

des in-
to im-
influ-
uld be
nation
omous
d Rec-
chnol-
nsfor-
1981,

State mining enterprises in the international minerals industry

By Magnus Ericsson and Andreas Tegen

1. Background

State ownership in the Western world minerals industry is a relatively new phenomenon. In 1950 there was little state-owned mining capacity outside the socialist countries. 35 years later the picture is different, and state-owned mining represents an important part of total Western world production.

In an overall global perspective, state-owned mining enterprises represented just above 40% of the value of 1984 global mine production of non-fuel minerals. The socialist countries accounted for 30% and state-owned companies in the Western world accounted for about 13%.

There are a number of driving forces leading to the emergence of state enterprises. The driving forces are often divided into two broad categories: economic and political.¹

In the case of the minerals industry, in particular in the Third World, political considerations have been the dominant cause behind the increase in state-owned mining capacity. It was an ambition of many of the former colonies to create a national industrial base for economic and social development. A wave of nationalisation of mining assets swept over the Third World in the late 1960s and early 1970s.

During the 1980s the governments of the Third World mineral producing countries have been facing a dramatically deteriorating situation. These governments have tried various new ways, in addition to nationalisation, to increase, directly or indirectly, participation in or control over the mining and metallurgical sectors of their countries. Examples are barter agreements with socialist countries, South-South cooperation agreements, technical assistance agreements with transnational companies and negotiations to improve legal and/or fiscal arrangements.²

Nationalisations has also been carried out in industrialised countries, but some-

times with other motives than those of Third World governments. One motive in industrialised countries has been to smooth an otherwise too painful restructuring process and save jobs in areas where the close-down of a mine would be disastrous.³

Although this study deals with state mining enterprises, it is important to see the development of state-owned mining companies in a larger perspective, one which includes all mineral companies, both state-owned and privately owned. The private sector is still dominant in the industry and corporate concentration has increased substantially from 1975 to 1984.⁴

2. Method

This paper will focus on the development of state control in the minerals industry from 1975 to 1984, the period following the most spectacular nationalisations in the Third World. Two variables are used for assessing control: ownership and technical management.

Ownership and management are important tools for controlling a company, but they are not the only ones — in some cases perhaps not even the decisive ones. Marketing, market knowledge, vertical integration, financing and personal links such as interlocking directorates are other means of control. If these variables could also be measured, it would probably be found that state control was smaller and control by transnational mining companies larger than this study indicates. This is particularly so for state-owned companies in the Third World.

One example illustrates the problems of defining and assessing state control. How decisive was the control by the Jamaican government in 1984 of Reynolds Bauxite Co, in which it held 51% of the shares? The minority shareholder was the transnational Reynolds Metals Co, which controlled the processing of the bauxite. Reynolds closed down the

Raw Materials Group, Stockholm
This study was based on research assisted by the Swedish Agency for Research Cooperation with Developing Countries (SAREC), Stockholm

Table 1
State control by mineral 1975 and 1984: comparison between three methods

Mineral	State controlled share (per cent) of Western world mine production					
	"Equity" method		"Majority all" method		"Majority equity" meth	
	1975	1984	1975	1984		1975
Asbestos	1.4	6.6	.7	8.9	.7	
Bauxite	20.0	26.8	14.8	22.7	14.7	
Boron	27.7	21.5	27.7	21.5	27.7	
Chromite	20.8	10.9	21.5	11.3	20.8	
Cobalt	76.2	67.3	77.1	67.9	76.2	
Copper	31.2	43.0	30.4	39.7	30.3	
Diamond	5.1	16.7	2.1	2.0	5.1	
Gold	2.3	4.0	2.4	3.6	1.8	
Iron ore	23.6	29.6	24.0	36.5	23.6	
Lead	12.0	15.1	12.0	14.7	12.0	
Lithium	-	3.0	-	-	-	
Manganese ore	34.7	19.7	33.2	15.2	33.2	
Mercury	73.8	69.7	73.8	70.1	73.8	
Molybdenum	12.8	21.1	12.8	20.3	12.8	
Nickel	3.5	21.3	3.6	20.2	3.4	
Niobium	-	6.7	-	6.3	-	
Phosphate rock	26.4	32.1	25.2	31.0	26.4	
Platinum	-	-	-	-	-	
Potash	5.1	26.7	5.3	26.7	5.1	
Silver	11.5	14.0	11.4	13.6	11.3	
Tin	23.6	28.7	23.6	28.3	23.6	
Titanium	4.4	19.5	4.5	7.7	4.4	
Vanadium	7.2	18.5	7.3	18.7	7.2	
Zinc	11.5	14.8	11.8	13.7	11.5	
Zircon sand		16.8	-	4.1	-	
Mean value (25 minerals)	17.3	22.2	17.0	20.2	17.0	

company's operations in 1985, contrary to the demand of the Jamaican government.

It should also be pointed out that all governments also have the possibility of influencing the privately owned mining industry through laws regulating taxation, wages, pollution control, etc. However, these possibilities are limited, particularly for Third World governments. Recent examples of transfer pricing are but one example of this.

In this study it is assumed that control of a mining operation is correlated with the ownership and technical management of the operation.

Four main methods of using ownership as an assessment of control can be used:⁵

1. "Equity" method. State control is proportional to the equity held by the state in the company.

2. "Majority equity" method. State control is proportional to the equity held

by the state in the company, if it majority holding (more than 50%).

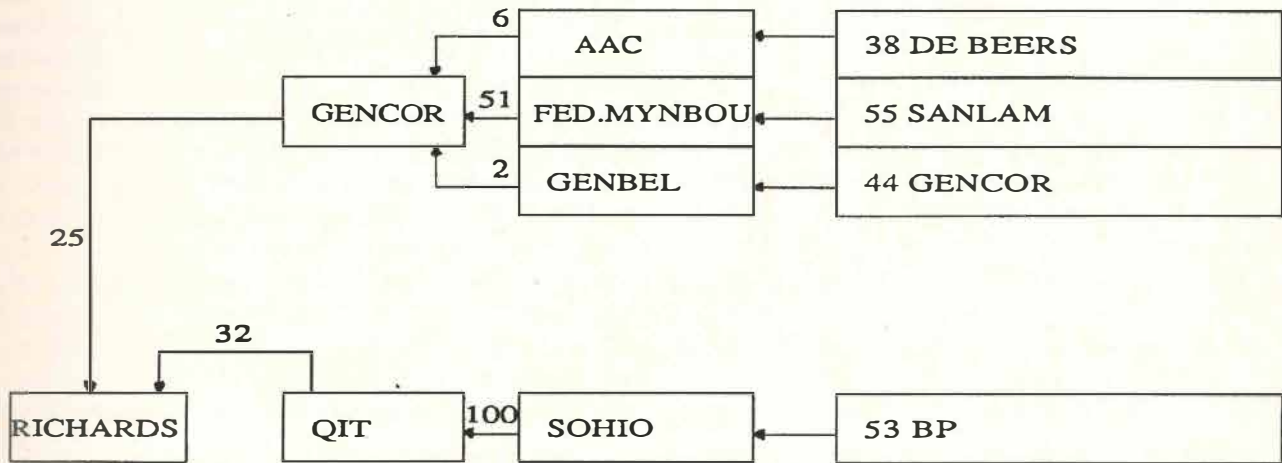
3. "Majority all" method. All companies in which the state holds a majority share (more than 50%) are regarded as fully state-controlled.

4. "All" method. All companies in which the state holds a significant share (more than 5-10%) are regarded as state-controlled.

For this study, the first three of methods have been tested and we

Figure 1
Ownership of Richards Bay Minerals, December 1984

(1984 ownership in %, owning leftwards)



Richards Bay Minerals (RICHARDS) was owned by GENCOR and QIT.

QIT was wholly-owned by SOHIO, which in turn was majority-owned by BP. There were no other large shareholders of SOHIO than BP. Thus, QIT was fully controlled by BP.

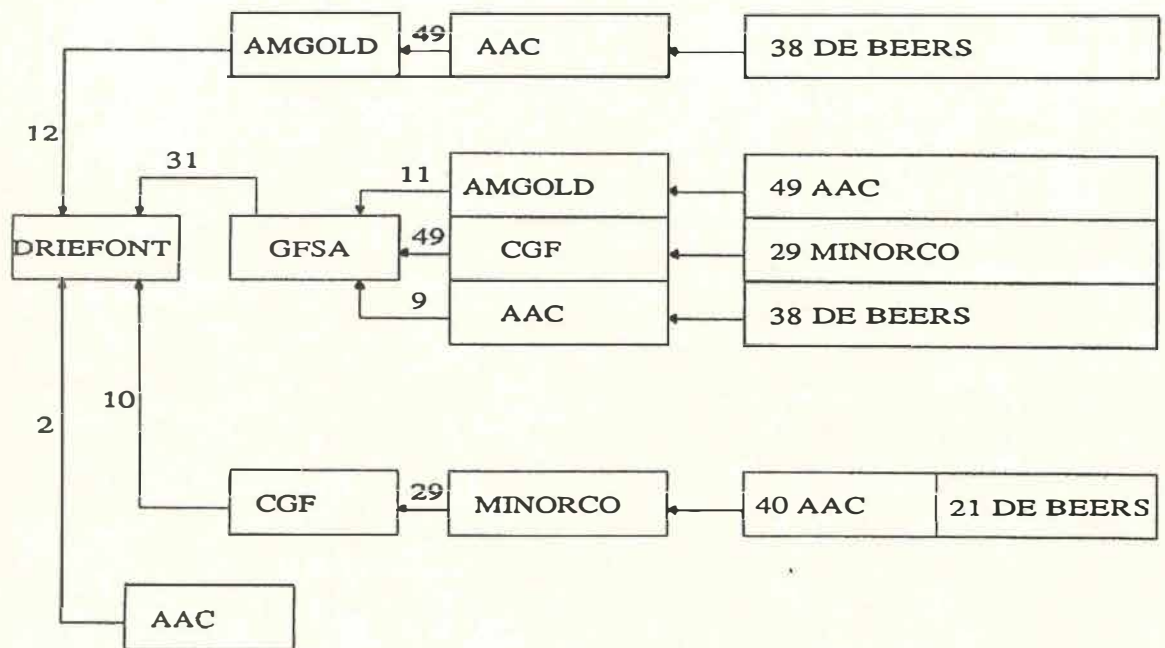
GENCOR was majority-owned by FED. MYNBOU, which in turn was majority-owned by SANLAM. AAC's 6 per cent holding in GENCOR was not considered enough for partial control. Thus, GENCOR was fully controlled by SANLAM.

No ownership links exist between GENCOR and QIT. Control of RICHARDS was shared between SANLAN and BP.

List of corporate abbreviations in Figure 1

Abbreviations	Full name of company	Country of incorporation
AAC	Anglo American Corp of South Africa Ltd	South Africa
BP	British Petroleum Co	United Kingdom
FED.MYNBOU	Federale Mynbou Bpk	South Africa
GENBEL	Genbel Investments Corp Ltd	South Africa
GENCOR	General Mining Union Corp Ltd	South Africa
RICHARDS	Ridcards Bay Minerals	South Africa
SANLAM	SANLAN	South Africa
SOHIO	Standard Oil Co (Ohio)	USA
QIT	QIT Fer et Titane	Canada

Figure 2
Ownership of Driefontein, December 1984
 (1984 ownership in %, owning leftwards)



For space reasons the diagram only shows the ownership chains to the third step. Although the ownership pattern in DRIFONT is complex, all ownership chains end with AAC and DE BEERS, which are linked together by crossholdings to form the AAC group. DRIFONT is fully controlled by AAC.

List of corporate abbreviations in Figure 2.

Abbreviation	Full name of company	Country of incorporation
AAC	Anglo American Corp of South Africa Ltd	South Africa
AMGOLD	Anglo American Gold Investment Co Ltd	South Africa
CGF	Consolidated Gold Fields plc	United Kingdom
DE BEERS	De Beers Consolidated Mines Ltd	South Africa
DRIFONT	Driefontein Consolidated Ltd	South Africa
GFSA	Gold Fields of South Africa Ltd	South Africa
MINORCO	Minerals and Resources Corp Ltd	Bermuda

chosen to use the "equity" method throughout. In most cases there is no or little difference in the result obtained with the three different methods. See Table 1.

The "majority equity" method shows a somewhat lower degree of state control in the minerals industry. Noticeable differences would occur with bauxite, copper, diamond, manganese, titanium and zircon. This method would show the control exercised by six states as substantially lower. These six states — Botswana, Gabon, Ireland, Liberia, Senegal and the UK — are all states which hold minority shares in mineral producers. Mineral producers which would not be considered as state-controlled to any extent include diamond producer Debswana in Botswana (state 50%), manganese producer Comilog in Gabon (state 30%) and all the mineral producers controlled by British Petroleum, in which the state held 39% of the shares in 1984.

The "majority all" method would produce similar results. The six minerals and six states mentioned above would be analysed in the same way with the "majority all" method. In addition, state control of the production of iron ore would be seen to be substantially higher, and control by the states of Angola, Brazil, Ghana and Mauritania would rise considerably. The reason for this is that mineral producers, which are majority-owned, but not wholly-owned, by the state, would be considered fully state-controlled. Such mineral producers include iron ore producer Cia Vale do Rio Doce in Brazil and gold producer Ashanti Goldfields Corp in Ghana.

The fourth method ("all" method) would give a quite different picture of state control in the minerals industry. However, this method obviously overestimates state control. It would not be correct to characterize, for example, Bougainville Copper (state 20%), or Bamangwato Concessions (state 15%) as

fully state-controlled companies, as the state in these cases has little influence over the broad policies of these companies.

The wholly or partially state-owned companies examined in this study are not always mineral producers themselves. On the contrary, the rule seems to be that state-owned companies — like privately owned companies — in turn own all or a part of other companies, of which some are producers, and some are holding companies, which in turn own producers. Hierarchies of companies owning the minerals industry are formed. This pattern of intercorporate control in the minerals industry is measured by a method which systematically attributes the production of the operating mining companies to those of their owners that fulfil certain criteria on ownership level and/or management contract. The method was developed by the Raw Materials Group.⁶

All minerals producing companies are classified as either

- independent;
- fully controlled by another company; or
- partially controlled by at least two other companies.

The method takes into account the dispersion of shareholding and ascertains, if there are two or more major owners, whether they are "rivals" or whether they belong to the same corporate group.

The final step in the method is to attribute the producer's production to the company/ies that control it. All of its production is attributed to the controlling company if it has full control. In the case of partial control, the producer's production is attributed to the controlling companies in proportion to their shareholding, direct or via subsidiaries.

The most common and unproblematic

Table 2
Development of state control by mineral

State share of Western world mine production in 1984

Change of state share from 1975 to 1984	Low (less than 10%)	10 – 20%	20 – 30%	High (more than 30%)
Large decrease (1)		Manganese		
Decrease (2)		Chrome		Cobalt Mercury
Constant	Platinum			
Increase (2)	Asbestos Gold Lithium Niobium	Lead Silver Zinc	Bauxite Iron ore Molybdenum Tin	Boron Phosphate
Large increase (1)		Diamond Titanium Vanadium Zircon	Nickel Potash	Copper

(1) More than 10 percentage points

(2) 0 — 10 percentage points

ether

Table 3
State control by mineral 1975 and 1984
Shares of production in industrialised countries and Third world

Mineral	State controlled share(%) of total Western world production					
	Western world		Industrialised countries		Third world	
	1975	1984	1975	1984	1975	1984
Asbestos	1.4	6.6	.7	6.0	.8	
Bauxite	20.0	26.8	3.9	8.2	16.1	
Boron	27.7	21.5	—	—	27.7	
Chromite	20.8	10.9	10.3	5.1	10.5	
Cobalt	76.2	67.3	4.0	11.9	72.2	
Copper	31.2	43.0	2.5	4.7	28.7	
Diamond	5.1	16.7	—	—	5.1	
Gold	2.3	4.0	.6	1.3	1.7	
Iron ore	23.6	29.6	7.5	11.4	16.1	
Lead	12.0	15.1	6.2	7.5	5.7	
Lithium	—	3.0	—	—	—	
Manganese ore	34.7	19.7	28.4	4.2	6.3	
Mercury	73.8	69.7	57.2	45.0	16.6	
Molybdenum	12.8	21.1	—	.8	12.8	
Nickel	3.5	21.3	.8	15.0	2.7	
Niobium	—	6.7	—	6.3	—	
Phosphate rock	26.4	32.1	4.0	8.4	22.4	
Platinum	—	—	—	—	—	
Potash	5.1	26.7	5.1	26.7	—	
Silver	11.5	14.0	2.6	4.1	9.0	
Tin	23.6	28.7	—	.4	23.6	
Titanium	4.4	19.5	2.9	14.3	1.5	
Vanadium	7.2	18.5	7.2	18.5	—	
Zinc	11.5	14.8	3.9	5.8	7.6	
Zircon sand	—	16.8	—	12.8	—	
Mean value	17.4	22.2	5.9	8.7	11.5	14.4

example of full control is when company A holds all or a majority of the shares in company B, and there is no other large owner of company B.

The most common example of partial control is when company B has two or more owners whose holdings are sub-

stantial (more than about 20%) and of approximately the same size.

However, if one of the owners of B, company C, control another owner of B, company D, their holdings should be added and attributed to company C, possibly making the total — direct and indi-

rect — holding by company C large enough for full control.

Two examples of ownership patterns and the resulting control characteristics are shown in Figures 1 and 2.

All data for this study is derived from the Raw Materials Group Database on ownership and control in the production

Table 4
State control by mineral 1975 and 1984:
Shares of production in industrialised countries and Third world

	Mineral	State controlled share(%) of total production in respective region			
		Industrial countries		Third world	
		1975	1984	1975	1984
1984	Asbestos	.8	7.9	4.7	2.5
.6	Bauxite	8.4	16.5	30.0	37.1
18.6	Boron	—	—	67.2	90.0
21.5	Chromite	22.7	8.1	19.2	15.3
5.7	Cobalt	28.4	41.5	84.1	77.6
55.3	Copper	5.1	11.4	56.3	65.5
38.4	Diamond	—	—	6.5	24.0
16.7	Gold	.7	1.6	13.9	15.2
2.7	Iron ore	12.7	20.9	39.5	39.9
18.1	Lead	8.6	10.8	20.4	25.0
7.6	Lithium	—	—	—	22.6
3.0	Manganese ore	55.5	9.8	12.9	27.3
15.6	Mercury	79.9	71.1	58.5	67.3
24.7	Molybdenum	—	1.1	92.1	69.6
20.4	Nickel	1.3	25.4	7.3	15.4
6.3	Niobium	—	49.2	—	.3
.3	Phosphate rock	6.3	16.1	62.2	49.6
23.7	Platinum	—	—	—	—
—	Potash	5.2	27.2	—	—
—	Silver	4.7	8.2	20.1	19.8
9.9	Tin	—	3.7	26.3	31.8
28.3	Titanium	3.1	16.3	20.8	41.9
5.2	Vanadium	7.4	18.5	—	—
—	Zinc	5.2	8.2	29.6	30.6
9.0	Zircon sand	—	4.6	—	39.0
4.1	Mean value	10.2	15.1	28.0	35.1
14.2					

of non-fuel minerals. The data is primarily based on corporate annual reports. The ownership patterns reflect the situation of December 31, 1975 and 1984.

This study is based on examinations of almost all non-fuel minerals of economic importance.⁷ For all of these minerals, more than 85% of Western world production has been identified by com-

pany. For many important minerals, such as bauxite, copper, gold and iron ore the coverage is well over 90%. Some minerals of minor importance are not included in the analyses by mineral, primarily because of difficulties in identifying more than 85% of Western world production by company. These minerals are: antimony, fluorspar, kaolin, rare earths, salt,

soda ash, sulphur and tungsten. However, state control is most probably low, below 10% of Western world mine production, of all of these minerals, except possibly sulphur and tungsten.

One aim of this study is to analyse state control in the mining industry as a whole. In order to carry out such analyses, the minerals have been made com-

parable by using calculations of the value of Western world mineral production on the mining stage, based on production and prices of mineral concentrates. The value totals, to which the figures in this report are related, are those reported by the French journal *Annales des Mines* in detailed surveys every fifth year, supplemented with yearly overviews.⁸

3. State control — analysis by mineral

The development of state control from 1975 to 1984 (using the "equity" method) in 25 important non-fuel minerals in the Western world, is summarized in Table 2. More details are given in the Appendix 1 and Tables 3, 4 and 5.

The level of state control was typically between 10 and 30% of Western

world mine production in 1984. Among the 25 minerals examined, 15 minerals fell inside this interval. In 5 minerals (boron, cobalt, copper, mercury and phosphate) more than 30% of Western world mine production was state-controlled in 1984. In three of these minerals (boron, cobalt and mercury) one single state-controlled company controlled more than 30%.

State control in the remaining 5 minerals (asbestos, gold, lithium, niobium and platinum) was below 10% of Western world mine production. The production of three of these minerals (lithium, niobium and platinum), was controlled by only two or three privately owned companies. Platinum is unique among the examined minerals, being the only mineral with no state participation in mining. The precious metals as a group

distinguishes themselves by a very low level of state control.

State control has clearly increased from 1975 to 1984. During this period the state-controlled share of Western world mine production increased in 20 of the 25 minerals. In 7 minerals there was a large increase (more than 10 percentage point increase). State control decreased in only 4 minerals, of which only one accounted for a large decrease.

The number of minerals with a low level of state control (less than 10% of Western world mine production in 1984) diminished from 12 in 1975 to 5 in 1984, while the number of minerals with a high level of state control (more than 30% of Western world mine production in 1984) increased only slightly from 4 to 5 (Table 3).

The mean value of state control in the 25 minerals rose from 17% of Western world mine production in 1975 to 23% in 1984. This gives a rough picture of the average increase in state control.

A somewhat different picture emerges if all minerals (9) are weighted by their economic value. Using this method, the level of state control rose from 16% of the total value of Western world mine production in 1975 to 18% in 1984 (Table 5).

The lower figures of the weighted mean values are explained by the low level of state control in gold, which had the highest value of all non-fuel minerals, and the high level of state control in some minerals with relatively low value (boron, cobalt and mercury). Yet, the weighted mean values are still fairly high due to large state control in copper and iron ore, which had the highest value after gold.

3.1 Differences between industrialised and Third world countries

In most minerals, state control is at a higher level in the Third World than in the industrialised countries. This is clearly demonstrated by Table 3, which shows state-controlled shares of total

Table 5
Relative value of state-controlled mine production, by World region

World region	Region's share(per mille) of total value of Western world mine production of non-fuel minerals	
	1975	1984
Africa (RSA)	5.1	4.6
Asia (Israel, Japan)	1.8	2.7
Europe	24.1	36.8
North America	.0	6.6
Oceania	.7	.5
Total, Industrialized countries	31.7	51.3
Africa (excl RSA)	53.9	44.2
Asia (excl Israel, Japan)	14.6	25.9
Latin America	62.8	61.7
Oceania	.7	.6
Total, Third world	131.9	132.4
Total	163.6	183.7

Western world mine production, and is further emphasised by Table 4, which shows the shares of total mine production in the industrialised countries and the Third World, respectively.

According to Table 3, state control was larger in the Third World in 1984 in 16 of the 25 minerals examined. The opposite, larger state control share in industrialised countries than in the Third World both years, was the case in 8 minerals. The unweighted mean value of state-controlled production share was 9% in industrialised countries, while the figure was considerably higher in the Third World, 14%. Thus, state control in mining is more important in the Third World than in the industrialised countries. One contributing explanation is that all minerals with a low level of state control (asbestos, gold, platinum and zircon) are almost exclusively mined in industrialised countries.

Let us now look at the change from 1975 to 1984, using Table 3 as a basis. State control increased in 14 minerals in industrialised countries, while it increased in 15 minerals in the Third World. State control decreased in 3 minerals in industrialised countries, while it decreased in 2 minerals in the Third World. For 8 minerals the situation was

approximately constant both in industrialised and Third World countries.

According to the mean value of the state shares in the 25 minerals in Table 3, the industrialised countries' state companies increased their share by 47%, while the share of Third World states increased only 23%. If the minerals are weighted by their economic value at the mining stage, this difference is even more pronounced. With this measurement, the increase from 1975 to 1984 was 63% in the industrialised countries compared to zero in the Third World. Thus, the growth of state control in mining has been faster in industrialised countries than in Third World countries. The industrialised states have to a much higher degree than Third World states entered into minerals which have grown in economic importance.

This growth of the industrialised country state companies from 1975 to 1984 is not a continuing trend, but is to a large extent due to nationalisation measures by the French and Canadian governments. Their policies have already been changed and there are no signs of further nationalisations in these countries. On the contrary, a privatisation policy is adopted by several governments, which will decrease state involvement in at least British, French and

West German mining companies. This policy counteracts the tendency in Western Europe to give state support to mineral companies which are micro-economically not profitable, but which are of importance to the nation's supply of minerals from a strategic point of view.

Corporate concentration is on a much lower level in the state-controlled sector than in the privately controlled sector. See Table 6. In 1984, the largest state company controlled 2.7% of the value of Western world mine production, while the largest privately owned company controlled 16.6%. The 50 largest state companies controlled only slightly more than that, 18.3%, while the 50 largest privately owned companies controlled almost half the value of Western world mine production. Table 6 also demonstrates the much faster rate of concentration among privately owned companies than among state-owned companies.

4. State control — analysis by country

In order to facilitate an analysis by country, Tables 7, 8 and 9 have been calculated, using the same base data as for the analysis by mineral.

The 50 most important mineral producing countries in 1984 can be divided into four groups according to the state share of the value of all non-fuel minerals produced in the country (hereafter referred to as "state value share").

1. No or only a small part of the country's mine production was state-controlled (here defined as less than 20% of the value of the mine production of all non-fuel minerals in the country).

2. A "medium" group of countries in which 20 to 80% of the value of the mine production of all non-fuel minerals in the country was state-controlled.

3. Virtually all of the country's mine production was state-controlled (here defined as 80 to 100% of the value of the

Table 6
Concentration in Western world minerals industry

Level of concentration, (number of states/private companies)	Share of total value of West world non-fuel mine prod			
	Controlled by states		Controlled by privately owned companies	
	1975	1984	1975	1984
Single largest	2.9	2.7	9.6	16.6
3 largest	6.6	5.4	14.8	23.2
10 largest	12.6	11.3	26.5	32.3
50 largest	16.4	18.3	47.2	48.6

mine production of all non-fuel minerals in the country).

4. The value of the mine production that was controlled by a certain state exceeds the value of the mine production in its own country. This is possible for states, which hold mineral interests not

only in their own countries, but also abroad.

The result of this classification is shown in Table 7. The largest group was the "medium" group with a state share of 20 to 80% of the value of non-fuel mine production in the country. Half of

the examined countries (25) belonged to this group in 1984. The group of countries with little state control was much smaller, 13 countries, but many of the countries in this group were among the most important minerals producers in the world: Australia, Canada, South Af-

Table 7
Development of state control by state

Change from 1975 to 1984	Value of state-controlled mine production compared to value of total mine production in respective country in 1984			
	Much lower value (0-20%)	Lower value (20-80%)	Equal or almost equal value (80-100%)	Higher value (over 100%)
Decrease	Sierra Leone	Austria Brazil Chile Indonesia Guinea Sweden Zaire		
Constant or little change (3% or less)	Argentina Australia Japan Mexico Philippines South Africa Spain Thailand USA West Germany	Botswana Papua N Guinea	Algeria Burma Finland Guyana Israel Nauru Venezuela Yugoslavia	
Increase	Canada Zimbabwe	Angola Bolivia Dominican Rep Ghana India Italy Jamaica Liberia Malaysia Mauritania Norway Peru Senegal Sweden Turkey Zambia	Iran Morocco Unit Kingdom	France

rica and the USA. The group of countries with virtually total state control contained 11 countries. The group of countries with a state value higher than that of its country consisted of only one country, France. The French state, in addition to important domestic holdings, also held interests abroad.

Table 7 also demonstrates the changes from 1975 to 1984 in state control of the mine production in the respective countries. State value share increased in 22 countries, was constant in 20 countries and decreased in 8 countries only. However, among the countries with decreasing state control in mining were Chile and Brazil, which had the highest state value share of all states.

Table 8 shows the state-controlled shares of the value of Western world mine production distributed by world regions. We have already noted that the growth rate of state control was high

among the industrialised countries, while it was about zero among Third World states. In 1984, Third World states controlled a much larger part of the value of total Western world mine production than the states in the industrialised countries. This difference is further emphasized by the fact that the total mine production in the Third World represented only 36% of the total value of Western world mine production in 1984.

Table 8 shows that the European states (excluding the socialist countries) have a much stronger control position than any other region in the industrialised capitalist world, especially bearing in mind that mine production of most minerals in Europe is low. It can also be noted that the state-controlled shares of the value of Western world mine production increased in Asia, Eu-

rope and North America, while it declined in Africa.

4.1 State-owned mineral companies' interests in foreign countries

During the last decade state-owned mineral companies controlling companies in foreign countries have emerged. See Table 10. These companies could be called transnational state mining companies (TNSs) and they illustrate that state-owned companies from industrialised countries are operated much the same way as private companies. The companies were — with few exceptions — controlled by governments of industrialised countries, while the controlled companies can be found in industrialised countries as well as in the Third World.

France was most important in this category. Through four wholly state-owned French companies, the French state controls — fully or partially — parts of the production of 12 minerals in 13 foreign countries. Nine of these countries were in the Third World. Control by the French state increased substantially from 1975 to 1984, due to increased holdings (ie, in Société Le Nickel with nickel production in New Caledonia and Penarroya with lead, zinc and silver production in Brazil, Italy, Peru and Spain), acquisitions (ie, SNEA's purchase of US phosphate rock producer Texasgulf) and nationalisations (ie, of Pechiney with bauxite production in France, Greece and Guinea). Some of these steps — but not all — were taken by the socialist government in the early 1980s.

The British state was the second most important state controlling minerals producers abroad. Control by the British state in the mining of non-fuel minerals increased between 1975 and 1984 from virtually nothing to the partial control of major producers of 12 minerals in 6 foreign countries. British Petroleum, the partly state-owned oil transnational, entered into the non-fuel minerals industry by acquiring Selection Trust in 1980. Its

Table 8
Value of state-controlled mine production by world region

World region	Region's share (per mille) of total value of Western world mine production of non-fuel minerals	
	1975	1984
Africa (RSA)	5.1	4.6
Asia (Israel, Japan)	1.8	2.7
Europe	24.1	36.8
North America	.0	6.6
Oceania	.7	.5
Total, Industrialized	31.7	51.3
Africa (excl RSA)	53.9	44.2
Asia (excl Israel, Japan)	14.6	25.9
Latin America	62.8	61.7
Oceania	.7	.6
Total, Third World	131.9	132.4
Total	163.6	183.7

Table 9**Value of state-controlled mine production by country****(Ranked according to value of state's mine production 1984, more than 2‰ of total Western world value 1975 or 1984)**

State	Share of West world total prod value(‰)		State share of country total (%)	
	1975	1984	1975	1984
Chile	28.9	27.0	76	72
Brazil	15.8	14.8	46	27
France	.5	12.1	3	131 x
Zaire	21.3	11.8	54	47
Morocco	7.8	9.8	87	92
Yugoslavia	10.9	8.9	100	100
Zambia	15.9	8.4	58	63
Peru	4.5	7.5	23	28
Canada	—	6.5	0	7
Indonesia	6.3	5.8	69	59
Sweden	7.1	5.3	54	47
India	3.2	5.1	20	31
Turkey	2.8	5.0	48	75
South Africa	5.1	4.6	4	2
United Kingdom	—	4.4	0	85
Botswana	1.2	4.1	42	45
Iran	—	3.8	0	100
Bolivia	4.7	3.5	48	62
Venezuela	6.7	3.4	85	84
Malaysia	—	3.2	0	34
Guinea	2.1	2.9	67	60
Israel	1.8	2.7	82	100
Dominican Republic	.2	2.6	7	66
Finland	2.6	2.5	77	75
Total, > 2 per mille	149.4	165.8		
Others	14.2	17.7		
Total	163.6	183.5		

x over 100% due to controlled production in foreign countries

interests in the minerals industry grew further in 1981, when Kennecott was incorporated into the BP group.

The position of the British state was however weaker than that of the French. Although the British state was the largest shareholder in BP, it held less than 50%, and the state holding has been continuously decreasing.

The third most important state with control in foreign mineral producers was the Finnish state, which in 1984 controlled major producers of 4 minerals in 2 foreign countries. In recent years, the trend of Finland differs from that of France and the UK. The Finnish state company Outokumpu has since 1984 purchased mineral producers in Ireland and Sweden, and has been trying to acquire a Chilean copper mine. The Finnish expansion trend shows no signs of stagnation.

The foreign mineral interests of the British state were concentrated in the former British colonies in Australia, Canada and North America, which are among the largest mineral producing companies in the world. The foreign mineral interests of the French state are partly located in former, and still existing, colonies, but also in the Mediterranean countries and the Americas.

5. Four factors behind the change in state control

There are four basic factors behind the change in state control in mining during the decade analysed. The change can be due to state intervention, corporate transactions and changes in production. If the minerals industry is analysed as a whole or by country, a fourth factor, the relative values of separate minerals, becomes important.

5.1 State intervention

State intervention covers political decisions to nationalise or increase state ownership as well as privatised mineral companies or holding companies with interests in the minerals industry. Nationalisations and other changes in state holdings in mineral companies were the main explanations for changed state control in 7 minerals (asbestos, chromite, lead, manganese, nickel, potash and zinc). Changes in ownership of just a few companies affected the picture for the mineral as a whole, as these companies accounted for a large share of Western world production.

The nationalisations of producers of asbestos and potash in Canada affected the state market share significantly. State control in potash changed radically, from

a low level to one of the highest in the whole minerals industry.

The restructuring by the French state of the Imetal/Sté Le Nickel/Penarroya group is the main reason why state control in lead, zinc and nickel rose during the period, most significant in nickel.

Nationalisations were also an important reason, although not the only one, for the increased state control in bauxite and silver. These nationalisations were carried out by the French government.

Other countries in which the state nationalised or increased state ownership were the Dominican Republic, Gabon, Jamaica and Liberia.

Only a few privatisations were made during the period. The privatisation of South African Samancor, when state-owned Iscor sold its major holding to the Gencor group in the early 1980s, led to a sharp decrease in state control in the production of chromite and manganese.

Other major privatisations were the selling out of shares in Cia Vale do Rio Doce in Brazil, in which state ownership decreased to 56% and the decrease of the British state's holding in British Petroleum from 49 to 39%.

The state holding in BP was reduced to 32% in 1986 and will decrease fur-

Table 10
State control of mineral production in foreign countries, 1985

Controlling state	Foreign country	Minerals produced
Australia	Christmas Islands	Phosphate rock
Fed Rep of Germany	Guinea	Bauxite
Finland	Canada, Ireland, Norway, Sweden	Copper, gold, lead, zinc
France	Brazil, Canada, Gabon, Greece, Guinea, Italy, Morocco, New Caledonia, Niger, Peru, Senegal, Spain, USA	Bauxite, coal, copper, iron ore, lead, manganese, nickel, phosphate rock, potash, silver uranium, zinc
Malaysia	Australia, Thailand	Diamond, tin
United Kingdom	Australia, Brazil, Canada, Mexico, South Africa, USA	Coal, copper, gold, iron ore, lead, molybdenum, nickel, silver, tin, titanium, zinc, zircon

ther, as a result of the privatisation policy of the conservative government.

5.2 Corporate transactions

Corporate transactions in this case cover the buying and selling of mining companies by a state-owned (wholly or partially) company. In contrast to state intervention, political decisions by governments are not a precondition for corporate transactions, although these transactions may change the level of state control in the minerals industry.

Three minerals (copper, phosphate rock and titanium) were substantially affected by transactions made by companies which were fully or partially state-controlled. The partially state-owned BP made two major acquisitions during the period: Selection Trust and the US-based Sohio (BP 55%), which in turn had purchased US copper producer Kennecott earlier. In this way, the British state acquired an interest in the production of a range of minerals around the world. These transactions increased state control in copper and titanium, while the French SNEA's acquisition of Texasgulf increased state control in phosphate rock.

Another example on corporate transactions is the Finnish Outokumpu, which acquired interests in Canadian and Norwegian companies during the period.

5.3 Changes in production

Changes in production, finally, was the main explanation for changed state control in six minerals (boron, cobalt, diamond, iron ore, molybdenum and tungsten) and one of the major explanations in four minerals (bauxite, copper, phosphate rock and silver). In the cases of boron, cobalt, diamond, phosphate rock and molybdenum the changes were attributable to one state company only (boron — Turkey; cobalt — Zaire; diamond — Botswana; phosphate rock — Morocco; and molybdenum — Chile).

5.4 Changes in the value of minerals

The changes in state share of the value of mine production, which is shown previously in this paper (analysis by country), is only partly explained by the three factors above. Another important explanation is changes in the relative value of the mine production of separate non-fuel minerals, ie, one specific mineral's share of the total value of all mine production of non-fuel minerals in the Western world.

According to *Annales des Mines* the three most important minerals (on the mining stage) in value terms, copper, gold and iron ore, accounted for over 50% of the value of the mine production of all non-fuel minerals in the Western world, both in 1975 and in 1984. Consequently, control in the production of these minerals is most important. However, during the period there were dramatic changes in the value shares of gold and copper. While gold's share of the value of all non-fuel minerals was almost doubled from 13 to 24% during the period, the shares of copper and iron ore decreased substantially. No other mineral accounted for more than 6% of the value of all non-fuel minerals.

The combined effect of the increasing value of Western world gold production and decreasing value of Western world copper production is a diminishing of the importance of state control in the minerals industry as a whole, as state control is at a low level in gold production and at a high level in copper production.

The state's shares of the value of respective countries' mine production are also dependent on the development of domestic mining. The decreasing trends of Brazil and Chile, for example, are not due to lost market shares, but rather due to a rapidly rising value of mine production, which is based on the start-up of large new mines with little or no state control.

Summary and conclusions

Among the 25 minerals studied the level of state control was typically between 10 and 30% of Western world total mine production in 1984. State control increased in 20 of the 25 minerals.

From 1975 to 1984 the value of state-controlled mine production rose from 14 to 18% of the value of total Western world mine production. This is an increase at a lower pace than during the preceding decade. In the last few years there are signs of further weakening of the rate of increase.

For most minerals, the level of state control is higher in Third World countries than in industrialised countries. State-owned mining companies of Third World countries controlled 13% of the value of total Western world mine production in 1984. The corresponding figure for industrialised countries was 5%. However, while the value of state control of the mine production in the industrialised countries increased by 63% from 1975 to 1984, the value of state control of the mine production in the Third World remained constant.

In 37 of the 50 most important mineral producing countries, more than 20% of the value of the country's mine production was state-controlled in 1984. However, among the remaining 13 countries, in which state control is very low, are many of the most important mineral producing countries, such as Australia, Canada, South Africa and the USA.

The rising level of state-controlled mine production is due to three main factors:

- (a) State intervention
- (b) Corporate transactions
- (c) Changes in production

Factor (c) is most important for the development of Third World state control in the minerals industry. State-controlled mining companies of the Third World have their strongest control in bauxite, cobalt, copper, diamond, iron ore, manganese, molybdenum and tin. Several of

these minerals are among those which have been particularly badly hit by declining prices and by lower intensity of use of many traditional metals.

The conspicuous growth of control by industrialised country states is primarily due to factor (a), mainly nationalisations in Canada and France, and to some extent factor (b). However, the increase in state control in industrialised countries is not likely to continue. On the contrary, there are signs indicating a reverse trend. It seems as if the dramatic decisions affecting the minerals industry, which were taken by Third World governments in the 1960s and early 1970s, now will be taken in the industrialised countries in the 1980s.

When this development is put into the framework of the whole minerals industry, it is important to note the considerably higher level of concentration in the privately owned sector and higher speed at which this sector is being further concentrated. In 1984, one privately owned company controlled almost 17% of the value of Western world mine production, while all the state companies together controlled only slightly more, 18%.

In this study, state control is assessed on the basis of ownership and management of mining companies. However, these variables are not the only means of control. If other variables, such as market knowledge, financing and interlocking directorates, could also be measured, it would probably be found that state control was lesser and control by transnational mining companies larger than this study indicates.

APPENDIX

State control — analysis by mineral

The development from 1975 to 1984 of state control in 25 important non-fuel minerals is described below:

Asbestos

Three states participated in the mine production of asbestos in 1984. Canada controlled significant amounts (more than 3% of Western world production) of mine production. State production share rose during the period from almost nothing to 7-10%. The increase is entirely due to the nationalisations of Canadian producers during the period.

Bauxite

10 states participated in 1984. France, Guinea and Yugoslavia controlled significant amounts. State production share rose from 15-20% to 25-30% during the period. This was partly due to partial nationalisations by France and Jamaica, but also to increased Guinean production and new production in Brazil.

Boron

1 state participated in 1984, Turkey, with a large share. State production share declined from 25 to 22%.

Chromite

5 states participated in 1984. Finland and Turkey controlled significant amounts. Chromite is one of a few minerals with a decreasing state production share. This decrease was entirely due to the privatisation of Samancor in South Africa.

Cobalt

4 states participated in 1984, of which Zaire was dominating and Zambia controlled significant amounts. Cobalt, too, was one of a few minerals with a decreasing state production share. This was due to the sharply falling production of Gecamines (Zaire), whose share in 1984 was almost cut into half the 1975 share. On the other hand, the decrease was cushioned somewhat by the rising share of the Zambian state during the period.

Copper

21 states participated in 1984. Chile, Zaire and Zambia controlled significant amounts. State production share in-

creased during the period to a high level of about 40%. This was mostly due to rising or new production by state producers in Latin America. The incorporation of Kennecott (USA) in the BP group also contributed to the increasing trend. The only major decrease was that of Zambia.

Diamond

4 states participated in 1984. Botswana controlled significant amounts. State production share increased substantially, although from a low level, almost entirely due to the coming on stream in full scale of the Debswana operation, half owned by the government of Botswana.

Gold

17 states participated in 1984, all small. State production share increased, but was still at a very low level in 1984, below 5%.

Iron Ore

17 states participated in 1984. Brazil controlled significant amounts. State production share increased somewhat, to a high level of 30-40%. Brazil, India and South Africa contributed most to this increase.

Lead

17 states participated in 1984. Yugoslavia controlled significant amounts. State production share showed a slight increase, to which the entry of French state ownership in Imetal contributed most.

Lithium

1 state participated in 1984, Chile, which controlled a significant amount. State production share rose from nothing to over 20% as a result of the start-up of a Chilean joint venture with Foote Minerals.

Manganese

9 states participated in 1984. France and India controlled significant amounts. State production share decreased sub-

stantially, from 25 to around 15%. This was mostly due to the privatisation of Samancor (South Africa). The decline was partly countervailed by increased state ownership in Comilog (Gabon) and new production in Brazil.

Mercury

5 states participated in 1984. Spain and Algeria together controlled 63% of Western world production. State share decreased from 74 to 70% during the period. The production controlled by the states of Italy and Yugoslavia was down from 29 to only 2% while the production of Spain increased from 28 to 41%.

Molybdenum

3 states participated in 1984. Chile controlled significant amounts. State production share increased to 20%, almost entirely due to increased production by Codelco (Chile).

Nickel

6 states participated in 1984. France controlled significant amounts. State production share increased sharply from almost zero to around 18%, mostly due to French nationalisation of Société Le Nickel.

Niobium

2 states participated in 1984. Canada controlled significant amounts. State production share rose from zero to about 10%, due to the start-up Niobec (Canada), half state-owned.

Phosphate rock

8 states participated in 1984. Morocco controlled significant amounts. State production share increased to over 30%. The two main reasons for this are increased production by Office Cherifien (Morocco) and the purchase of US producer Texasgulf by a French state company.

Potash

4 states participated in 1984. Canada and Israel controlled significant amounts.

State production share increased most of all minerals, from 10 to 30%. This was entirely due to the Canadian nationalisations.

Silver

20 states participated in 1984, all small. State production share increased slightly, mostly due to the entry of French state ownership in Imetal. This increase was partly offset by falling production of Comibol (Bolivia), Gecamines (Zaire) and Yugoslavia.

Tin

At least 5 states participated in 1984. Bolivia, Indonesia and Malaysia controlled significant amounts. State share rose from 24 to 30% during the period.

Titanium

2 states participated in 1984. UK controlled significant amounts. State production share increased substantially, although from a very low level. The cause of the increase was the acquisition by UK-based BP, which was partially state-owned, of a majority share in Sohio (USA), which indirectly holds stakes in producer QIT (Canada) and Richards Bay (South Africa), of which the latter came on stream during the period.

Tungsten

5 states participated in 1984. Bolivia and Burma controlled significant amounts. State production share increased to over 15%, mostly due to increases in the production of Burma and Anglade (France).

Vanadium

Only 1 state, Finland, participated in 1984. State production share increased considerably, from 7 to 19%. Later, in 1986, state share decreased to zero, due to the closing down of the Finnish operations.

Zinc

17 states participated in 1984. Peru controlled significant amounts. State pro-

duction share increased slightly, partly due to French nationalisations.

Zircon

Only 1 state participated in 1984. State production share increased, but stayed at a very low level.

References

- ¹ Istvan Dobozi, *Emergence, Performance and World Market Impact of the State Mining Companies in Developing Countries*, Studies on Developing Countries No. 123, Institute for World Economics of the Hungarian Academy of Sciences, Budapest, 1987; Maria Radetzki, *State Mineral Enterprises*, Washington, D.C., Resources for the Future, 1985.
- Role of Government in Mineral Resource Development*, London, The Institution of Mining and Metallurgy, 1985; Ghose, ed. *Strategies for Exploitation of Mineral Resources in Developing Countries*, Dhanbad Indian School of Mines, 1987.
- Lechner, Sames, Wellmer, *Mineralische Rohstoffe im Wandel*, Essen, 1987.
- Raw Materials Group Database, Stockholm, 1987.
- Herman, *Corporate Control, Corporate Power*, Cambridge, Cambridge University Press, 1981; Radetzki, *op. cit.*; Christophe Stobart, "The Effect of Government Involvement on the Economics of the Base Metal Industry", *Natural Resources Forum*, No.3 1984.
- Raw Materials Group, Interim Reports 1 and 2, Research project: The dynamics of corporate control in the non-fuel minerals industry, Stockholm, 1984 and 1985.
- Asbestos, bauxite, boron, chromite, cobalt, copper, diamond, gold, iron ore, lead, lithium, manganese, mercury, molybdenum, nickel, niobium, phosphate, platinum, potash, silver, tin, titanium, vanadium, zinc and zircon.
- "Valeur de la production minière mondiale", *Annales des Mines, Paris, Décembre 1975, Septembre-Octobre 1977, Novembre-Décembre 1980, July-August-September 1985*.

9. In practice this means that the 25 minerals in Table 3 are supplemented with a group of 8 minerals in which state control probably is low.