

Strategic minerals and world power

duction of steels, a use which accounts for about ninety percent of manganese consumption. Although substituting other materials for manganese is more feasible than in the case of chromium, the cost of suddenly having to do so would be enormous and the consequences serious for the steel and allied industries. Table 2 lists the Soviet Union as the world's largest producer of manganese ore, but most of this is in fact consumed domestically or within the Warsaw Pact. Major exporters in recent years have been South Africa (over thirty percent), Gabon (twenty-two percent), Australia (ten percent), Brazil (eight percent), and India (six percent), with Soviet exports fluctuating between four and ten percent depending on the vicissitudes of domestic production and demand. South Africa is once again more important than the figures for ore production and exports suggest because it has chosen to process increasing quantities of its ore into ferromanganese, of which it is the non-Western world's largest exporter. South Africa and the Soviet Union also possess most of the world's manganese reserves, indicating growing market dominance in the future.

Supply management tricky

Like its Western allies, Canada obtains most of its chromium and ferrochromium from South Africa, although accurate figures are impossible to come by since much of it is transshipped by way of the United States and the latter thus appears in Canadian trade statistics as the source. With respect to manganese, Gabon has been the major Canadian supplier in recent years, with South Africa and Brazil also being important sources. Disruptions in the supply of either mineral could result from deliberate actions on the part of exporting country governments or from political and civil strife or conflict. Deliberate embargoes or partial curtailments of exports of **chromium** could occur if the key suppliers decided to press for a much higher market price for their non-renewable reserves. In the 1960s and early 1970s, the Soviet Union and Turkey at times took advantage of the fact that their high-grade metallurgical chromite ore was required in some of the major industrial uses of chromium. Since such ores were not available in sufficient quantities elsewhere, they were able to demand a premium on the market by tacitly cooperating to restrict supplies. More recently, however, technological developments have made it possible to use other ores (particularly those found in South Africa) in the production of ferrochromium, the basic intermediate product for the manufacturing of stainless and other alloy steels. Thus the market power of Turkey and the Soviet Union has been undercut. South Africa has to date not sought to exploit its increasingly dominant market position to force prices up, although it could, in collaboration with the Soviets, precipitate a sharp price rise through reduced exports. Pretoria may well be reluctant to incur the political opprobrium of its Western customers that would surely result if it engaged in cartel-like behavior. In any case, the government apparently believes that it is in South Africa's interest to maintain chromium prices at levels that do not stimulate energetic conservation and substitution efforts by consumers and increased production by higher cost suppliers.

Deliberate action to curtail exports by one or more of Canada's major **manganese** suppliers is also quite improbable. Brazil and Australia are generally thought unlikely to

participate in producer schemes to restrict supplies of minerals because they are anxious to increase their share of the markets for bauxite, manganese and other minerals. South Africa has similar motives for refraining from taking action to increase prices drastically. South Africa could conceivably seek to "punish" its Western critics by reducing exports of manganese, chromium and other important minerals, but in fact its current plans anticipate a major *increase* in production of both manganese and chromium in the 1980s, a policy that is clearly incompatible with supply restrictions. Gabon, which, unlike the other producers, obtains the bulk of its export earnings from manganese, might anticipate significant economic gains from the formation of an explicit manganese cartel designed to engineer large price increases. But its ambitious plans to expand mine output and the major investments it has already made in improved transportation facilities suggest that it will be reluctant to abandon its goal of a greater market share. Moreover, without South Africa's cooperation, a manganese cartel would be doomed, particularly in light of the Republic's dominant reserve position in the non-communist world. The land-based producers of manganese are also presumably aware that severe upward price pressure will only intensify the search for seabed manganese nodules and improve the prospects for the economic recovery and sale of these resources.

Political dimension

Disruption of chromium and manganese deliveries could also result from political instability and turmoil in supplier countries, particularly South Africa, the West's principal source. Much scholarly ink has been spilled over the contentious question, "How long will South Africa survive?" and no attempt to grapple with this difficult topic can be undertaken here. However, it does not seem unreasonable to suggest that growing dissatisfaction among the disenfranchised elements of the South African community (i.e., the blacks, Coloureds and Indians who together comprise close to eighty-five percent of the population) may well precipitate an ever higher incidence of politically-motivated acts of sabotage and terrorism against industrial, military and other targets. Unsupported by external allies, domestic insurgent groups would be no match for the enormously powerful and recently much-strengthened South African security forces. Nonetheless, attacks on the transportation infrastructure, power plants, factories and mining and processing facilities could certainly lead to at least partial and temporary interruptions in mineral production and exports. More ominous is the prospect of black opposition groups receiving significant support from other states in the region, and perhaps from the Soviet bloc as well. If this should happen, conflict between Pretoria and its neighboring states (including perhaps a Marxist and black-ruled Namibia) is virtually certain to occur, with incalculable consequences. Many of South Africa's major mineral deposits are located in the northeast of the country near Zimbabwe and Mozambique, and that cannot be reassuring to anxious importers.

A fear persistently voiced by some observers is that the Soviet Union is seeking to deny the West access to southern Africa's minerals by exerting greater diplomatic, economic and military influence in the region. One particularly unpleasant scenario has the Soviets simultaneously fomenting revolution in South Africa, gaining