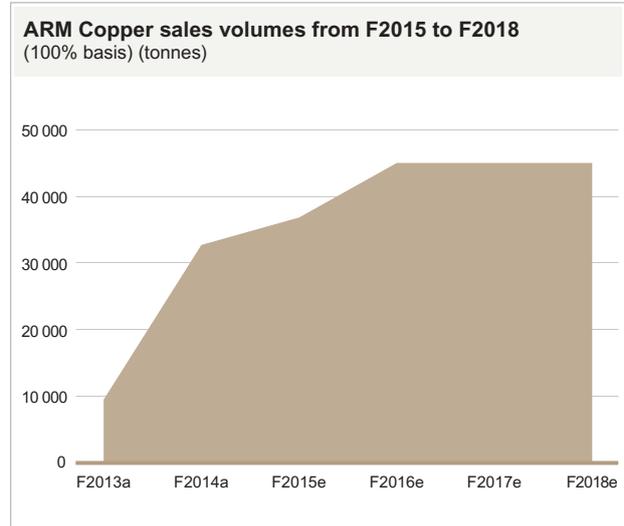
## Projects

This second phase of the Lubambe Mine situated 6 km to the south of the present mine development, may provide for the expansion of the Lubambe Copper Mines processing plant to potentially increase the total production to more than 100 000 tonnes of copper from more than 5 million tonnes of ore mined and processed on an annual basis.

Following the results of the pre-feasibility, a drilling programme was conducted and in November 2012 a full study team has been re-established to validate the pre-feasibility assumptions and do trade-off studies in preparation for a full feasibility study. Resource estimation has been validated by experts during the first half of F2014 and the resource of the target area has now grown further from 105 million tonnes at an average grade 3.66% total copper to 134 million tonnes of ore at an average grade of 4.07%.

Due to the mine being in the Konkola Basin, a full hydrogeological survey commenced and will be done to assess the dewatering requirements and pumping quantities of a new mine in this area. Further to the drilling programme the analysis of the Airborne Electro-magnetic (AEM) and Radiometric surveys have been completed across the whole Mining Lease area with the intention to identify further exploration targets.

For the remainder of F2015 the team will conduct further metallurgical test work and focus on the results from the hydrogeological test hole. During this period work will also be done on the mineralogy of the ore body.



A double boom drill rig drilling a face at Lubambe Copper Mine

## Human capital – Safety

The safety and health of employees and contractors is the most material risk at the Lubambe Copper Mine due to the inherent high risks associated with construction and underground mining development. The most significant safety challenges in the Copper Division relate to unstable ground conditions and trackless moving machinery. There is a strong focus on risk assessment from safety teams, supervisors and employees. This is supported by the Mine's Ukusungana behaviour based safety programme which received more than 37 000 observations during F2014. A multi-disciplinary standards committee develops and refines safe operating procedures.

During May 2014, Lubambe Copper Mine reached 2 million fatality-free shifts since the project started in 2010. There were no fatalities during F2014. The LTIFR per 200 000 man-hours increased marginally to 0.19 (2013: 0.16).

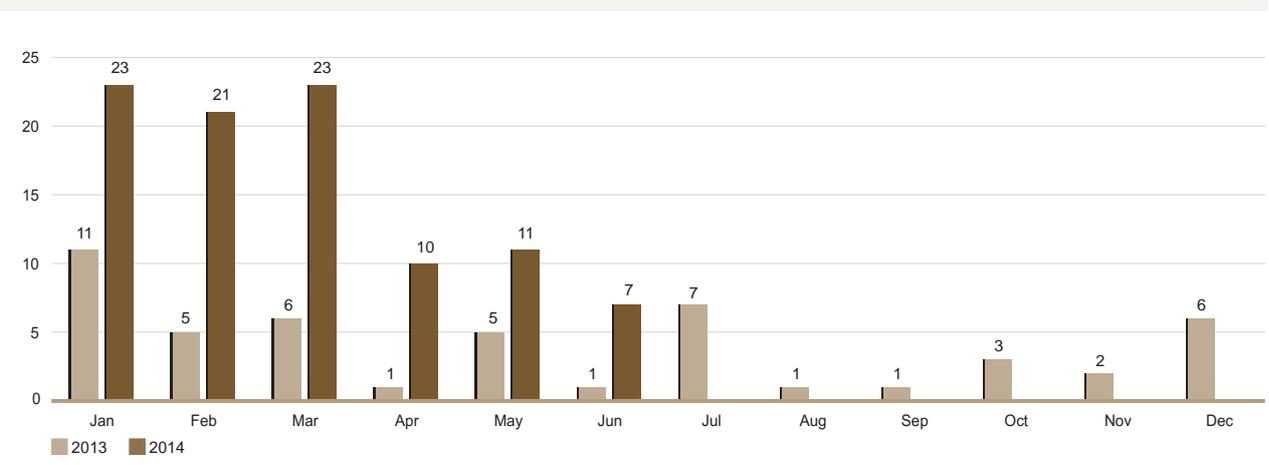
## Human capital – Occupational health and wellness

Malaria is a significant health risk in the Zambian Copper Belt, with prevalence rates reaching nearly 26%.

The number of malaria cases increased significantly in the Chililabombwe district and specifically at the mine, rose from 45 in F2013 to 109 in F2014. This increase is due to the amount of stagnant water after the heavy rainfall in the rainy season. The mine's malaria control program includes residual indoor spraying of houses in nearby villages and buildings on site, fogging operations, treatment of stagnant water ponds surrounding the mine, interventions on malaria prevention and the installation of repellent dispensers at all the entrances to the mine. Further to this, the mine is also providing treated mosquito nets to its employees and education campaigns have been intensified.

HIV & Aids prevalence in the Zambian Copper Belt area is estimated at 20% and therefore presents a significant risk to the wellness of our employees. Lubambe Copper Mine assists with the fight against the spread of HIV by facilitating Voluntary Counselling and Testing in Zambia's National VCT Week; 553 HIV tests were carried out (F2013: 671) and 15 employees tested positive. This equates to a prevalence rate of 2.7% which is well below the national rate (14.5%).

**Malaria prevalence of employees (%)**



## Natural capital – Environment

The mine's environmental management programme includes monitoring of dust, noise, diesel emissions, water quality, vibration and illumination.

Airborne dust is an issue in the dry winter months and dust suppression is essential. In summer, very high rainfall requires a focus on water management and effective drainage around construction areas. The mine has a vegetation programme to increase ground cover throughout the site in order to alleviate dust generation in winter and erosion due to high rainfall in summer.

Two external environmental audits were completed during the year with no major findings. A tracker to monitor implementation of actions to address non-compliance to environmental commitments is in place.

## Social and relationship capital – Corporate Social Responsibility

Lubambe Copper Mine is committed to cultivating and maintaining a harmonious relationship with its host communities. Initiatives include social development projects to ensure the upliftment of local communities.

The mine's Relocation Action Plan (RAP) entails the construction of 205 houses to resettle households affected by mining activities. The first phase was completed in June with the handover of the first 80 houses with full compensation. The project is expected to be completed by the end of August 2014.

This project created temporary jobs for 277 local workers doing specific project tasks including earthworks, house construction and brick making.

The Baseline Survey for the Millennium Villages Project has been completed and the report reviewed and finalised. The strategic planning workshop took place in July 2014.

Preliminary activities include the training of peer educators in cost effective economic empowerment, HIV awareness programmes, farmer training, nutrition support, immunisation and adult literacy programmes.

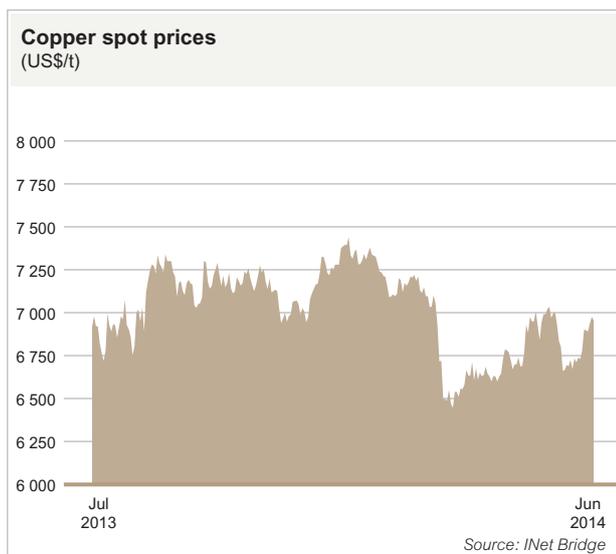
Lubambe Copper Mine continues to engage the community through mutually constituted structures including the Konkola Community Forum, the Relocation and Compensation Working Group, quarterly Local Enterprise Development meetings and regular engagements with seasonal farmers and informal settlers.

In total, the Copper Division spent R95 million on Corporate Social Investment (CSI) in F2014 (F2013: R26 million).

Further details on these sustainability issues, as well as others such as biodiversity, environmental performance and human resource issues, can be found in our Sustainability Report, available on our website [www.arm.co.za](http://www.arm.co.za)

## Market review

Copper prices have fallen nearly 10% in 2014 and have tested four-year lows. During a single week in March 2014 prices fell by 9%. Since then the price has stabilised at levels around \$3.10 per pound. The medium-to long-term outlook for copper prices however is positive, demand for wire rod has risen by up to 5% year on year in Europe and this is viewed as an important barometer of the level of optimism or pessimism towards the copper price. This level of increase in wire rod demand has not been seen in a long time and supports the view that copper prices should not fall any further.



The influence of China on the copper market remains part of the debate. According to analysts, it is estimated that for the next decade, the increase in Chinese demand could average 3.5% a year. This is compared with 11% annually over the past 10 years.

With China consuming in excess of 40% of the world consumption, even this slower growth rate will generate decent volume increases for consumption. With this larger base in China and the recovery in developed markets, world copper consumption is expected to increase by 7 million tonnes over the next 10 years, compared with the 5 million tonnes increase since 2004. Copper supply is however set to increase at a faster pace in the medium term as the investments made during the period of high copper prices are now starting to be commissioned. This increase in supply will put downward pressure on the prices.

Perspective is also needed about the forecasted surplus. The size of the surplus is estimated to be less than 500 000 tonnes at its peak in 2016. This is small and represents only about 2% of current global consumption. It is further believed that the surplus will be short lived and towards the latter half of the decade the market will swing back into a deficit.

The latest data from the International Copper Study Group (ICSG) for the first half of the 2014 calendar year, estimates that world mine supply has increased by 4.7% when compared with the same period in 2013. Refined consumption increased by 3.2% resulting in a deficit of 405 000 tonnes forecast for the full year of 2014. London Metal Exchange (LME) stocks declined drastically from an all-time high of over 680 000 tonnes in May 2013 to 154 000 tonnes at the end of June 2014.

Refined copper production is estimated to have increased by 6.4% in the first half of 2014, compared with the same period last year, with output up in China, the Democratic Republic of Congo (DRC) and in Zambia.

Refined copper production is expected to grow 6.5% this year and 4.3% in 2015. With world-refined production capacity running at just below 80% in the first half of 2014, there is still considerable room for the extra mine supply that is being ramped up to be processed.

For the full period of 2014, we expect refined production to reach 22.3 million tonnes, which is in line with earlier forecasts.

The copper financing deals in China that helped cause the sell off earlier in 2014 are not believed to be a major threat to the market, it is estimated that about 600 000 tonnes of copper in Chinese warehouses serves as collateral and that these arbitrage deals remain profitable.

There are more concerns about the slowdown in copper use in construction in China during the short term, than these copper financing deals suddenly unwinding. Caution is however expressed over the next 12 to 18 months regarding the copper price, but there is general consensus with the long-term support of a better copper price.

China is expected to become an increasingly important producer of scrap – the raw material for about a fifth of total refined copper supply. China will soon reach the status of a mature copper economy where recycling will become an important aspect towards refined copper production.

Substitution could have an impact on overall copper demand in the world.

## Lubambe Mine



**Management:** The mine is managed by the shareholders, via a Board of Directors.

		Measured and Indicated Resources			Proved and Probable Reserves		
		Mt	TCu%	Mt contained Cu	Mt	TCu%	Mt contained Cu
<b>Resources and Reserves (100% basis)</b>	Lubambe Mine	52.1	2.54	1.32	43.1	2.24	0.96
	Lubambe Extension Target Area	90.0	3.73	3.36	–	–	–
<b>Refining</b>	The concentrate produced is being smelted and refined at Konkola Copper Smelter and Chambishi Copper Smelter.						
<b>Total labour</b>	2 373 including 1 218 contractors						

## Lubambe Copper Mine operational statistics

100% basis		F2014	F2013	% change
Waste development	metres	9 415	11 434	(18)
Ore development	metres	9 365	9 396	
Ore development	tonnes	484 280	596 783	(19)
Ore stoping	tonnes	954 999	403 178	>100
Ore tonnes mined	tonnes	1 439 279	999 961	44
Tonnes milled	tonnes	1 558 390	1 046 559	49
Mill head grade	% copper	1.95	1.92	
Concentrator recovery	%	77.6	71.4	
Copper concentrate produced	tonnes	57 009	40 331	41
Copper concentrate sold	tonnes	82 458	27 502	>100
<b>Contained metal</b>				
Copper produced	tonnes	23 791	14 871	60
Copper sold	tonnes	33 323	9 943	>100
Headline loss attributable to ARM (40%)	R million	(309)	(135)	–



Refer to pages 199 to 200 for the ARM Copper segmental information.