

IN this section, I shall examine the mining companies or institutions that produce the PGM in the various countries of the world, their latest economic situation, any recent exploration they have undertaken, their current problems, and their prognoses for the future — again in order of importance on a country-by-country basis.

3.1. South Africa

3.1.1. The Rustenburg Group

The company known as Rustenburg Platinum Holdings Ltd (RPH), which was formed on August 1976, was the sole owner of Rustenburg Platinum Mines (RPM), which was previously owned by Union Platinum Mining Co. Ltd (37,3 per cent), Potgietersrust Platinums Ltd (32,9 per cent), and Waterval (Rustenburg) Mining Co. Ltd (29,8 per cent). The name of the Union company was changed to RPH, and the remaining RPH shares were allocated to the shareholders of Potgietersrust and Waterval (the latter was originally owned by Consolidated Gold Fields with 44,85 per cent and Lydenburg Platinum Ltd with 25,51 per cent). Subsequently, RPH gained control of both Lebowa Platinum Mines Ltd and Potgietersrust Platinums Ltd. In October 1991, the shareholding links between these companies were dissolved, and each became a separate subsidiary of the Johannesburg Consolidated Investment Co. Ltd (JCI Group). In November 1991 RPH distributed its entire 50 per cent shareholding in Potgietersrust Platinums and its 21,5 per cent shares in Lebowa, as an *in specie* dividend to its own shareholders at the ratio of 58 Potgietersrust and 20 Lebowa shares for every 100 RPH shares held. This equalled R2,49 per share to its shareholders at the date of declaration. This followed a rights offer made by Potgietersrust Platinums Ltd, and its subsequent flotation and listing on the Johannesburg and London exchanges. These companies will therefore be dealt with separately.

Rustenburg Platinum Holdings is administered by JCI, which is also its major shareholder (32,87 per cent) together with the Anglo American Group (23,9 per cent). The net assets of the company at 30 June 1992 (mid-year) amounted to R1745,4 million, and net midyear profits amounted to R1551,3 million in 1990, to R608 400 000 in 1991, and R407 000 000 in 1992. The fall in income is due to downward price fluctuations. RPH is the holding company of RPM.

Rustenburg Platinum Mines operations consist of three separate underground sections; Rustenburg, Union, and Amandelbult, which were established in that order. The outcrop farms for these three sections are listed under Kroondal, Swartklip, and Middellaagte respectively in Table 2.2. Rustenburg, the oldest section, is situated on either side of the town of Rustenburg,

and currently exploits only the Merensky reef in numerous totally mechanized shafts (Bleskop, Brakspruit, Frank, Paardekraal, No. 6 incline, Townlands, Turffontein, Waterval Vertical, and West Vertical) and equally numerous inclines. The ore is fed to three mills. The second-oldest section, Union, in the northern part of the western lobe of the Bushveld complex has four operating shafts (Ivan, Spud, Richard, and 22 Incline Winze) and numerous winzes which feed the Mortimer mill and concentrator. Both the Merensky reef and the UG2 layer are exploited. The youngest Amandelbult section has a large number of inclined winzes, and two vertical shafts are being sunk. The production capacity of the mine was increased to 150 000 t/month in 1992. The No. 1 vertical shaft, due to be completed by June 1993, will extend operations to a depth of 940 m. Work has commenced on the No. 2 vertical shaft, which is due to be commissioned to a depth of 1250 m in about 5 years' time. Both the Merensky and UG2 layers are exploited.

The output capacity of the various sections is exceedingly difficult to judge. The mill at Amandelbult has had its capacity increased from 290 000 to 420 000 t/month, in spite of technical difficulties encountered in the metallurgical plant. During the 1991/92 financial year, the mill capacity at Union was increased moderately from 250 000 t/month to an estimated 280 000 t/month. For 1992, the *Mining Analyst* (October 1992) estimated the joint output from RPM to total 41 990 kg (1 350 000 oz) of platinum, 18 040 kg (580 000 oz) palladium, and 3 048 kg (98 000 oz) rhodium, which included an increased mine output of 700 000 t/y from all the mines; this was calculated as being equivalent to an estimated increase of 1106 kg (35 568 oz) of platinum over the previous year's production. The 1992 Johnson Matthey review suggests a 3 110 kg (100 000 oz) increase in platinum output after September 1992, because of an escalated output of 100 000 t/month from the UG2 and 40 000 t/month from the Merensky reef. Odendaal (1989) suggests that RPM may increase its PGM output to 51 000 kg, or 1,64 million oz, by 1995.

Lebowa Platinum Mines Ltd. In July 1987 by agreement with the Lebowa Development Corporation (on behalf of the Lebowa government), RPH established a new company called Lebowa Platinum Mines Ltd. It was planned to work and expand, under concession and with a royalty payment, both the Atok (on the farm Middelpunt 420 KS, originally bought from Anglovaal) and the Maandagshoek UG2 mines in the eastern Bushveld Complex. In 1976, RPM had already established a pilot plant on Driekop, adjoining Maandagshoek, to test the feasibility of mining the UG2 in that area. Eventually, the cheaper option of expanding operations at Atok was preferred to mining the UG2 on tribute at