SUPPLIES, MINING & EXPLORATION

- Global platinum shipments decreased by 13% to 5.64 million ounces, due to a steep decline in output from strike-hit mines in South Africa.
- Platinum sales by South African producers fell by 10% to 4.10 million ounces, a 12-year low. Palladium and rhodium supplies were also hit by the stoppages, falling by 9% and 10% respectively.
- Norilsk Nickel’s Russian operations reported a 3% decline in palladium output, to 2.63 million ounces, while sales from state stocks fell to just 250,000 oz. As a result, palladium shipments from Russia were at their lowest level in a decade.
- Shipments of platinum from North American mines declined by 16% to 295,000 oz, but palladium supplies were little changed at 905,000 oz.
- Production of pgm from Zimbabwe was affected by smaller outages at Zimplats in 2012. As a result, pgm supplies were unchanged on the previous year.

South Africa

The South African pgm industry was severely hit by unprotected work stoppages during 2012, with the result that shipments of platinum fell to their lowest level in more than a decade. Supplies would have been even lower were it not for releases of metal from in-process inventories, as refineries drew down their pipeline stocks during periods of mine inactivity. In total, we estimate that the mines lost at least 750,000 oz of platinum production in 2012 due to strikes, both legal and illegal, safety stoppages and mine closures. We discuss the chronology of these events and their impacts on the industry in a special feature on South African production on page 17.

The illegal work stoppages mainly hit the older mines on the western Bushveld operated by Anglo American Platinum, Impala Platinum and Lonmin. Worst hit were Impala’s Rustenburg lease area, where refined platinum output contracted from a third, and Anglo’s Union mines, where there was a 23% decline. There were smaller reductions from the latter’s Rustenburg and Amandelbult groups of mines, while Lonmin reported an 8% fall in output of platinum in concentrate from its Marikana mine.

In contrast, with the exception of Atlantic Resources’ Bokoni mine, which experienced a prolonged illegal stoppage, mining operations on the eastern Bushveld and the Platreef were comparatively unaffected by the turmoil. Indeed, the Two Rivers and Motoloto mines both reported record platinum output in 2012.

Low pgm prices also contributed to the reductions in supplies, with three mines and one work stoppage representing plant ceasing operations during the year, and others rationalising their activities in order to conserve cash. Aquarius Platinum announced that it was mothballing two of its mines, Excel from state stocks fell to just 250,000 oz. As a result, palladium shipments from Russia were at their lowest level in a decade.

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Anglo American Platinum

Shipments of platinum by Anglo American Platinum fell by 17% to 2.17 million ounces in 2012, reflecting significant production losses from its western Bushveld operations during unprotected strikes that took place between September and November. This figure includes 62,000 oz of production from the Unki mine, which we classify under Zimbabwe supplies, although the metal is refined at Anglo’s facilities in South Africa. Sales fell below the level of refined production, due to the suspension of spot sales during the fourth quarter in response to disruptions at the mines. In total, 160,000 oz of platinum were contracted by a third, and Anglo’s Union mines, where there was a 23% decline. These operations were hit by industrial unrest, which propagated from the Rustenburg area in early October, and was only resolved in mid-November, and by the depletion of surface sources of pgm, which have been supplementing underground output at Turmel and Union North.

Perhaps surprisingly, production at the company’s Rustenburg area operations was comparatively lightly affected, with total annual output dropping only 8%, even though these mines were at the epicentre of the illegal strikes, and experienced prolonged disruption between September and November 2012. This was principally because of a strong first half performance and the production ramp-up at the recently reopened Khuseleka 2 shaft.

Some of Anglo’s joint venture and associate mines were also affected by industrial unrest, but to a much lesser degree, and the impact on production was generally limited. The Modikwa mine, a joint venture with African Rainbow Minerals, experienced a 27-day legal wage strike during the first half of 2012, losing an estimated 11,000 oz of platinum output, but nevertheless reported a full year production figure of 84,000 oz of rhodium. Impala platinum

Output of pgm from Impala’s Rustenburg lease area dropped sharply in 2012, reflecting losses incurred during a six-week illegal strike, which halted mining between mid-January and early March, and a slow return to normal operations thereafter. The poor performance was exacerbated by safety stoppages, a lack of ore reserve flexibility and a refinery pipeline lock-up at the year-end. As a result, refined pgm output fell by a third in 2012, to 628,000 oz of platinum, 355,000 oz of palladium and 8,000 oz of rhodium.

Impala continues to focus on the development of major vertical shaft projects at its Rustenburg lease area, the most advanced of which – 20 shaft – began the build-up of underground production in 2012. The board of Impala has approved a R2.1 billion project, planned for completion in 2015 to replace the final metals processing facility at its precious metals refinery. The company has also reactivated the development of the Lonminhope mine, which had been mothballed in the wake of the global financial crisis. This R9.8 billion project involves the construction of a vertical shaft to provide access to the reef at depths of between 1,000 and 1,800 metres. On completion, the mine will extract 2.16 million tonnes of UG2 ore annually.
yielding around 145,000 oz of platinum, with first production in the first half and a rapid resumption of production in the final quarter. Meanwhile, total refined platinum production fell 6%, aided by a release of 33,000 oz of the metal from in-process inventories. Sales of platinum totaled 717,000 oz, a drop of 4%. Platinum shipments are likely to fall this year, as pipeline restocking offsets an increase in mine output: Lonmin expects to sell 660,000 oz of platinum in the year to September 2013. Thereafter, production and sales are planned to increase to at least 750,000 oz of platinum annually in the 2014 and 2015 financial years.

Northam

In contrast to its larger peers, Northam’s mining operations were little affected in 2012 by the volatile labour relations climate. The Zondereinde mine, the deepest pgm operation in South Africa, recorded a 10% increase in mill throughput, to 2.1 million tonnes of ore, while production of pgm in concentrate rose by 8% to 301,000 oz. However, a furnace run-out in May resulted in a four-month interruption to smelting operations; during the rebuild, concentrates containing just over 100,000 oz of pgm were despatched for toll treatment by a third party. The smaller was recommisioned in September. Northam also refined and markets pgm from the Plaasenberg mine, where production rose by a third in 2012 (see below). However, during the smaller rebuild, Northam temporarily halted purchases of concentrate from this source; as a result, its total pgm shipments fell slightly last year, to 203,000 oz platinum, 56,000 oz palladium and 24,000 oz rhodium.

Sales of pgm by Northam should rise this year, with the commissioning of the Booyensdal mine on the eastern Bushveld. Underground mining has commenced, and by early 2013, a surface stockpile containing 320,000 tonnes of ore had been accumulated. This material will be used to commission the concentrator, and the first refined production from Booyensdal should be seen during the second half of this year.

Other Producers

In this section we discuss mines which are not owned or part-owned by Anglo American Platinum, Impala Platinum, Lonmin or Northam. Almost all pgm production from these operations is processed in South Africa under concentrate offtake agreements with the major producers.

In the first nine months of 2012, Platmin’s Pilanesberg open pit mine reported a 34% increase in pgm output, to 64,000 oz; concentrate from this operation is sold to Northam. The project continued to struggle with low grades and recoveries, with the

2012 saw exceptional disruption to platinum mining in South Africa. At least 750,000 oz of production was lost to strikes, safety stoppages, and mine closures.

All three major producers saw the shutdown of their main operations on the western Bushveld for periods of several weeks at a time. Impala Platinum’s Rustenburg lease area was the first to be affected, when rock drill operators (RDOs) embarked on an unprotected illegal strike in January, leading to the cessation of mining for six weeks. Although production resumed in early March, by mid year Impala reported that output was still only 85% of pre-strike levels. As a result, the company estimated that it lost 150,000 oz of platinum during the first half of 2012.

Anglo American Platinum was the next to experience an illegal walk-out, with wildcat strikes in the Rustenburg area cutting production by 9,000 oz during July. A month later, an unprotected strike at Lonmin spiraled into violence and bloodshed, culminating in the loss of many lives on 16th August. The Marikana mine remained at a standstill for six weeks, losing an estimated 110,000 oz of platinum output.

In September, Anglo suspended its Rustenburg operations due to concerns about intimidation of mine workers. Although the resumption of mining was announced on the 18th, many miners failed to report for work, and by early October, absenteeism was also affecting the Amandelbult and Union mines to the north. An agreement enabling a return to work was finally signed on 15th November. In total, Anglo estimates that it lost over 300,000 oz of platinum production due to illegal strikes at its managed and joint venture operations in 2012.

Safety stoppages had an impact on the mines in 2012, although at a much reduced level compared to 2011. We estimate that over 70,000 oz of production was lost to Section 54 stoppages. The closure of shafts on economic grounds at Exxaro, Marikana and Smokey Hills also contributed to the drop in output during the year. In January 2013, Anglo announced the results of a strategic review of its platinum business, which could see production reduced by up to 400,000 oz a year.
At Eastern Platinum’s (Eastplats’) Crocodile River mine, which also sends concentrate to IRS, platinum output totalled 43,000 oz, a fall of 7%. Mining volumes were affected by the decision to temporarily suspend stoping at the Zandfontein section, due to low pgm prices, although mining continues at Marakelebult.

Development of Eastplats’ assets on the eastern Bushveld has been put on hold. Construction of a concentrator on the Kennedy’s Vale property commenced in 2011 and was due to be completed in the first quarter of 2013; this plant was to be used to process ore from the nearby Maresburg project, and later from the neighbouring Spiphoka property. However, in mid-2012, economic considerations led to the company suspending funding for both the concentrator and the Maresburg open pit.

Platinum Australia’s Smokey Hills mine was placed on care and maintenance in June 2012 due to low metal prices and difficult in securing finance. The company’s South African assets have been acquired by Jubilee Platinum, which intends to treat chrome tailings through the Smokey Hills concentrator, and will restart underground mining operations in the second half of this year. The aim is to ramp up production to around 60,000 oz of pgm annually from 2013.

Sylvania operates six chrome tailings retreatment plants located at chrome mines on the eastern and western limits of the Bushveld. These operations process new tailings arising from current chrome mining activities as well as material from existing dumps, and they were therefore disrupted by the general industrial unrest affecting Bushveld mines in 2012. Nevertheless, the quantity of material processed through the pgm plants rose slightly to 712,000 tonnes. However, a fall in average grades meant that production of pgm in concentrate contracted by 14% to 41,000 oz.

Sylvania also has a 25% interest in the Chrome Tailings Retreatment Plant (CTRP), a joint venture with Aquarius Platinum (50%) and Ivanhoe Platinum (25%), located at the Kroondal platinum mine. Due to low pgm prices, this plant ceased operations in mid-2012.

Construction of the Wesvlei Platinum mine, adjacent to Royal Bafokeng Platinum’s Strydput mine, is now underway.

The first blast at the ventilation shaft took place in June 2012, while sinking of the main shaft begins in 2013. Commissioning of the first of three concentrator modules is due to take place in 2020, and the remaining two modules in 2023, once steady-state mining levels are achieved. At full production, the mine is planned to extract around 230,000 tonnes of ore per month, yielding 350,000 oz of pgm annually.

Wesvlei Platinum is also a partner in the nearby Western Bushveld Joint Venture (WBJV) Project 1, in which it holds a 26% stake. The remaining 74% interest in the project is held by the Canadian company Platinum Group Metals Limited. Mine development is progressing and construction of a concentrator is scheduled to begin in the first half of this year, with commissioning due in late 2014. The mine is planned to produce around 275,000 oz of pgm annually.

Production continues to ramp up at the Naumati Nickel mine, a JV between African Rainbow Minerals and Norilsk Nickel, which produces pgm as by-products. In 2012, output totalled 24,000 oz of platinum and 64,000 oz of palladium, up by around 30% compared with the previous year.

RUSSIA

Shipments of platinum and palladium from Norilsk Nickel’s Russian operations fell slightly in 2012. At 660,000 oz, platinum output was down 2% on the previous year, while palladium production declined by 3% to 2.63 million ounces. We believe that Norilsk also refined large quantities of stored pyrrhotite concentrate, which is relatively enriched in rhodium, as a result, we have increased our estimate of supplies of this metal in 2012, to 90,000 oz.

In view of the depletion of its richest, massive sulphide ore resources, and the consequent decline in average grades across its operations, Norilsk Nickel plans to increase production from disseminated ores going forward. In September 2012, the company announced that it had completed design works aimed at expanding the Zapolyarny mine, which extracts disseminated ore from the Norilsk-I deposit. Mine capacity will be increased gradually from 1.2 to 2.0 million tonnes of ore annually by 2019.

The company’s published outlook suggests that there will be another modest decline in platinum and palladium output this year, to around 530,000 oz and 2.5 million ounces respectively.

We believe that shipments of platinum from alluvial mining operations contracted slightly in 2012, to 140,000 oz. In the Russian Far East, output from the largest producer, Kondyor, remained stable but production from the Koryak deposit is thought to be in decline and to have fallen to relatively insignificant levels. Small amounts of platinum are also extracted from alluvial deposits in the Sweflovensk area of the Urals and from dredging in the area around Norilsk itself. Our estimate of sales of palladium from government controlled inventories remains unchanged, at 250,000 oz in 2012, down from 775,000 oz the previous year. Going forward, we believe that there may be some residual sales of metal in 2013, but once again at much reduced levels. Our view is that Russian stock sales are unlikely to be of significance to overall palladium supplies in the foreseeable future.

NORTH AMERICA

Supplies of platinum from North America dropped by 16% to 285,000 oz, reflecting lower production of this metal at Vale’s Sudbury operations. However, palladium shipments were up slightly, at 905,000 oz, with a reduction in sales by Stillwater more than offset by increased output from North American Palladium. Rhodium supplies were unchanged, at 23,000 oz.

Canada

North American Palladium’s Lac des Iles (LDI) mine had a positive year, with palladium output rising 12% to 164,000 oz. The LDI plant currently processes a mixture of high-grade ore from underground operations, and lower-grade ore from surface sources. A new shaft is being developed which will enable the company to increase production of high-grade underground ore, raising production to around 250,000 oz of palladium annually from 2015. Xstrata and Vale both produce pgm as by-products of nickel mining at their Canadian operations. Vale reported a drop in platinum output from its Sudbury mines in 2012, although...
palladium shipments were stable and nickel output was up by nearly 10%. At Xstrata’s Sudbury unit, nickel production rose by 3% to 20,425 tonnes, while output of copper rose by 16% to 57,813 tonnes, reflecting high copper volumes from the company’s Nickel Rim South mine and from the Fraser mine, where it is extracting copper-rich ore under an agreement with Vale. Both these mines exploit orebodies containing higher copper and pgm values than is typical of the Sudbury area.

Stillwater Mining Company is undertaking engineering studies and environmental permitting activities at its Marathon pgm and copper project north of Lake Superior in Ontario, Canada. Initial estimates suggest that the planned open cast mine would produce about 200,000 oz of pgm annually over an 11.5-year mine life. In March 2012, it was announced that Mitsubishi Corporation had entered into an agreement under which it will acquire a 25% interest in the Marathon project.

USA

The Stillwater Mining Company operates two mines in Montana which are currently the only significant producers of primary pgm in the USA. In 2012, the company produced 514,000 oz of platinum and palladium combined, similar to the previous year, as a slight decline in mill throughput was offset by modest increases in grades and recoveries. However, sales fell slightly below the level of production, at 386,000 oz of palladium and 114,000 oz of platinum.

Stillwater expects to maintain output at around 500,000 oz of pgm annually until new projects bring a modest expansion of production in 2015 and beyond. The Graham Creek project at the East Boulder mine will add around 30,000 oz of pgm annually starting in late 2014, while the Far West project – an unexploited area within the Stillwater mine – could add a further 45,000 oz per annum by 2017.

ZIMBABWE

Supplies of platinum from Zimbabwe were unchanged in 2012, as outages at the Zimplats smelter resulted in a temporary increase in unprocessed stocks of pgm at the year-end. Underlying production remained strong, with both Mimosa and Unki reporting record pgm output.

Following its commissioning in January 2011, Anglo American Platinum’s Unki mine has recorded a swift ramp up to full production levels. In 2012, the mill processed 1.54 million tonnes of ore, up 20% compared with the previous year, and in excess of its nameplate capacity (120,000 tonnes per month). Although the average head grade fell by 6% to 3.43 grams of pgm per tonne, this was offset by an improvement in recoveries, and equivalent refined platinum production rose by 20% to 63,000 oz.

Improvements in capacity utilisation enabled the Mimosa mine (a 50:50 joint venture between Aquarius Platinum and Impala Platinum) to achieve record pgm output in 2012. Mill throughput rose by 2% to 2.37 million tonnes, leading to a small increase in output of platinum in concentrate, to 108,000 oz. The mine is operating at full capacity and production is likely to be flat this year.

Zimplats’ Ngezi mine produced 169,000 oz of platinum in matte in 2012, down 9% on the previous year. However, this was entirely due to a build-up in pgm stocks in the processing pipeline, following a furnace run-out in November. At the year-end, the company reported an 18,000 oz inventory of unprocessed platinum, which will be refined in the first half of 2013 and will add to supplies this year.

The company’s Phase 2 expansion, planned to increase production to 270,000 oz of platinum annually by 2015, remains on schedule. The project involves the development of a new two million tonne per annum underground mine plus additional concentrator capacity.

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