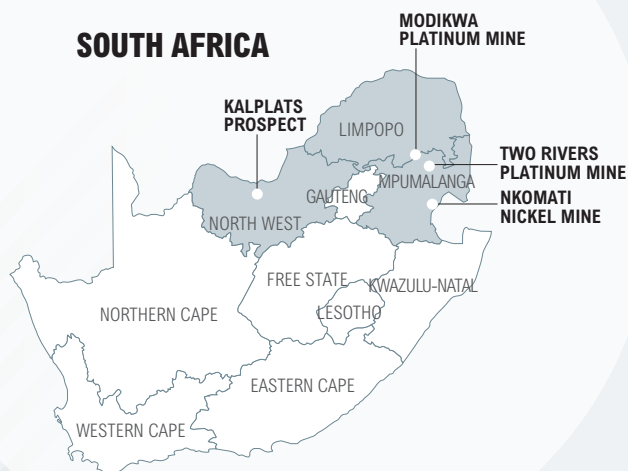


ARM PLATINUM

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Thando Mkatshana
Chief executive – ARM Platinum



Key features for F2019

Improved **Rand PGM basket price.**

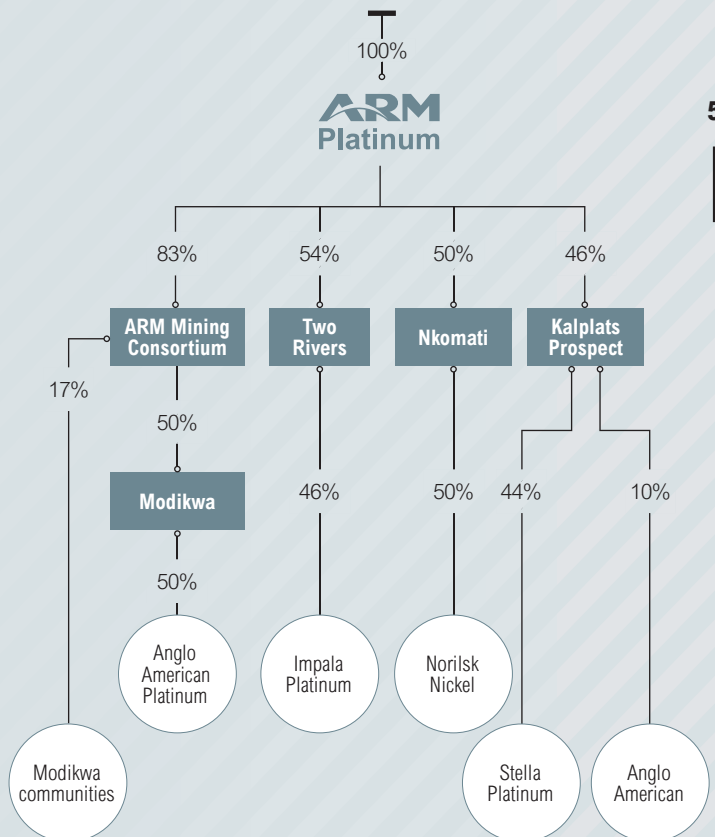
Significant decline in the nickel price towards year end.

Decision to scale down Nkomati Mine concluded.

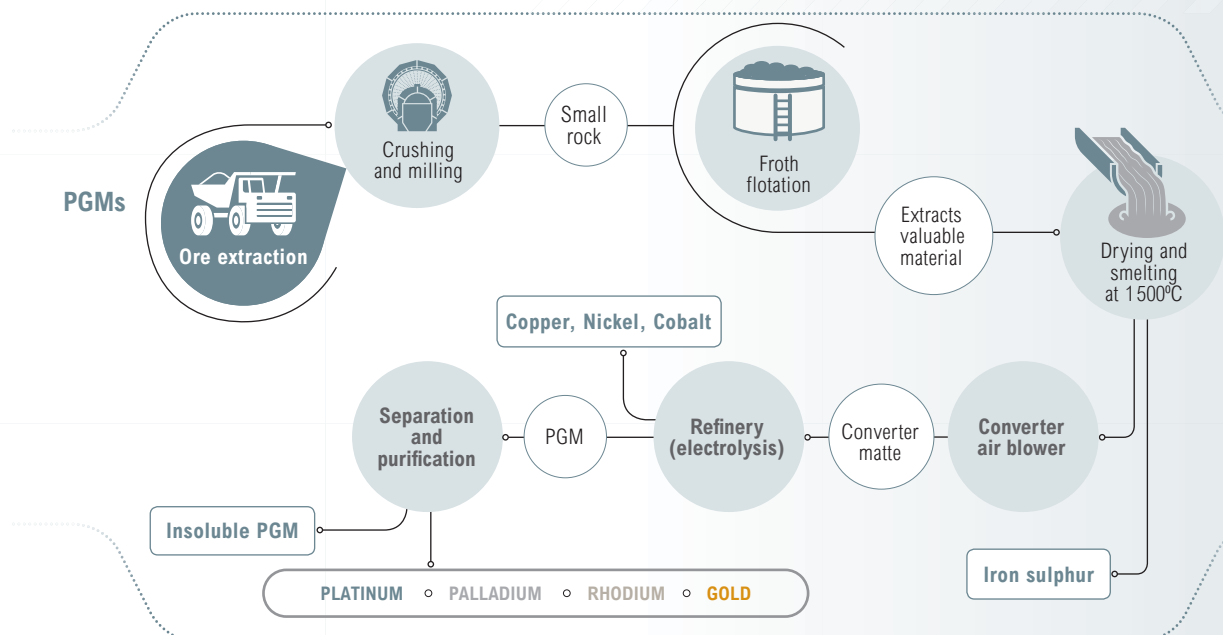
Unit production cost increases.

Material matters

- » Economic and operational sustainability of Nkomati Mine.
- » Grade decline at Two Rivers Mine
- » Operational performance at Modikwa Mine.
- » Declining safety performance at Modikwa Mine
- » Impact of Nkomati Mine scale-down on employees and contractors.
- » Managing stakeholder impacts of Nkomati Mine scale-down
- » Community unrest, particularly in the Eastern Limb.



Production process



ARM PLATINUM continued

Scorecard

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TWO RIVERS MINE
F2019/20 OBJECTIVES

F2019

Produce 370 000 6E PGM ounces while maintaining the mine's position on the global PGM cost curve.

Not achieved (✗)

Largely due to split reef. Two Rivers produced 313 000 6E PGM ounces. The mine's position on the global PGM cost curve increase to the 40th percentile.

F2020

Produce 334 000 6E PGM ounces by improving the selective mining of split reef and increasing mining flexibility while improving the mine's position on the global PGM cost curve.

Approve and begin construction of concentrator plant expansion.

F2019

Achieve sales volumes of 260 000 tonnes of chrome concentrate.

Not achieved (✗)

Lower grades resulted in lower chrome yield. Chrome concentrate sales volumes were 220 000 tonnes.

F2020

Achieve sales volumes of 230 000 tonnes of chrome concentrate.

MODIKWA MINE
F2019/20 OBJECTIVES

F2019

Achieve 340 000 6E PGM ounces and improve position on the global PGM cost curve.

Not achieved (✗)

The mine produced 307 000 6E PGM ounces and is positioned 55th on the global PGM cost curve.

F2020

Achieve 340 000 6E PGM ounces and improve position on the global PGM cost curve.

F2019

Continue South 2 shaft ramp-up and achieve 50 000 tonnes per month.

Achieved (✓)

F2020

Continue South 2 shaft ramp-up and achieve 55 000 tonnes per month.

F2019

Finalise and approve commercial deal with Samancor and recommend chrome project to the joint-venture partners for approval.

Achieved (✓)

F2020

Begin constructing chrome plant for completion in quarter 2 F2021.

NKOMATI MINE
F2019/20 OBJECTIVES

F2019

Sustain current average milling rate and efficiencies.

Achieved (✓)

F2020

Manage the scale down of Nkomati Mine responsibly. Manage cash flow with minimal funding requirements from partners.

F2019

Sustain MMZ plant milling rate at 400 000 tonnes per month. Current recoveries to be sustained while significant volumes of very low-grade material from stockpiles are included in MMZ plant feed.

Achieved (✓)

F2020

Manage the scale down of Nkomati Mine responsibly.

F2019

Achieve sales of 350 000 tonnes of chrome concentrate. An action plan to resolve PCMZ plant efficiencies concluded, with associated improvements to achieve target sales volumes.

Achieved (✓)

F2020

442 000 tonnes of chrome concentrate were sold.

Commodity markets

Platinum

The platinum price decreased marginally from US\$840 per ounce at the beginning of F2019 to US\$836 per ounce on 30 June 2019.

An increase in investor sentiment stimulated increased buying of exchange traded funds (ETFs). Investors were motivated by supply disruption risks and an improved outlook for platinum demand. The implementation of stricter heavy-duty vehicle emissions limits in India and China is forecast to boost platinum consumption over the next few years. High palladium prices are expected to favour a gradual switch from palladium to platinum in gasoline catalysts, but the substitution is expected to be slow due to higher efficiencies favouring palladium use in gasoline applications. Consumption of platinum in fuel cells will see significant growth in F2020, although from a very low base. European diesel car production decreased in F2019 and is expected to retreat further in F2020.

We believe the long-term fundamentals of platinum remain sound.

ARM Platinum achieved an average platinum price of US\$825 per ounce for F2019 (F2018: US\$936 per ounce).

Palladium

The palladium price performed exceptionally well in F2019, increasing from US\$932 per ounce at the beginning of F2019 to US\$1 541 per ounce on 30 June 2019. Significant increases in palladium demand from auto catalysts and chemical producers have resulted in record palladium prices in F2019. Stricter legislation is expected to further increase demand from Chinese automakers. The palladium market deficit is forecast to widen over the next year, with palladium supply unable to keep up with growth in automotive demand. ETFs currently do not hold sufficient metal to bridge the gap between demand and supply. ARM maintains its bullish view on this metal.

The average price achieved in F2019 by ARM Platinum for palladium was US\$1 233 per ounce (F2018: US\$974 per ounce).

Rhodium

The rhodium price performed well in F2019, increasing from US\$2 325 per ounce at the beginning of F2019 to US\$3 350 per ounce on 30 June 2019. Rhodium demand on autocatalysts increased as European vehicle manufacturers used more rhodium to meet stricter vehicle-testing regimes. Growth in auto demand was offset by a fall in rhodium consumption in industrial applications, as high prices resulted in some thrifting of rhodium in the glass industry. The outlook for demand is positive as emissions legislation is tightening in most major markets, resulting in an upward trend in rhodium loadings.

ARM Platinum achieved an average rhodium price of US\$2 567 per ounce (F2018: US\$1 540 per ounce).

Nickel

The nickel price decreased from US\$14 065 per tonne at the beginning of F2019 to US\$12 675 per tonne on 30 June 2019. Despite a deficit between supply and demand, prices were affected by global macro-economic concerns, including fears of a Chinese slowdown and the negative impact on global growth of the US-China trade war.

Short to medium-term nickel demand will be driven by the stainless steel market which is highly responsive to macro-economics, hence, prices are envisaged to take longer to improve. The nickel price will remain volatile on any news from Indonesia on the export unprocessed ban on nickel ore. Long-term demand fundamentals for nickel remain strong, with specific reference to an increase in demand expected from electric vehicles.

ARM Platinum achieved an average nickel price of US\$12 343 per tonne (F2018: US\$12 397 per tonne).

Financial review



Delivering financial returns to shareholders and other providers of capital

Two Rivers Mine delivered improved headline earnings, but this was offset by a headline loss at Nkomati Mine. As a result, ARM Platinum's attributable headline earnings decreased by 73% to R112 million (F2018: R420 million).

Improved Rand palladium (40%) and rhodium (84%) prices contributed significantly to the Modikwa and Two Rivers results. The average Rand per 6E kilogram basket price for Modikwa Mine and Two Rivers Mine increased by 29% and 26% to R491 723/kg (F2018: R380 603/kg) and R467 994/kg (F2018: R370 755/kg) respectively. An 11% decrease in Nkomati's Rand chrome price had a negative impact on its results. The tables below set out the relevant price comparison:

AVERAGE US DOLLAR METAL PRICES

		Average for the 12 months ended 30 June		
		2019	2018	% change
Platinum	US\$/oz	825	936	(12)
Palladium	US\$/oz	1 233	974	27
Rhodium	US\$/oz	2 567	1 540	67
Nickel	US\$/t	12 343	12 397	–
Copper	US\$/t	6 176	6 798	(9)
Cobalt	US\$/lb	23	35	(34)
UG2 chrome concentrate –				
Two Rivers (CIF ¹)	US\$/t	155	174	(11)
High sulphur chrome concentrate –				
Nkomati (FOT ²)	US\$/t	66	82	(20)

¹ Cost, insurance and freight.

² Free on truck.

ARM PLATINUM continued

AVERAGE RAND METAL PRICES

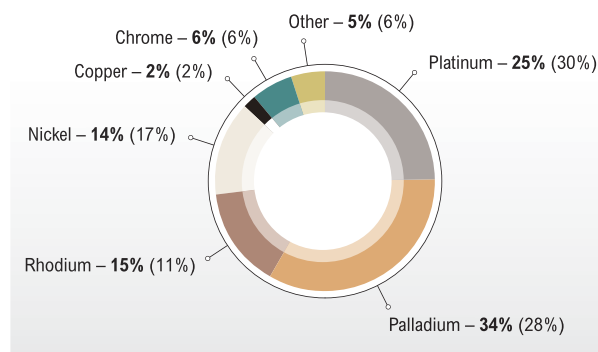
		Average for the 12 months ended 30 June		
		2019	2018	% change
Exchange rate	R/US\$	14.19	12.84	11
Platinum	R/oz	11 713	12 020	(3)
Palladium	R/oz	17 497	12 509	40
Rhodium	R/oz	36 420	19 780	84
Nickel	R/t	175 140	159 172	10
Copper	R/t	87 636	87 282	–
Cobalt	R/lb	327	443	(26)
UG2 chrome concentrate – Two Rivers (CIF ¹)	R/t	2 206	2 232	(1)
High sulphur chrome concentrate – Nkomati (FOT ²)	R/t	942	1 059	(11)

¹ Cost, insurance and freight.

² Free on truck.

Lower PGM production at Modikwa Mine (8%), Two Rivers Mine (10%) and Nkomati Mine (1%) resulted in ARM Platinum's PGM ounces – on a 100% basis – reducing by 8% to 729 833 6E ounces (F2018: 792 583 6E ounces). Nkomati Mine's nickel production increased by 7% to 14 209 tonnes (F2018: 13 302 tonnes).

ARM PLATINUM REVENUE PER COMMODITY – ON A 100% BASIS (F2018 in brackets)



Investing in the current business

Capital expenditure at ARM Platinum operations – on a 100% basis – increased slightly to R1.2 billion (F2018: R1.1 billion).

Capital expenditure at Modikwa Mine – on a 100% basis – decreased by 2% to R260 million (F2018: R266 million). Of the capital spent in F2019, 29% is associated with the North Shaft project and 3% with the South Shaft project. Fleet refurbishment and critical spares accounted for 22% of capital expenditure.

Of the R587 million capital spent at Two Rivers in F2019, 21% reflects fleet replacement and refurbishment. The deepening of the Main and North declines, together with electrical and mechanical installations, comprised 50% of total capital expenditure.

Nkomati Mine's F2019 capital expenditure of R336 million – on a 100% basis – was mainly for capitalised waste stripping, which decreased by 26% to R225 million. No waste-stripping costs have been capitalised since 30 November 2018.

ARM PLATINUM CAPITAL EXPENDITURE – ON A 100% BASIS

	F2019	F2018	% change
Modikwa	260	266	(2)
Two Rivers	587	455	29
Nkomati	111	124	(10)
Nkomati capitalised	225	304	(26)
	1 183	1 149	3

Operational review



Continuously improving operational performance

Two Rivers Mine

Attributable headline earnings increased by 5% to R322 million (F2018: R306 million) due to a 26% increase in the Rand PGM basket price. A 1% decrease in tonnes milled and a 3% reduction in head grade led to PGM ounces produced declining by 10% to 313 406 6E ounces (F2018: 348 405 6E ounces). In addition, chrome concentrate sales volumes declined by 4% to 219 566 tonnes on a lower chrome yield, a direct consequence of the lower PGM grade.

This, combined with a 15% decline in the Rand chrome price from July 2018 to June 2019, resulted in the chrome cash operating profit declining by 20% to R168 million (F2018: R210 million).

Flexibility in obtaining the optimal blend of ore, from split reef and normal reef sources, at the Main decline remains a constraint and affected the feed grade to the plant. The accelerated sinking programme for Main decline is progressing well and is expected to produce an additional four levels by the end of February 2020, which will improve mining flexibility. In addition, by undercutting thick internal waste within the split reef where practical, we expect to marginally improve the Main decline grade. The plant feed grade is, however, expected to vary between 3.5g/t and 3.7g/t 6E for the next 12 months.

Unit production costs on a Rand per tonne milled basis rose by 7% to R736 (F2018: R688). The Rand cost increased by 17% to R8 001 per 6E ounce (F2018: R6 822 per 6E ounce), as a direct result of the decline in grade and ounces combined with above-inflation increases in diesel, electricity and insurance. The UG2 run-of-mine stockpile declined by 84 436 tonnes to 122 735 tonnes at 30 June 2019.

Modikwa Mine

Modikwa Mine delivered attributable headline earnings of R105 million.

Tonnes milled decreased by 6% and, combined with a 1% decrease in head grade, resulted in PGM ounce production decreasing by 8% to 306 930 6E ounces (F2018: 333 888 6E ounces). The decline in head grade was mainly due to lower-grade material being blended with higher-grade fines to optimise plant capacity.

Unit production costs rose by 9% to R10 027 per 6E PGM ounce (F2018: R9 197) and were 6% higher on a Rand per tonne basis at R1 345 (F2018: R1 265).

The South 2 shaft system hoisted just under 45 000 tonnes per month for F2019. Progress is on track to ramp-up the South 2 shaft system to 50 000 tonnes per month in F2020.

Nkomati Mine

Nkomati Mine reported an attributable headline loss of R315 million (F2018: R9 million headline earnings) as spot nickel prices reduced from US\$14 065 on 1 July 2018 to US\$12 675 on 30 June 2019, resulting in a negative mark-to-market adjustment of R130 million. In the prior period, the nickel spot price increased from US\$9 375/t on 1 July 2017 to US\$14 940/t on 30 June 2018, resulting in a positive mark-to-market of R465 million in that period.

Chrome concentrate sales volumes mitigated some of the decline (442 464 tonnes compared to 328 371) despite a 31% decrease in the average Rand chrome price from July 2018 to June 2019.

Total tonnes milled rose by 1% to 8.15 million (F2018: 8.04 million). Nickel production volumes increased by 7% to 14 209 tonnes (F2018: 13 302 tonnes). Nkomati Mine had 13 000 tonnes of nickel concentrate in stock at 30 June 2019.

Waste-stripping costs of R225 million (F2018: R304 million) were capitalised in the period. The on-mine unit production cost – excluding capitalised waste-stripping – was 22% higher at R367/t (F2018: R301/t) after the practice of capitalising stripping costs was terminated on 30 November 2018. The increase also reflects above-inflation rises in mining, diesel and maintenance costs. C1 unit cash cost net of by-products – including capitalised waste-stripping cost – was 10% higher at US\$6.47/lb (F2018: US\$5.86/lb) of nickel produced. The increase also reflects lower by-product credits.

After evaluating numerous scenarios for the future of Nkomati Mine, it has become clear that the mine has reached the end of its economic life. The joint-venture partners have agreed to scale down production volumes and place the open-pit mine on care and maintenance from 30 September 2020 in preparation for closure. The Nkomati underground mine was placed on care and maintenance in December 2015. Production volumes at the mine are expected to be approximately 14 000 tonnes for the 2020 financial year. Engagement with affected stakeholders including employees, representative unions, contractors, the Department of Minerals Resources and Energy (DMRE) and host communities has commenced. Employees affected by the scale-down will be supported throughout the process with

counselling, financial planning support, outplacement services and reskilling as well as with skills development.

The mine's environmental responsibilities will be executed in line with its environmental management programme and all relevant statutory requirements. R206 million – on a 100% basis – in restricted cash and guarantees has been provided for rehabilitation obligations. Final costs for rehabilitation will be assessed and finalised on completion of a technical assessment.

Given the decline in Nkomati's enterprise value noted above, it was necessary to further impair its net asset value as discussed in the financial review on pages 32 to 49.

Sustainability review



Ensuring a safe, healthy and skilled workforce

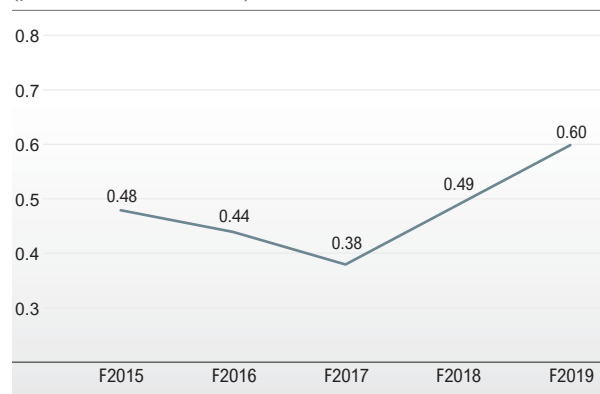
Safety

Tragically, Mr Thomas Maluleke, a rock-drill operator and full-time employee, was fatally injured in a fall-of-ground at Modikwa Mine on 27 March 2019. In September 2019 (post year end), Mr Malatji was fatally injured in an accident involving trackless mobile machinery at Two Rivers Mine.

While total LTIs decreased to 73 (F2018: 77), the LTIFR deteriorated to 0.60 (F2018: 0.49). A number of initiatives have been implemented to address safety concerns at Modikwa Mine.

LTIFR

(per 200 000 man-hours)



Safety days were held at all operations in line with the Mining Council South Africa's National Safety Day. Implementation of the critical control management (CCM) process across operations is progressing well and is on track for completion in F2020. The CCM process identifies critical controls to prevent major unwanted events and is acknowledged globally as a process that could significantly help to prevent disabling or fatal accidents.

Safety achievements at 30 June 2019 included:

- » Two Rivers Mine – 5 million fatality-free shifts on 18 February 2019
- » Nkomati Mine – 7 million fatality-free shifts on 28 June 2019 over ten years and nine months.

ARM PLATINUM continued

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Operation	Total fatality-free shifts worked	Last fatality
Modikwa Mine	313 501	March 2019
Two Rivers Mine	5 250 729	January 2012
Nkomati Mine	7 003 970	September 2008

In F2019, 18 Section 54 notices resulted in safety stoppages, with 64 shifts affected (F2018: 29 Section 54 notices and 86 shifts affected). There was one Section 55 notice issued (F2018: seven) with no shifts lost as a result (F2018: 0).

Employees

The division's total workforce decreased by 1.5% to 9 694 at 30 June 2019 (F2018: 9 838). 72% of the workforce at year end were full-time employees (F2018: 70%) and 28% contractors.

Increasing the representation of historically disadvantaged people at management level remains a focus and representation decreased marginally to 65% in F2019 (F2018: 66%). The operations are also investigating ways to increase the percentage of women in mining.

ARM Platinum invested R82.6 million in training initiatives in F2019 (F2018: R80 million).

Health

The risk-based occupational medical surveillance programmes focus on identifying and addressing specific health risks for each workplace and occupation, particularly pulmonary tuberculosis (PTB), HIV and Aids, and noise-induced hearing loss (NIHL).

Two Rivers and Modikwa mines are putting in place memorandums of understanding to partner with the Limpopo Department of Health to provide primary healthcare services and specific medication – including treatment for chronic diseases, PTB and antiretrovirals or ARVs – to employees and contractors on behalf of the department.

All employees and contractors visiting the mine clinics are passively screened for PTB in terms of our integrated policy on HIV, PTB and sexually transmitted infections (STIs):

- » 16 771 screenings for PTB were conducted during C2018 (C2017: 17 437)
- » 53 new cases of PTB were identified (C2017: 77) and 50 cases were cured. Four cases of multi-drug resistant PTB (MDR PTB) were reported in C2018 (C2017: 9)
- » 16 168 employees and contractors received HIV counselling at our mine clinics in F2019 (F2018: 18 299).

Our occupational health and wellness programme has a strong focus on hearing conservation and aligns with the Mining Industry Occupational Safety and Health (MOSH) leading practice on noise:

- » 18 617 audiometric tests were conducted as part of the hearing conservation programme

- » 20 NIHL cases were submitted for compensation (F2018: 66), 18 of which involved employees or contractors working at Modikwa Mine when screened.

Chronic conditions are monitored by specific occupational exposure profiles for high-risk roles. Specific interventions were implemented to monitor and manage high levels of hypertension, which is mainly a lifestyle disease.



Ensuring responsible stewardship of natural resources

Tailings storage facilities (TSFs)

Ensuring safe and stable operation of TSFs is a priority and a professional engineer is appointed to assist with this specialised function at each facility.

During the year, operations commissioned revisions of legal compliance, risk assessment, zones of influence (in the event of failure at final capacity) and appropriate tailings-specific emergency response plans. The ARM CEO and divisional chief executives hosted a tailings workshop where each operation presented progress on these aspects. In line with global best practice, independent external review of the TSFs has been commissioned to enhance our associated management systems. Dam-break analyses of TSFs has been commissioned to inform enhanced emergency response planning.

Emissions and energy use

The platinum division's combined estimated Scope 1 (direct) and Scope 2 (indirect) carbon emissions increased by 9% to 477 858 tonnes of CO₂ (tCO₂e) on an attributable basis (F2018: 439 035 tCO₂e). 90% of the division's carbon emissions are attributable to electricity consumption, which increased by 0.6% to 832 037 megawatt hours (MWh) on a 100% basis (F2018: 826 710 MWh).

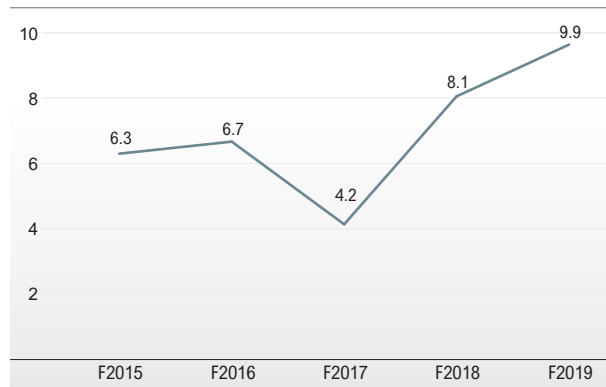
		F2019	F2018
Scope 1 and 2 carbon emissions (on an attributable basis)	tCO ₂ e	477 858	439 035
Electricity consumption (on a 100% basis)	MWh	832 037	826 710

Modikwa Mine accounted for 26% of the division's total emissions, Nkomati Mine 47% and Two Rivers Mine 27%.

Water

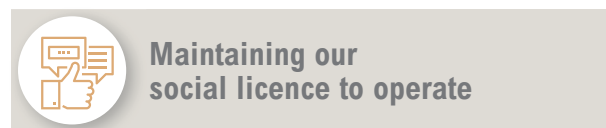
ARM implemented phase 2 of the water accounting framework of the International Council on Mining and Metals (ICMM). Workshops were held at operations and revised water accounting flowcharts and reporting templates were piloted to ensure accurate reporting in the requisite accounting format. The improvements in water accounting realised in phase 1 led to a significant increase in reported water withdrawal volumes in F2018. For F2019, it further increased by 22% to 9.9 million m³ (F2018: 8.1 million m³). This was mainly due to stringent water accounting definitions being applied which resulted in improved accounting for harvesting of rainfall and runoff from mining areas as well as additional flow meters increasing the accuracy of reporting. At Modikwa Mine, 2 million m³ of groundwater which was not previously reported was accounted for. Nkomati Mine reported a 0.7 million m³ increase due to more efficient recovery of water from the tailings storage facility as a result of commissioning an additional return water pipeline.

WATER WITHDRAWN (million m³)



The division accounted for 45% of the group's total water withdrawals.

Nkomati Mine accounted for 44% of the division's total water withdrawal, Modikwa Mine 37% and Two Rivers Mine 19%.



Maintaining our social licence to operate

Community unrest during the year – some unrelated to our operations as well as unrest caused by community expectations for employment or procurement opportunities – at times affected access to the operations, stakeholder engagement activities and meeting community social and labour plan (SLP) commitments. Community relations are an ongoing area of focus.

ARM's enterprise and supplier development initiatives support the growth and development of small, medium and micro enterprises (SMMEs), many of which come from, and create jobs in, surrounding communities. Support includes training, mentoring and coaching as well as financial support to qualifying SMMEs. The aim of these programmes is to support sustainable businesses to graduate into the mining supply chain.

ARM Platinum invested R37.1 million in local economic development (LED) projects under its social and labour plans (SLPs) (F2018: R41 million) and corporate social investment (CSI) expenditure was R8.9 million (F2018: R10 million), bringing the total investment in corporate social responsibility (CSR) projects to R46.0 million (F2018: R51 million).

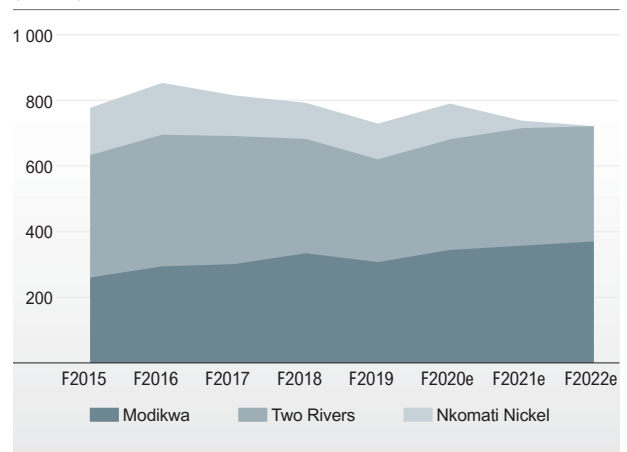
LED projects under way in F2019 include:

- » Two Rivers Mine constructed three additional classrooms to reduce overcrowding for the 436 learners at Ntake Combined School in the Ngwaabe community (R1.3 million)
- » Two Rivers Mine invested R11.1 million to provide electricity to 700 households in the Kutullo, Makakatela and Ma-Seven communities in Ngwaabe. Electrification will improve visibility at night, contribute to crime reduction and improve the livelihood of communities surrounding the mine. The project created 18 temporary jobs and included skills development in the relevant artisanal fields
- » Modikwa Mine constructed a sports facility to provide recreational opportunities and improve social cohesion in the Maandagshoek communities (R4.9 million).

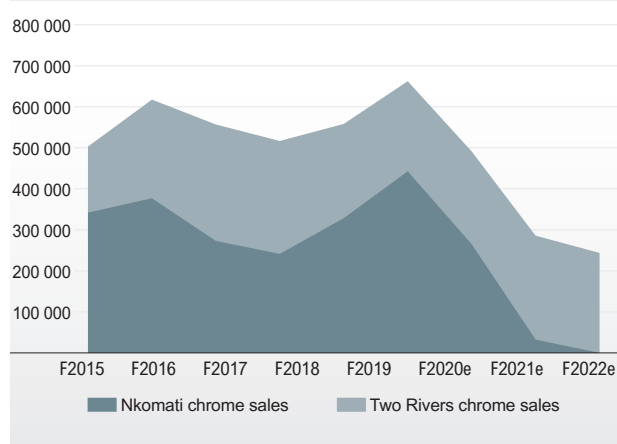
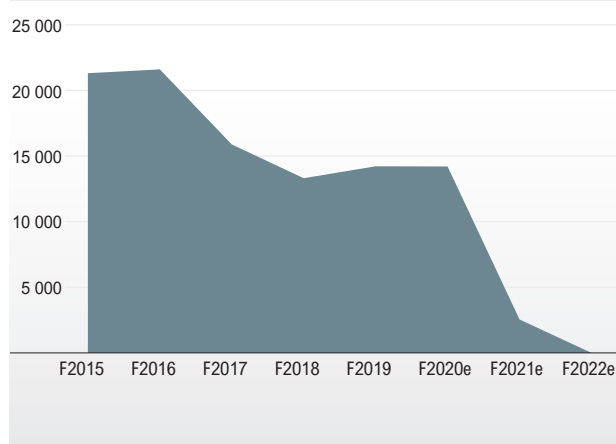
Outlook

ARM Platinum production and sales volumes – on a 100% basis

PGM PRODUCTION VOLUMES (000oz)



ARM PLATINUM continued

CHROME CONCENTRATE SALES VOLUMES
(000t)**NKOMATI NICKEL PRODUCTION VOLUMES**
(000t)**SUMMARY SUSTAINABILITY STATISTICS – ON A 100% BASIS**

	unit	F2019	F2018	F2017	F2016	F2015
Employee indicators						
Average number ¹		9 058	9 452	9 321	9 704	10 413
– Permanent employees		5 913	6 045	5 724	5 992	6 347
– Contractors		3 145	3 407	3 597	3 712	4 066
LTIFR per 200 000 man-hours		0.60	0.49	0.38	0.44	0.48
Environmental indicators						
Scope 1 and 2 carbon emissions ²	tCO ₂ e	477 858	439 035	434 988	456 780	424 622
Total water withdrawn ³	million m ³	9.9	8.1	4.2	6.7	6.3
Energy usage						
– Electricity	MWh	832 037	826 710	804 597	829 484	824 432
– Diesel	000 litres	34 936	35 071	34 029	33 361	34 875
Community investment indicators						
Total CSR	R million	46	51	40	22	36
– CSI	R million	9	10	11	5	11
– LED	R million	37	41	29	17	25

¹ The number of permanent employees and contractors are reported as an average for the year, consistent with calculating safety statistics.

² Reported on an attributable basis.

³ Includes rainfall and runoff water harvested, surface water withdrawn from rivers, municipal water and groundwater.



Summary operational and financial indicators – on a 100% basis

TWO RIVERS MINE

Ownership:

ARM owns 54% with Impala Platinum owning the balance.

Management:

Managed by ARM.

Refining:

All metal-in-concentrate produced is sold to an Impala subsidiary, Impala Refining Services (IRS). Chrome concentrates are sold through chrome traders to various global end users.

	unit	F2019	F2018	F2017	F2016	F2015
OPERATIONAL						
Production volumes						
Platinum	oz	147 235	162 543	181 882	185 856	173 544
Palladium	oz	85 962	96 569	107 108	110 943	101 967
Rhodium	oz	25 617	28 553	31 797	33 098	30 645
Gold	oz	2 321	2 528	2 681	2 695	2 506
Ruthenium	oz	42 145	46 937	54 094	55 110	51 815
Iridium	oz	10 126	11 274	12 653	13 020	12 116
PGMs	oz	313 406	348 405	390 214	400 722	372 592
Nickel	t	552	606	602	648	584
Copper	t	240	274	280	308	267
Chrome sold	t	219 566	229 642	275 189	283 765	240 411
Other operational indicators						
Tonnes milled	Mt	3.40	3.46	3.50	3.51	3.36
Head grade	g/t 6E	3.52	3.63	3.90	4.06	3.98
Average basket price	R/kg 6E	467 994	370 755	333 746	320 977	341 200
Cash cost	R/t	736	688	690	642	595
Cash cost	R/PGM oz	8 001	6 822	6 195	5 624	5 365
Cash cost	R/Pt oz	17 031	14 623	13 291	12 125	11 519
Cash cost	R/kg 6E	257 244	219 334	199 168	180 802	172 503
FINANCIAL						
Sales revenue	R million	4 299	3 883	3 996	3 917	3 676
On-mine cash operating costs	R million	(2 508)	(2 377)	(2 417)	(2 253)	(1 999)
Off-mine cash operating costs	R million	(305)	(142)	(76)	(56)	(28)
Chrome cash costs	R million	(54)	(50)	(144)	(252)	(231)
Total cash operating profit	R million	1 433	1 314	1 359	1 356	1 418
Cash operating profit – PGM	R million	1 264	1 104	1 006	1 226	1 270
Cash operating profit – chrome	R million	168	210	353	130	148
Capital expenditure	R million	587	455	293	282	277



Refer to note 2 to the annual financial statements for the Two Rivers Mine segmental information.

ARM PLATINUM continued

Summary operational and financial indicators – on a 100% basis continued

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MODIKWA MINE

Ownership:

Effective 41.5% shareholding held through ARM Mining Consortium, 8.5% held by local communities and 50% by Anglo American Platinum.

Management:

Jointly managed by ARM and Anglo American Platinum.

Refining:

All metal-in-concentrate produced is sold to Anglo American Platinum.

	unit	F2019	F2018	F2017	F2016	F2015
OPERATIONAL						
Production volumes						
Platinum	oz	121 033	131 725	116 531	113 792	100 593
Palladium	oz	114 389	124 057	114 274	111 507	99 082
Rhodium	oz	24 388	26 693	24 144	23 605	20 802
Gold	oz	3 064	3 320	3 014	3 011	2 694
Ruthenium	oz	35 218	38 993	34 965	33 637	29 762
Iridium	oz	8 340	9 098	8 302	8 051	7 104
PGMs	oz	306 930	333 888	301 228	293 604	260 037
Nickel	t	557	628	589	597	531
Copper	t	345	384	365	364	321
Other operational indicators						
Tonnes milled	Mt	2.29	2.43	2.01	2.05	1.86
Head grade	g/t 6E	4.92	4.98	5.43	5.27	5.17
Average basket price	R/kg 6E	491 723	380 603	334 051	315 748	336 699
Cash cost	R/t	1 345	1 265	1 265	1 182	1 187
Cash cost	R/PGM oz	10 027	9 197	8 463	8 244	8 481
Cash cost	R/Pt oz	25 427	23 311	21 878	21 271	21 924
Cash cost	R/kg 6E	322 360	295 685	272 104	265 046	272 676
FINANCIAL						
Sales revenue	R million	4 134	3 592	2 513	2 409	2 164
Total cash operating costs	R million	(3 077)	(3 071)	(2 549)	(2 420)	(2 205)
Total cash operating profit/(loss)	R million	1 057	521	(36)	(11)	(41)
Capital expenditure	R million	260	266	262	282	646



Refer to note 2 to the annual financial statements for the Modikwa Mine segmental information.

NKOMATI MINE**Ownership:**

Equally owned by ARM and Norilsk Nickel Africa (Pty) Ltd.

Management:

Managed as a 50:50 unincorporated joint venture with Norilsk Nickel Africa.

Refining:

All metal-in-concentrate produced – excluding chrome – is sold to Metal Trade Overseas AG. Chrome concentrates are sold through marketing agents, to various end users.

	unit	F2019	F2018	F2017	F2016	F2015
OPERATIONAL						
Production volumes						
Nickel	t	14 209	13 302	15 875	21 592	21 298
Copper	t	7 163	7 371	7 637	9 893	9 666
Cobalt	t	820	716	813	1 065	1 116
PGMs	oz	109 496	110 290	123 745	157 598	144 368
Chrome concentrate sold	000t	442	328	241	273	377
Other operational indicators						
Tonnes milled	Mt	8.15	8.04	7.49	8.24	8.03
Head grade	%	0.26	0.24	0.30	0.36	0.36
Average nickel price	US\$/t	12 343	12 397	9 882	9 275	15 102
Nickel on-mine cash cost per tonne treated	R/t	367	301	284	295	296
Nickel on-mine cash cost per tonne milled – including capitalised waste stripping costs	R/t	394	339	367	338	347
Cash cost net of by-products	US\$/lb	6.47	5.86	4.81	4.18	4.85
FINANCIAL						
Sales revenue	R million	3 046	3 278	3 991	4 491	5 372
Nickel on-mine cash operating costs	R million	(2 927)	(2 450)	(2 019)	(2 528)	(2 732)
Nickel off-mine cash operating costs	R million	(114)	(211)	(1 209)	(1 827)	(1 485)
Chrome cash operating costs	R million	(101)	(123)	(103)	(248)	(340)
Total cash operating profit/(loss)	R million	(97)	494	660	(112)	815
Cash operating profit/(loss) – Nickel Mine	R million	(411)	259	252	(232)	537
Cash operating profit – chrome	R million	314	235	408	120	278
Capital expenditure	R million	336	428	718	488	666



Refer to note 2 to the annual financial statements for the Nkomati Mine segmental information.