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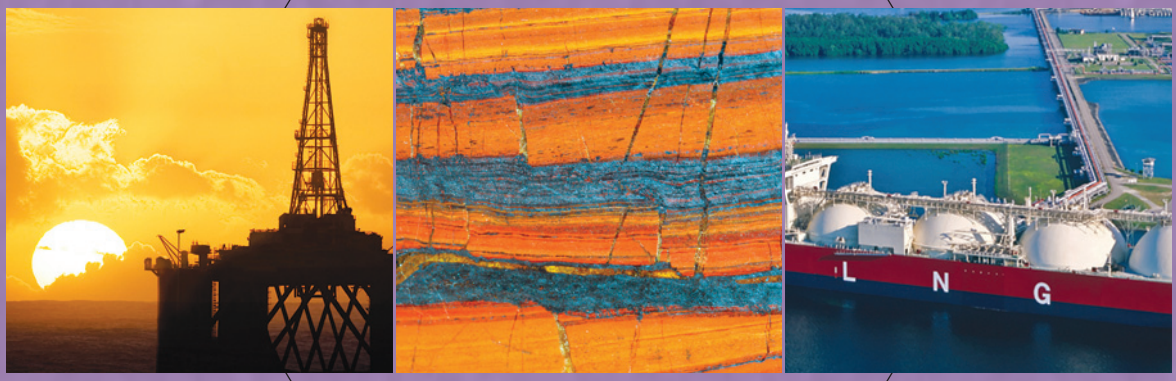
Extractive Industries for Development Series #20
May 2011

Overview of State Ownership in the Global Minerals Industry



Long Term Trends and Future

Raw Materials Group

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World Bank Group's Oil, Gas, and Mining Unit

Sustainable Development Network
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The Oil, Gas, and Mining Unit series publishes reviews and analyses of sector experience from around the world as well as new findings from analytical work. It places particular emphasis on how the experience and knowledge gained relates to developing country policy makers, communities affected by extractive industries, extractive industry enterprises, and civil society organizations. We hope to see this series inform a wide range of interested parties on the opportunities as well as the risks presented by the sector.

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Cover photos: Oil rig, hematite-banded ironstone, oil tanker

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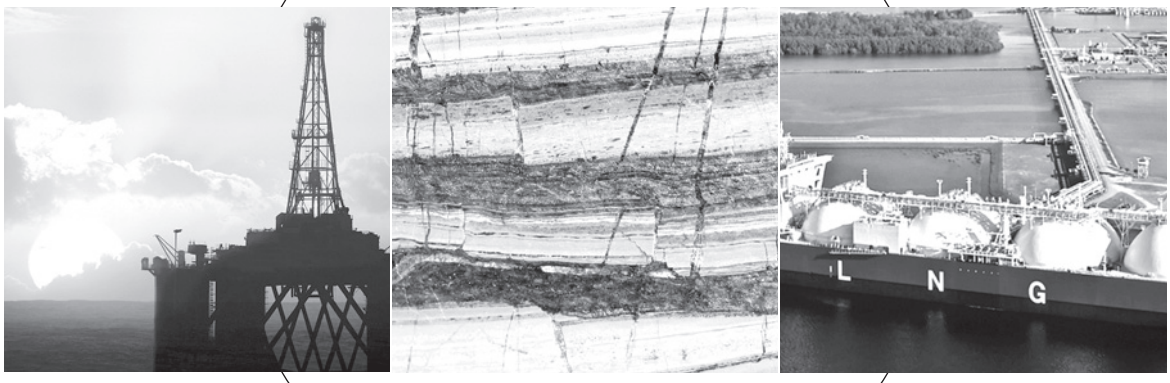

Long Term Trends and Future

Raw Materials Group

World Bank | Oil, Gas, and Mining Unit Working Paper

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Acknowledgments

In 2008 Raw Materials Group was commissioned by the World Bank to undertake a study "Overview of state ownership in the global minerals industry—long term trends & future". The results of the study were presented at the March 2009 Extractive Industries Week held in Washington DC. In 2010 Raw Materials Group was asked to update, revise and prepare a new study with the same theme. This new study follows the same outline as the report that was delivered in 2008 with extended discussion and conclusions.

The work has been carried out by Magnus Ericsson (Luleå University of Technology) and Frida Löf. Esther Petrilli Massey is responsible for the production.

The views expressed are those of the project team.

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Executive Summary

This study builds on a previous one from the Raw Materials Group, a Sweden-based minerals consultancy, originally commissioned by the World Bank in 2008. The results of the 2008 study were presented at the March 2009 Extractive Industries Week held in Washington D.C.[1] The new study contains much of the same information, but with updated figures.

The trend toward more state engagement in the mining industry as noted in the 2008 study has continued, based on more recent developments. This study includes an expanded section on the new forms of state control which are found in Africa and also in Russia, China, India, and other emerging economies. It lays out the possible political implications of these trends and draws lessons from previous periods of increasing state ownership, including how to avoid previous mistakes.

Various metals and the history of nationalization in a number of countries are analyzed as are the possible factors influencing the decision to nationalize, such as the sector's strategic importance and the need to control it.

China's role in investing in Africa is discussed noting the issues concerning negotiation strategies, looking at the history of deals made in Sub-Saharan Africa.

State ownership is defined in detail in Appendix 1 of this document. A consolidated list of state ownership in mining of selected minerals and mineral refining on which the study is based is presented in Appendix 2. More detailed information can be accessed on the World Bank's Web site at: http://www.worldbank.org/mining (under Mining Publications).

To inform the research, a series of interviews in a number of countries representing different historic approaches to state ownership was conducted and the results are presented in this document. The list of persons interviewed is in Appendix 3.

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[1]The 2009 presentation at Extractive Industries Week is available at: http://siteresources.worldbank.org/INTOGMC/Resources/336099-1236292308783/ERICSSON_MAGNUS _State_EIW2009.pdf

Following is a summary of the conclusions drawn from the study:

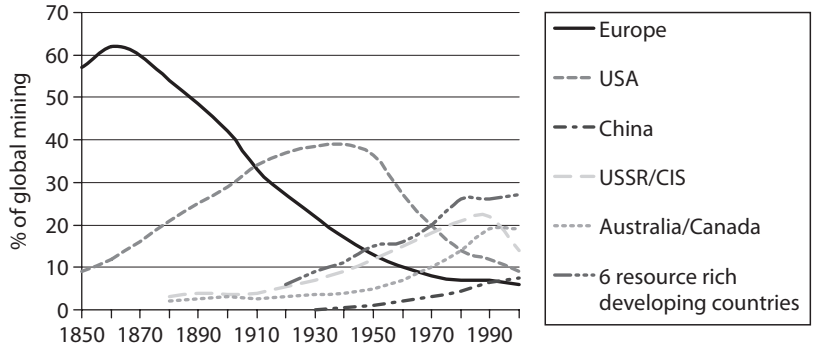
- The level of state control is surprisingly high in many metals irrespective of privatizations during the late 1990s and the first decade of the 2000s.
- State control has increased mostly due to growth of Chinese state-controlled mining in China and gradually also abroad.
- Government's control over the Chinese mining companies is slowly declining with growing private interests and market influences but will remain strong for many years.
- State control of refining is higher than in mining. This is probably due to the higher value added in this sector.
- Privatization in the market economies is more or less completed, only a few assets remain under government control. Even these are however being considered for sale. At the same time the first signs of renewed interest in state-controlled mining companies are to be seen in these countries, as well.
- There is a growing interest in finding new ways of increasing state revenues from mining/smelting in these times of high metal prices.
- Focus is on improving the tax systems and renegotiating previously not so favorable agreements and capturing rents that way.[2]
- State-owned mineral development companies have been formed to play a similar role as privately held junior partners. They have been generally set up to work in the market alongside private companies with risky, long-term investments.
- State intervention is concentrated, so far, to a limited number of countries Bolivia, Ecuador, and Venezuela in Latin America and Namibia, South Africa, and Zimbabwe in Africa.
- There seems to be an increasing understanding of the long-term nature of mining and the need to establish stable policies to benefit optimally from mineral resources.

Historic trends

Control over metal supply to the economy has been considered vital for political and economic reasons in most societies. The mining industry has been a focus for government regulation and control over the centuries whether it has been state or privately owned. After the Russian revolution and the nationalization of mineral deposits, the Soviet mining sector was prioritized and metal production grew quickly as illustrated in Figure 1.

[2]There are numerous examples of reviews of the mining tax regimes, UNCTAD, World Investment Report, New York and Geneva 2007, pp. 161–167.

Figure 1: Locus of mine production during the last 150 years



Source: Raw Materials Data 2006, Sames 1984.

In the pre-war years the output of metals in the Soviet Union dominated state-owned production globally. After the Second World War the Eastern European countries followed the same development path as the Soviet Union; and the share of total world production controlled by national states increased likewise. The countries of Eastern Europe and the Soviet Union taken together were generally self sufficient in metals with the exception of bauxite, the raw material for aluminum production which is most abundant in a tropical environment. In the mid-1970s these countries controlled some 20–25 percent of the production of most metals that was also their share of total demand indicating a balance between demand and supply in the centrally planned economies in those days.

State ownership of the Western world's mineral industries started to increase in the late 1940s and 1950s. European countries led this process. In Finland, state-owned Outokumpu, founded before the Second World War, began to grow rapidly. The Swedish government bought LKAB from its private owners in 1956, based on a parliamentary decision taken in 1906. However, overall in the 1950s, there was little state-owned mining capacity outside the centrally planned economies (CPE). In the late 1960s and early 1970s, a wave of nationalizations swept through developing countries. The governments of recently independent former colonies and other emerging economies placed high hopes on the socio-economic development potential of the mining industry based on the strong metal markets following the Second World War. During the 1960s 32 expropriations of foreign mining companies were made and during the period from 1970–1976 as many as 48.[3]

[3]UNCTAD, World Investment Report, New York and Geneva 2007, p. 108.

State control continued to rise, in the developing countries as well as in the developed market economies (MEC), until the early or mid-1980s, limiting the participation of international mining companies in many developing countries to minority holdings and non-equity arrangements with state-owned companies. In the industrialized countries nationalizations continued, mostly for political reasons, such as the socialist government in France taking over large parts of industry including the mining and metal industries such as the aluminum producer Pechiney, nickel miner Eramet/SLN and others. However at the end of the 1980s the trend reversed as a result of a change in the political climate initiated by Prime Minister Thatcher in the United Kingdom and President Reagan in the United States. There were many reasons for this new trend of which some of the most important were:

- The changing, general political climate, as mentioned above, with emphasis on "free market" and private sector initiatives
- Increasing problems with ineffectiveness and poor management of the state-owned companies in many developing countries.

In addition, during the 1990s and early 2000s, metal prices continued to fall with resulting poor profits and industry decline. Many developing countries opened their economies to foreign direct investments into the mining industry and started to privatize the industry, at a time when metal prices were at their lowest levels in over 30 years.

Early 2000s

State control of total global mine production has varied over the years and from metal to metal between 40–60 percent until the collapse of the Soviet Union. After 1990 the metal production in the former Soviet Union collapsed when the demand from the military complex ceased almost overnight. Mining companies were privatized and came under the control of the so called oligarchs. In the first decade of the 21st century production has picked up again, but the industry is now almost completely privatized. There have been some indications of a renewed interest from the Russian government in controlling mine and metal production through direct ownership.

It has become much more difficult to measure state control in both the CIS and in China during the last decade. In the former Soviet Union it is often not possible to trace ownership as a result of the privatization processes. One good example of this is the process of Russian government regaining control over Norilsk Nickel. In China the many different levels of state control, national, regional and local, together with the gradual

changes in the Chinese economy and the introduction of private ownership also creates methodological and comparative problems. The Chinese situation will be discussed in more detail below.

Although state control globally has decreased considerably since its peak in the mid-1980s, it is not a phenomenon of the past. Table 1 and Figure 2 give an overview of the historic development of state control in mining. In the table state control is measured and added up for nine metals: bauxite, copper, gold, iron ore, lead, manganese, nickel, tin and zinc together accounting for between 85–91 percent of the value of all metals produced each year. In 1984 total state control measured as a percentage of the value at the mining stage of all metal production in the world owned by national or regional governments amounted to 46 percent, an increase from 39 percent 10 years earlier. This was followed by a decline to 39 percent in 1989 and a further decline to 22 percent after the collapse and privatization of mine production in the former Soviet Union. The decline was halted in the mid 2000s but state control in mining started to increase again with the growth of Chinese mine production, reaching 24 percent in 2008. This trend will most likely continue as a result of the Chinese policy to increase its control over the supply of natural resources both domestically and through mines abroad, based on control through ownership. It is quite possible that some production capacity will be closed within China in the next few years because of high costs. The mines in China are often small, based on low grade deposits performing poorly in regard to health, safety, and environmental standards. This shutdown is already occurring in iron ore but this decline will be counterbalanced by increased foreign-based, but Chinese-controlled production.

As stated, Figure 2 presents the nine most economically important metals. The majority of the remaining metals show a similar pattern of ownership and control and to include them in the analysis would not have changed the conclusions in a substantive way. In recent years however increasing political interest in the industrialized countries has been focused on metals such as lithium, the rare earths, tantalum and so forth, which have a relatively low economic value but are difficult to substitute and play a strategic role in the economy of these countries.[4] Some of these are almost exclusively produced in China by state-controlled Chinese companies. These metals have not been included in this analysis as the methodology chosen would give them a very limited weight as a

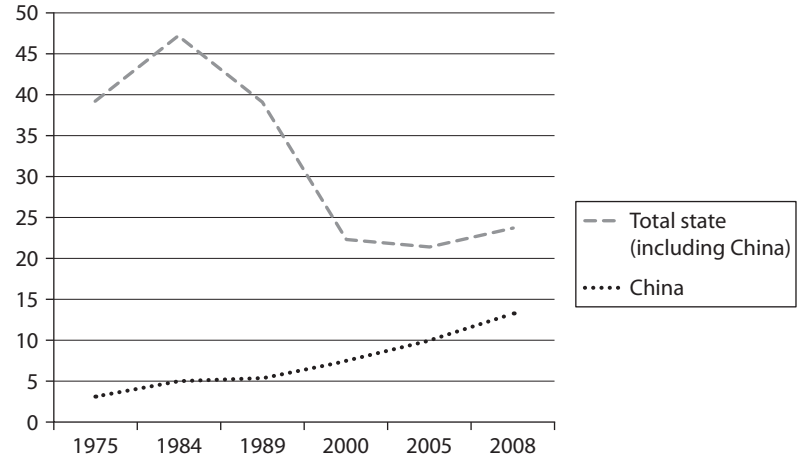
[4]National Research Council of the national academies, *Minerals, Critical Minerals, and the U.S. Economy*, The National Academies Press, Washington DC, 2008.

Table 1: State Shares of Global Metal Mine Production Value (% of total value)

	1975		1984		1989		2000		2005		2008	
	Total State	Excluding China	Total State	Excluding China	Total State	Excluding China	Total State	Excluding China	Total State	Excluding China	Total State	Excluding China
Bauxite	1.2	1.2	1.5	1.4	1.4	1.3	0.8	0.6	0.5	0.3	0.4	0.2
Copper	8.6	8.3	7.5	7.1	10.6	9.9	5.5	4.6	5.7	4.7	4.5	3.3
Gold	3.1	3.1	6.4	5.5	6.1	4.9	3.3	1.7	2.5	1.0	2.6	0.8
Iron ore	19.1	17.1	25.6	22.8	13.5	11.8	7.9	5.7	8.1	4.0	11.1	4.7
Lead	1.0	0.9	0.8	0.7	1.0	0.7	0.3	0.1	1.0	0.0	0.6	0.0
Manganese	0.9	0.9	0.6	0.5	0.7	0.5	0.2	0.1	0.7	0.2	1.4	0.4
Nickel	1.3	1.3	1.4	1.4	2.2	2.0	1.5	1.2	1.2	0.9	1.0	0.8
Tin	1.2	0.9	0.9	0.7	0.6	0.4	0.7	0.2	0.5	0.2	0.6	0.2
Zinc	2.6	2.4	2.5	2.2	3.1	2.4	2.0	0.7	1.3	0.2	1.6	0.2
TOTAL	**39.2**	**36.1**	**47.2**	**42.3**	**39.1**	**33.8**	**22.3**	**14.9**	**21.4**	**11.5**	**23.8**	**10.6**

Source: Raw Materials Data 2010.

Figure 2: Total State Value at the Mine Stage (% of total value)



Source: Raw Materials Data 2010.

result of their economic value. There are however undoubtedly examples of metals where state influence is large and important.

Coal is not included in the discussion above as it is an energy mineral and as such has different characteristics from the other metals in this study. Coal shows however a similar pattern of state control over time as the metals: high level of state control into the late 1980s, over 60 percent, a sharp decline in the 1990s with the fall in production in the former Soviet Union, followed by a rebound in the early 2000s to a fairly constant level of just over 50 percent. In coal the Chinese state almost completely dominates the sector.

There are several indications of a growing government interest, mostly in emerging economies, in controlling domestic mine production as a means to capture a larger share of the rents from mining.

Methodology

In the analysis of state control, two concepts are of basic importance, ownership and control. Ownership refers to holding shares in a company and is easy to define and measure; in principle that information is to be found in the share register of a company. The concept of control is more difficult to define and even more difficult to measure accurately. State control is more difficult to define than the overall concept of corporate control.[5] In this study the following definition has been used.

[5]Marian Radetzki, *State Mineral Enterprises, an Investigation into Their Impact on International Mineral Markets*, Resources for the Future, Washington DC, 1985.

> *To be in control is to have the possibility to act decisively on strategically important issues. Such issues include the broad policies of a company, decisions on large investments, buying or selling of subsidiaries and power to appoint or dismiss management. To be in control of a company does not necessarily include having day-to-day influence over all its decisions.*

Applying the definition of control given above, state mining enterprises in the mining and smelting industry form a heterogeneous group of companies, which nevertheless can be divided into two broad country categories:

- State-owned companies in market economies countries (referred to as MEC states in Appendix 3); and
- State-owned companies in centrally planned economies. (referred to as CPE states in Appendix 3).

For all minerals and all three years (2007, 2008, 2009) a statistics file has been made from the Raw Materials Database 2010 showing how much control the MEC States have over different minerals. The specific information on all different minerals and years is presented online at: http://www.worldbank.org/mining (under Mining Publications). In these tables a specific calculation has been made for those companies not fully owned or controlled by the state because of diversified ownership.

In Appendix 3 it is assumed that all production in China is state controlled and that all production in Russia and other CIS countries, unless expressly stated otherwise, is in private hands.[6]

For details on the methodology and definitions used, please see Appendix 1.

The detailed background material in Appendix 3 is available at: http://www.worldbank.org/mining (under Mining Publications).

State-owned Mining Enterprises Analysis

Some of the most important observations of state ownership and the dynamics of state participation, which can be made from the tables in Appendix 1 are:

[6]Ericsson M., Tegen A., *Dynamics of state mining enterprises during the 1980s and the outlook for the 1990s*, Natural Resources Forum 1992, p. 178.

Mining Industry

- Total state control of metal mining has either increased or remains constant for all metals in the study.
- Chinese mining accounts for the bulk of this increase in state control. For all the minerals analyzed Chinese state ownership is increasing.
- For nickel the MEC state share has increased and for bauxite, lead and tin the state share has remained constant; in all other metals there is a decline.
- Total state control varies from only roughly half the peak level for copper, iron ore, manganese, and nickel, to up to 90 percent for bauxite, gold, zinc, and coal, while it is actually equal or higher for lead and tin.

Refining

- Total state control of metal refining has increased for all minerals.
- Chinese refining accounts for the bulk of this growth. For all the minerals analyzed Chinese state ownership is increasing.
- MEC state share declines for all minerals except for nickel and tin where the level is constant.
- Total state control varies from only a third of the peak level for nickel, around 75 percent for copper and alumina, while it is roughly the same or higher for aluminum, zinc, and tin.
- State control is generally higher in refining than at the mine stage.

Metals

- While the state controls gold the least at 17.6 percent in 2009, state control increased from 2006 to 2009.
- The state controls nickel the second least at both the mine and refinery stage (21.5 percent in 2009 at the mine stage) and (17.1 percent in 2008 at the refinery stage). But it is interesting to note that for both nickel and lead the state control is constant or increasing for both MEC states and for China.
- Tin has the highest level of state control at 54.3 percent in 2009, but in terms of economic weight, aluminum, also with more that 50 percent state control, is the most important metal for state companies as the total value of aluminum produced far exceeds that of tin.
- State control for coal is also high at 52.5 percent in 2009.

Countries

Table 3 was calculated based on the figures in Appendix 1 and table 1. Countries are ranked according to their total state controlled share measured as a percentage of the value of metal production at the mine stage.

It should be mentioned that the table above does not include diamonds and industrial minerals. Among those there is also considerable state ownership and control of production. (See tables 4 and 5 below.) In the diamond industry there are examples of successful state holdings in Botswana and Namibia. Both countries have formed joint venture companies with De Beers. In each case the state has a 50 percent share in the national diamond mines. The companies are called Debswana and Namdeb respectively. In the case of Botswana the country also has a 15 percent direct interest in the holding company of the DeBeers group, with board representation (two directors) and direct influence on the strategy of the Group.

Table 3: State Shares of Global Metal Mine Production Value 2008

Rank 2008	Total Production 2008 (1)	State Control 2008 (1)	State Share 2008 (%)	State Share 2006 (%)	Rank 2006
1. China	14.8	14.8	100	100	1
2. Chile	7.7	2.0	26	32	2
3. India	5.7	1.6	28	39	4
4. Iran	0.9	0.9	100	100	5
5. Poland	0.8	0.8	100	100	3
6. Uzbekistan	0.7	0.7	100	100	6
7. Indonesia	2.1	0.6	30	16	7
8. Venezuela	0.61	0.53	87	80	8
9. Sweden	0.74	0.5	78	50	9
10. Mauritania	0.32	0.24	75	100	na

Note (1): Percent of total value of all metal production globally.
The state share varies with both the produced volumes but also with the relative value of the metals produced in each country.
Source: Raw Materials Data 2010.

Table 4: Controlling Companies in Diamond Value Mining in 2008

Rank World 2008	Company Name	Country	Controlled Production 2008 (M $)	Share of World 2008 (%)	Cumulative Share of World 2008 (%)
1	Anglo American plc	United Kingdom	2996.4	23.59	23.59
2	Alrosa Group	Russia	2509.1	19.76	43.35
3	State of Botswana	Botswana	1640.0	12.91	56.26
4	BHP Billiton Group	Australia	900.0	7.09	63.35
5	Rio Tinto plc	United Kingdom	780.2	6.14	69.49
6	Namibian Minerals Corp	United Kingdom	400.0	3.15	72.64
7	Harry Winston Diamond Corp	Canada	280.0	2.20	74.84
8	Ponahalo Investments Ltd	South Africa	256.1	2.02	76.86
9	Gem Diamonds Ltd	United Kingdom	225.0	1.77	78.63
10	State of Namibia	Namibia	200.0	1.57	80.20
11	State of Angola	Angola	147.6	1.16	81.36
12	Petra Diamonds Ltd	South Africa	95.5	0.75	82.11
13	Daumonty Financing Co	Netherlands	81.0	0.64	82.75
14	State of Congo (Dem Rep)	Congo (Dem Rep)	80.0	0.63	83.38
15	Odebrecht SA	Brazil	73.8	0.58	83.96
16	Al Rajhi Holdings WLL	Saudi Arabia	60.0	0.47	84.43
17	State of Lesotho	Lesotho	54.0	0.43	84.86
18	Umicore SA	Belgium	20.0	0.16	85.02
19	Tahera Diamond Corp	Canada	13.0	0.10	85.12
20	RioZim Ltd	Zimbabwe	9.8	0.08	85.20
21	Re-Teng Diamonds (Pty) Ltd	South Africa	7.5	0.06	85.26
22	State of Tanzania	Tanzania	6.0	0.05	85.31
			Sum state	**36.51**	

Source: Raw Materials Data 2010.

In the industrial mineral sector the State of Morocco controls the largest company Office Cherifien des Phosphates (OCP) with 15 percent of total world phosphate production. Other Arab states such as Syria, Tunisia, and Jordan also produce phosphate rock and together state

Table 5: Controlling Companies in Phosphate Rock Mining in 2008

Rank World 2008	Company Name	Country	Controlled Production 2008 (Mt)	Share of World 2008 (%)	Cumulative Share of World 2008 (%)
1	State of Morocco	Morocco	24.9	15.47	15.47
2	Mosaic Co, The	United States	16.9	10.48	25.95
3	State of Tunisia	Tunisia	8.0	4.97	30.92
4	Potash Corp of Saskatchewan Inc	Canada	7.1	4.38	35.30
5	State of Jordan	Jordan	6.3	3.89	39.19
6	Bunge Ltd	United States	3.3	2.02	41.21
7	General Co for Phosphates and Mines	Syria	3.2	2.00	43.21
8	CF Industries Inc	United States	3.1	1.94	45.15
9	Israel Chemicals Ltd	Israel	3.1	1.92	47.07
10	State of South Africa	South Africa	2.3	1.42	48.49
11	Incitec Pivot Ltd	Australia	2.0	1.24	49.73
12	JR Simplot Co	United States	2.0	1.24	50.97
13	Agrium Inc	Canada	2.0	1.21	52.18
14	State of Algeria	Algeria	1.8	1.12	53.30
15	Yara International ASA	Norway	1.2	0.74	54.04
16	Monsanto Co	United States	1.0	0.62	54.66
17	State of Togo	Togo	0.8	0.50	55.16
18	Anglo American plc	United Kingdom	0.7	0.45	55.61
19	State of Senegal	Senegal	0.7	0.43	56.04
20	Elko Chemicals Inc	United States	0.3	0.16	56.20
21	State of Nauru	Nauru		0.03	56.23

Source: Raw Materials Data 2010.

control amounts to almost 30 percent of the world production of phosphates.

Market Economy Countries

Some of the most successful state-owned mining companies such as the Chilean copper producer Codelco, the Swedish iron ore miner LKAB, Botswana's diamond joint venture with De Beers Debswana and Indian iron ore mining company NMDC, have been operating under state ownership for several decades or more. Their existence and their

ownership structure have been taken for granted in their respective home countries but recently there have been questions about their future role and functions.

Both Codelco and LKAB have been engaged in discussions to expand their roles outside their home countries. LKAB made a bid for the Brazilian iron ore producer Samitri, but lost. Codelco was reportedly interested in participating in the Zambia Copper Corporation privatization but bowed out in the end. Codelco has established an exploration subsidiary active in several Latin American countries. If such moves are successful, it would mean that the companies would operate increasingly under the pressures of the international market and the risk levels of each would increase considerably. Rumors in Sweden had it that LKAB might be on the privatization list of the conservative alliance government. The government has strongly denied any such plans. The chairman of LKAB has however recently publicly stated that he thinks it would be useful to bring in outside shareholders,[7] but this created an uproar in the districts where LKAB operates. There is no strong political support for such a move at present but it is definitely interesting that even within LKAB such ideas have been expressed. Any privatization proposal, whether in Chile, Poland, or Sweden, would be fiercely opposed by the trade unions and some of the political parties.

In neighboring Finland where the Minister of employment and the economy had a study made in early 2011 on the possibility of forming a new state-controlled mining company to help the country benefit more from the present metal price boom. The trend toward increasing state interest in mining currently appears to be an issue in long established mining countries, as well as in emerging economies.[8]

Russia and East Europe

The privatizations in the former Soviet Union have been completed and only limited production capacity remains under state control. The restructuring of the mining and metal industries in the former Soviet Union has been painful. In Ukraine employment fell by 50 percent from the late 1980s to early 2000s and 500,000 miners lost their jobs and further restructuring has reduced the workforce to less than a third. Dramatic reductions have been made in Russia itself as well as in the East

[7]Reuters online, *Sweden's LKAB would benefit from privatization-chairman*, 31 March 2010.

[8]TEM/3385/06.02.01/2010 Kaivosrahoituksen selvistymiestehtäma, Helsinki 2011.

European countries formerly under the CMEA[9] cooperation umbrella. All metal mining has ceased in the Czech Republic and Slovakia; in Romania little remains of a fairly large base metal sector; likewise in the former Yugoslavia where mining used to play an important economic role. In all these countries mining was based more on political considerations in line with the heavy industry development model undertaken by the Soviet Union rather than on an economic evaluation for each deposit and mine. The deposits were also often exploited without considering the environmental effects. Miners used to be the aristocracy of workers but with the decline they were left without much of a future and no jobs. In the centrally planned economies the mining companies were often responsible for a large part of the social services and this also meant that entire regions experienced severe economic problems. The image of the industry was shaken and this in many ways came to symbolize the failure of the previous political system. Outside Russia and Ukraine, only in Poland and Bulgaria have parts of the industry survived.

In Poland the giant copper miner KGHM Polish Copper was founded in the early 1960s based on a newly discovered, large and rich copper deposit in the western parts of the country. The opening represented one of the few successful new heavy industries set up by the Polish communist government. The company was listed on the Warszawa stock exchange in the 1990s but the government kept a controlling stake of approximately 42 percent. In early 2010 the Government's holding was further reduced to 31.8 percent. The shares were sold in the market through an initial public offering (IPO) and later partial offerings. The government remains the dominant shareholder and does not intend to reduce its stake further, indicating that it wants to keep the copper miner under government control. Other metal mining companies—in the zinc sector—with a lower strategic importance are to be privatized completely. The Polish coal industry continues to be fully state controlled. The sector consists of both hard coal and brown coal mines and Poland is a dominant coal producer in Europe. Partial privatization is planned for the lignite industry, but the hard coal sector will remain in state hands at least for another number of years. There are several reasons for this, not only is the energy sector of strategic importance to the Polish economy and hence more politically sensitive but the hard coal industry is also strongly unionized with agreements in place with the government about

[9]Cmea Council for Mutual Economic Assistance, economic cooperation organisation for the Soviet Union and the countries in East Europe also Cuba and Mongolia were members. The orgnaisation collapsed after the fall of the Soviet Union.

its future. With the gradual privatization of Polish mining companies the state's influence is declining but strong political influences continue to linger, sometimes into the day-to-day management of the companies, including those with only a minority state holding. This is an inheritance from the previous political system.

In Bulgaria privatizations took place in the early to mid-1990s. The country's mining sector consisted of base metal mines, mainly copper, lead, and zinc. The lead and zinc operations have not proven viable. The copper operations changed hands a few times during the first years after the initial privatization and in recent years have been fairly successful.

In Russia the privatization-process was disorderly and conducted in such a way that private interests could accumulate very large assets while paying very little for them. The new owners, the *oligarchs*, became rich and powerful during the 1990s. Gradually the opposition against these machinations grew to such an extent that under President Putin the balance of power was shifted toward more state influence over the primary resource sector. The state regained control, in particular over oil and gas assets; but ownership in metals is still in flux, as the power struggle for Norilsk Nickel demonstrates. What is left in regard to state mining assets in the former Soviet Union will probably stay in state hands given the policy to protect the national interests in mining. A few years ago a reversal of the privatizations seemed possible. This has not happened however. It also appears as if the uncertainties and insecurity concerning security of tenure and other rights are gradually diminishing in parallel with the breakdown of the oligarchs' power. Poor governance is still an issue in Russia also affecting the security of tenure. There could still be controversies between the federal government and regional authorities such as the conflict some years ago over the diamond giant Alrosa. The battle for control ended in a compromise where both the federal and the regional owners agreed the settle and the company is now fully operational again.

Africa

Most of the discussion over increased state ownership in the mining sector can be heard from African countries. This is understandable because not only is Africa the least thoroughly explored continent, but also because companies from China and other Asian countries have indicated their interest in African countries as potential investment targets. Although the experience from the previous wave of state-ownership was less than positive, the desire to capture some of the opportunities in the

present boom for mining is strong and there is a conviction that many countries are now better prepared to govern the mining sector and manage mining companies than they were 40-50 years ago

South Africa

In February 2010 the Youth League (ANCYL) of ANC, the ruling party in South Africa, started an intensive debate demanding nationalization of the country's mining companies. In a document entitled "Towards the transfer of mineral wealth to the people as a whole – A perspective on nationalizations of mines"[10] the Youth League proposed nationalization of South Africa's mining industry to make sure that the "people of South Africa would share in the nation's wealth." The call for nationalizations was met with not only an expected uproar from the industry itself but also from the ANC leadership with the Minister of Mines and the President of the Republic at the forefront.[11] Ownership of minerals in the South African sub-soil was transferred to the government in the early 2000s. In 2005 the so-called Mining Charter was established to facilitate the transition of the South African mining sector after many years of apartheid policies and segregation in the mines to a more inclusive model of ownership of the mining companies. After five years it appears that the Charter has not met the expectations and hence the ANCYL proposal. One of the problems is the failure to transfer at least 15 percent, and later 26 percent, of the ownership of all mineral deposits to "historically disadvantaged South Africans (HDSA)," which is the official term for what is usually called Black Economic Empowerment. Instead of transferring wealth and control over the mining operations to "the people as a whole," a small group of new owners has emerged, accumulating vast wealth. There is also a host of other problems of incompetence and corruption. There is however strong opposition within the ANC to this populist proposal and it has been pointed out that:

- Nationalizations could have negative impacts on existing operations and the flow of investments into the sector.
- The cost of buying existing mining companies would be prohibitive costing several hundreds of billions of rands.
- The record of African governments managing mining operations is poor.

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[10] ANC YL Discussion Document-February 2010 *"Towards the Transfer of Mineral Wealth to the Ownership of the People as a Whole: a perspective on nationalisation of Mines",* 2010.

[11] Hill, Liezel, Mining Weekly.com, *Nationalisation a non-starter, SA Minister assures in Toronto,* 6 March 2010.

While this political debate is ongoing the government is moving ahead with the setting up of a state-owned mining company where state holdings in the mining sector will be transferred and consolidated. Currently there are two fully state-owned companies, a small diamond producer, Alexko; and the African Exploration, Mining and Financing Corporation (AEFMC), which own exploration and development projects. Some holdings are the result of investments by the fully state-owned IDC (Industrial Development Corporation) in projects such as Palabora Phosphate, Mozal aluminum, Rössing uranium, and many others. This new company will coordinate the government's role as an owner of mining assets.

Namibia

A similar development has taken place in Namibia where a state-owned mining company called Epangelo was established in late 2009, which became operative in mid-2010. Initial financing amounted to 1.5 million Namibian dollars (US$217,500) from the government.[12] The purpose is to explore for and develop new deposits. The government of Namibia has said that its long-term goals can only be reached "by means of greater state participation in the mining sector, which is the backbone of the economy." The vision of Epangelo is to become the leading, diversified mining company in Namibia. Government further sees the company as a guarantor of the sustainable utilization of Namibia's natural resources. It has been reported that in the future the company could also engage in joint ventures with private companies.

Namdeb, the large diamond mining company, was originally 100 percent owned by De Beers, but following Namibian independence in 1990 the government obtained 50 percent of the Namibian assets and set up the new joint venture company.

Namibia's government is considering introducing legislation similar to the Mining Charter in South Africa with its Black Economic Empowerment rules. The program is called Transformation of Economic and Social Empowerment Framework (TESEF) in Namibia and has been in the planning for more than five years. The goals set by TESEF are reported to be: 50 percent ownership by "historically deprived Namibians (HDN)," 50 percent HDN in the management cadre, 50 percent of board members, 50 percent of women in top, middle, and junior management, and 80 percent HDN of all staff. The Chamber of Mines of Namibia, the

[12]Weidlich, Brigitte, Namibian the, *Namibia: Hawala to Head Epangelo Mining Outfit,* 29 July 2010.

national mining industry organization, supports TESEF and welcomes its enactment. No definitive proposal is yet on the table but voluntary agreements are already being made such as Weatherley International entering into an empowerment deal with the Namibian trade union Mineworkers' Union of Namibia.[13]

Zimbabwe

When Zimbabwe obtained independence in 1980 after a long struggle it followed a similar path that many of the countries in the region had taken 15–20 years earlier. The government seized control over the mining industry and nationalized some assets into a holding company Zimbabwe Mining Development Corporation (ZMDC) and set up a compulsory marketing company, Minerals Marketing Corporation of Zimbabwe (MMCZ), through which all sales were directed. Over the years ZMDC has grown into a diverse group also taking over operations which have not been doing well and at present the company has interests in copper, chromite, gold, platinum, and diamonds. Through the state-owned steel company ZISCO the government also controls an iron ore mine and is also engaged in the Hwange colliery, which is a cornerstone in the generation of electricity in Zimbabwe. Recently the Zimbabwean Ministry of Defense has become involved in diamonds. Zimbabwean state interests in mining are hence diverse; have not been assembled following a preset strategy but rather ad hoc and are not managed in a coordinated way often lacking professional management.

ZMDC is a passive owner and production from its assets has been more or less constant over recent years. At present the setting up of a government-controlled exploration and development company similar to the one in Namibia and close to realization in South Africa is being discussed in parliament. The reason behind this new company is a lack of trust by the Government in what the industry is doing to optimize sector development in Zimbabwe and to create possibilities for the government to get into new mining projects. After liberalizing the mineral exports in 2009 making it possible for companies to market their products directly, MMCZ-role has been converted to monitor production and exports to avoid transfer pricing and other abuses. The company has come to be viewed as a cost on the industry at a 0.875 percent tax/royalty rate, because in practice MMCZ does not add any value to the selling process.

[13]Duddy, Jo-Mare, Namibian the, *Namibia: Unions, Miner in BEE Deal*, 13th July 2010 and Namibian the, 4 February 2010.

The ruling ZANU PF party under President Mugabe introduced a process of indigenization in 2009. In the initial proposal 51 percent of the capital of all mining companies should be ceded to Zimbabwean owners.[14] After severe criticism by industry, which is to a large extent already owned by Zimbabwean's and run by Zimbabwean management, the regulation has been amended and "cede" has been replaced by "dispose". Industry expects that this will result in a fairer valuation of assets. This is further supported by proposals to set up a sector specific committee to oversee the introduction of the new regulations. It also seems as if the 51 percent limit can be reached not only by direct ownership but also through community investments and other ways to reach compliance over an extended period. As a result of these changes most of the fears of industry have been removed and the proposal is met with cautious acceptance.

Democratic Republic of the Congo

The government of the Democratic Republic of the Congo (DRC) has reportedly drawn up a new model contract which proposes that government should have a 35 percent stake in all new mining ventures in the future.[15]

For much of the past three years, the DRC mining industry has been embroiled in a confusing review of the exploration and mining licenses entered into by the previous administration. A commission has been tasked to review the contracts between DRC's state-owned mining entities and foreign mining companies operating in the country.

Over 60 contracts signed between 1998 and 2005 were subject to review. In December 2008 a report was issued by the Ministry of Mines that affirmed that 23 contracts would be terminated and that the majority of the remaining 40 contracts had been renegotiated successfully. Notable agreements reached included those with Central African Mining and Exploration Co plc (CAMEC), Moto Goldmines Ltd, Anvil Mining Ltd, Katanga Mining Ltd. and FreeportMcMoRan for the Tenke copper mine.

There is considerable uncertainty in regard to the future trends in DRC at present, especially as the intent and meaning to increase the government's share in future mining projects is not well defined and unclear.

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[14]Sapa and Miningmx reporter, Mining Mx Online, *Zimbabwe lays out 51% ownership law*, 9 February 2010.

[15]Mining Journal Online, *DRC mines ministry creates model contract*, 11 June 2010.

West Africa

In *Senegal* nationalization of the mining industry took place in much the same way as in other African countries after independence. Likewise privatizations were made in the late 1990s and early 2000s and the phosphate and atapulgite mines were sold off. Draft new legislation currently under consideration proposes that the state gets involved at an early project stage through a 100 percent state-owned exploration and development company. This company should not take full control over projects but participate as a joint venture partner while entering into various profit sharing agreements partly modeled on practices in the oil sector. This is a new line of thought that has evolved in Senegal and it remains to be seen how it will develop when the proposal is put forward formally.

Latin America

In *Venezuela* the first nationalizations in the mining sector were made in the 1970s when the iron ore mines owned by U.S. companies were taken over by government. In recent years under the Chavez government a new wave of nationalizations has swept the country. In 2009 the steel and cement industries were nationalized as well as the activities of the remaining private oil companies. Previously, government had cancelled six nickel mining concessions belonging to Anglo American. There have been discussions that legislation will be introduced to nationalize existing mining companies and to force foreign companies to form partnerships with state owned companies but so far this has not happened.[16] The Las Cristinas gold project, operated by the Canadian junior Crystallex, has been among the projects mentioned for nationalization. Recently however it seems as if a solution has been found which does not involve any Venezuelan state participation. Instead Crystallex has entered into an agreement with the Chinese China Railway Engineering Corporation, a company active in many other countries in constructing mining projects. The government has seemingly accepted this deal as it has also allowed the Russian controlled Rusoro to continue its operations near the town of El Callao. In *Ecuador* all mining activities were suspended for 180 days until a new legal framework regulating exploration and mining was put in place. Mining has not yet resumed. A state mining company is in the planning.[17] *Bolivia* under President Morales has nationalized the Vinto tin

[16]Mining Journal, London 2008 01 11, p. 1, Kosich, Dorothy, Mineweb, *Venezuela's Hugo Chavez threatens to nationalize gold mining*, 26 April 2010.

[17]Mining Journal, London 2008 05 25, p. 1.

smelter owned by Glencore in 2007. Most of the actions of the Morales Government have been focused on the oil industry but the mining industry has also been targeted. In his political speeches Mr. Morales has stated that state-owned companies should be created to develop the giant Mutun iron ore deposits close to the Brazilian border and to start lithium production from brines in the Andes. But so far this has not happened and recently the rhetoric has been toned down as foreign direct investment into the natural resource sector of Bolivia has been cut back.

India

India is a country with a large and well developed state sector in the mining industry. In fact Coal India is the largest coal producer globally and one of the largest mining companies in the world. A slow and phased privatization process has been under implementation for more than a decade in India. There are political constraints and although there is a clear policy to continue the process, trade unions continue to oppose the sell off of state companies. In most cases the plan is to divest a minority stake only, in the case of National Mineral Development Corporation, an important iron ore producer controlled by the central government some 10 percent has been divested to private investors. A similar stake has been sold off in Coal India and plans are in place for selling a similar share of the National Aluminium Company (Nalco). The government sold the majority of Hindustan Zinc earlier and retained only 30 percent of the company. The main reason for the privatizations/sales is to generate funds for the Government budget. Government also wants to increase the role of the private sector to secure the necessary growth in mineral resource production to guarantee India's continued economic development trajectory. It has however been difficult to find investors and in some cases the price for the shares sold has not met with the government's expectations and further sell offs have been postponed. The mining companies owned by the states have not been included in these privatization plans but are kept by the respective state government.

The mining companies owned by the central government have a fairly independent governance structure. A typical board of directors has 2–3 government nominees and 4 independent directors to oversee the general public interest. In strategic issues the government through the responsible ministry, such as the Ministry of Mines (all minerals except coal and iron ore), the Ministry of Steel (iron ore), or the Ministry of Coal, gives directions but in most other issues the board acts on its own.

China

Chinese ownership and control

The Chinese mining sector is still largely under state control whether by central government or by regional or local authorities. The rapid growth of mineral production in China can probably be explained by the unique combination of a culture of central planning with the dynamic forces created by the market economic approach of each enterprise. It remains to be seen if this model can continue to be as successful as it has been in the past decade. Serious challenges lay ahead as the rapid growth has created problems such as severe environmental impacts and health and safety issues. The industry structure is fragmented with many small, by international standards very small operations, and the cost of production is relatively high.

No comprehensive literature exists on the path of partial privatization that the Chinese government has chosen for the Chinese mining industry. The energy industries and in particular the oil sector have been much better covered. Given the similarities between the sectors, the approach used when describing the energy sector, has also been selectively applied to metals and minerals.[18] Fuel minerals and metals and non-fuel minerals are resources in the ground owned by the nation. Both industries require large amounts of capital, long lead times and pay back times, and in general a longer term perspective than manufacturing industries. Although some metals and minerals have gradually become vitally important to modern society, metals do not have the overall strategic importance and direct impact on all aspects of the economy as energy, resulting in a much lower political interest in the mining sector. Over a period of time, from the mid-1980s to the mid 2000s, politicians in both China and the industrialized countries did not focus on metals at all.

In the early 2000s Chinese economic growth advanced so fast and the economy reached such a size that domestic mineral supplies were not sufficient to support the current and projected growth in demand. It became necessary to look for new resources abroad and to make the exploitation of domestic resources more effective and less wasteful. A new "two pronged" mineral supply policy was adopted: (i) intensify and

[18]The following section draws largely on Andrews-Speed, Philip and Zhenning, Cao, "Prospects for privatization in China's energy sector," Chapter 10, in *Exit the Dragon? Privatization and state ownership in China*, edited by S. Green and G.S. Liu Centre for Energy, Petroleum and Mineral Law and Policy, University of Dundee and also Andrews-Speed, Philip and Dannreuther, Roland, "China, Oil and Global Politics," Chapter 4, *China's Growing Presence in the International Oil and Gas Arena*, Routledge, 2011.

improve the use of domestic resources and (ii) acquire control over foreign resources. The first goal is to be reached through a host of measures ranging from increased exploration expenditures to improving the utilization of existing resources in all steps of the process chain from mining to recycling. The second leg implies a change from imports of ores and metals to direct investments in and ownership of overseas mines.

Partial privatization of existing Chinese mining companies forms part of this policy and supports its long term success. Partial privatization was chosen because full privatization was perceived as a potential threat to national security. The partial privatization model has several important advantages such as: immediate cash injections; restructuring and rationalization of the company structure and organization before the company could be offered to new investors; incentives to motivate and reward management in new ways; and in case foreign investors were brought in, the company could gain technological and managerial experiences, in particular in regard to operating abroad. The lack of foreign experience was perhaps the most important hindrance for a smooth and quick expansion of Chinese foreign mining activities.

The structure of the Chinese mining industry has started to change and with it the influence of the state on the mining companies. The number of privately, so far mostly small, held mining companies is increasing, partly because of privatizations, but most importantly, because of the ever growing demand for mineral resources by the manufacturing industry. These small, flexible, companies, made the unparalleled growth of Chinese mine production in the early 2000s possible. This group of mining companies cannot, simply because of their numbers, be controlled in detail and hence the state control tends to decrease. In iron ore mining there are several thousands of mining enterprises for example and the situation is similar for other metals such as tin, lead, zinc, and coal. To a certain extent authorities probably chose not to focus too much on possible infringements by these small companies as they were not only important to metal supply but also in regard to job opportunities. The number of jobs provided by these companies exceeded the jobs created in the large scale capital intensive mining industry and they were often offered in areas where little other choices were available. At the same time government is supporting a trend toward larger companies both among state-owned enterprises and in the private sector. This will gradually make central control easier. Although the focus and objectives of the major companies, with tighter links to government, have been changing and they are becoming more profit oriented,

Chinese companies are still however, in general, more long term in their strategy and planning than their multinational company competitors. But they cannot, as might have been possible 30 years ago, continue loss making operations relying on capital from government. In addition the government has gradually handed over decision making power to the companies for all day-to-day decisions and also most strategic issues. However the government continues to appoint the directors on the board and the senior executives of most major companies in the mining and metal sectors including the steel industry. Directors are mostly high ranking government officials. The functions of these boards are not well defined and their powers are not well known and documented but they are an important link in the way the Chinese government control the companies.

There have been several partial privatizations and IPOs successfully carried out in the mining sector, in recent years. Some of the major Chinese mining companies such as Zijin Mining (copper, gold), China Molybdenum Co (molybdenum), Jiangxi Copper (copper), Chinalco (aluminum), Shougang Iron & Steel Group (iron ore), China Minmetals (iron ore, rare earths, and others) are listed on stock exchanges in Hong Kong and abroad. In most cases only a minority shares of the companies have been offered to the public and the government retains the majority. This has meant that government control has been partly reduced but the central, regional, and local governments undoubtedly maintain the ultimate control over these companies, even if the provision of capital is shared with other investors. There might also be differences in views between the various government levels and what makes sense from the central government's perspective might not always be carried through at regional levels. It must be kept in mind that China is a big country and absolute central control is simply not possible not even over a specific industry branch.

In summary the mining sector has been the focus of increased government attention in recent years and although the day-to-day issues are handled within the companies, government approval is still needed for major, strategic, long-term decisions. There are no indications that this situation will change in the near future, mainly because the metal supply issues are considered too important by the government in relation to the overall development of the economy and the country. The commercial objectives and profit goals of the companies will not always be in line with the government's political agenda and these differences will probably deepen with time.

Chinese foreign investments

The second leg of the Chinese mineral supply policy calls for a change from import of ores and metals to direct investment in overseas mines using ownership as the preferred method to secure a stable—both in terms of volumes and prices—supply of resources. Outbound investments in mining have grown rapidly from just US$440 million in 2005, US$1.8 billion in 2006, to more than $16 billion in the first five months of 2008.[19] Overseas investment by Chinese mining companies continues to increase. Australia remains the focus for much of Chinese activity in 2009 (42 percent of total) but there is also an increasing interest in other countries.[20]

A list of acquisitions includes:

Table 6: Selected Chinese Acquisitions in the Mining Sector

Buyer	Share %	Target	Metal	Value US$ million
Chinalco	9.3	Rio Tinto	Diversified	14,000
Yanzhou	100	Felix Resources	Coal	3,200
CIC	17	Teck	Diversified	1,500
Shandong Iron & Steel	25	Tonkolili	Iron ore	1 500
Chinalco	47	Simandou project	Iron ore	1,350
China Mineral	100	Itaminas	Iron ore	1,220
Valin Iron & Steel	17	Fortescue	Iron ore	939
Chinese investors	51	Wesizwe	Platinum	877
Chalco	100	Peru Copper	Base metals	800
CRCC-Tongguan	97	Corriente	Copper	595
Sino Uranium	?	Somina mine	Uranium	300
CST Mining Group	54	Chariot Resources	Copper	240
Jinchuan group (JNMC)	100	Tyler Resources	Copper	214
Citic Pacific	100	Mineralogy/Korean Steel	Iron ore	200

(continued)

[19]Chau, C., KPMG, M&A in mining in China, Mines & Money Asia, Hong Kong, June 11–12 2008.

[20]Mining Journal Online, *China's outgoing funds change focus*, 11 June 2010.

Table 6: Selected Chinese Acquisitions in the Mining Sector
(continued)

Buyer	Share %	Target	Metal	Value US$ million
Xiamen Zijin Tongguan	100	Moterrico Metals	Copper	168
JNMC	100	Crowflight	Nickel	150
Jinduicheng/ Northwest	100	Yukon Zinc	Zinc	113
Citic Resources	8.4	Macarthur Coal	Coal	96
CNMC	80	Luanshya	Copper	50

Source: Raw Materials Data 2010.

In Australia the list of joint ventures and M&As is extensive and covers a range of metals/minerals to mention only a selection:

Table 7: Chinese Selected Acquisitions in Australian Mining

Chinese Partner	Australian Partner	Metal
Valin Iron & Steel	Fortescue	Iron ore
Citic Pacific	Mineralogy	Iron ore
Ansteel	Gindalbie Metals	Iron ore
China Metallurgical	Cape Lambert	Iron ore
Baosteel	Rio Tinto	Iron ore
Yanzhou	Felix Resources	Coal
Citic Resources	Macarthur Coal	Coal
Hunan Non-ferrous	Compass Resources	Base metals
CST Mining Group	Lady Anne	Copper
Guangdong	Kagara	Copper
Jinchuan (JNMC)	Albidon	Nickel
Jinchuan (JNMC)	Allegiance Mining	Nickel
Shenzhen Zhongjin Lingnan	Herald Resources	Lead/zinc

Source: Raw Materials Data 2010.

Two major Chinese investments give a clear indication of the Chinese and hence government interest and intention to increase its role in global mining.

- Industrial and Comercial Bank of China (ICBC) taking 20 percent of the leading resource bank of Africa Standard Bank of South Africa in 2007 in a 36.7 billion ZAR (appr. US$5 billion) deal.
- The US$14 billion deal in which Chinalco took control of 9 percent of Rio Tinto and their deepened cooperation in Guinean iron ore mining.

Given the increasing freedom of Chinese state-controlled mining companies even when investing abroad and the growing number of entirely privately held mining companies and other companies investing in foreign mines there are multiple players of Chinese origin both from government and industry and their interests are more often than not diverging. As their experience in and understanding of the how the international mining industry and international mining investments function, the Chinese industry and government are also developing and changing.

When analyzing these investments in more detail a number of observations can be made:

- There appears to be a lack of a coherent strategy in regard to the earlier acquisitions, often the rationale seems to have been the result of circumstances. The first major acquisition was Shougang buying the Peruvian iron ore mine Marcona when it was privatized (!) in 1992 with no other major deal until a decade later. Likewise the first deal in Africa concerned a chrome mine in South Africa bought in 1995 but thereafter it took many years before further acquisitions were made.
- Although the number of deals and amount of money invested has risen in recent years, in particular as the Chinese companies have access to large amounts of capital from the Chinese currency reserves, the importance of Chinese-controlled overseas mine production has been and still is rather limited. There are some exceptions such as copper production in Zambia and iron ore in Australia and Peru as mentioned above but otherwise there is very little productive capacity in Africa or elsewhere in the world.
- Australia has been the most favored target of investments. This is logical given the vast and often high quality resources of Australia and its relative close location compared to Africa and Latin America. Other countries bordering China such as Afghanistan, Mongolia, DR Korea, Vietnam, and Kazakhstan have also recently been subject of Chinese interest.
- Iron ore has been a main focus given the poor quality and mostly limited size of Chinese domestic resources. The second most important metal is copper, which China also lacks.

Chinese investors have various objectives: Chinese steel companies aim to secure a supply of iron ore without having to pay the high prices on the open market, caused by the acute crisis in iron ore supply and the control over the seaborne trade by the "Big 3" (Vale, Rio Tinto and BHP Billiton). In addition the steel companies are often larger than most mining companies and have some experience in international investment projects which most mining companies lack. The aluminum companies have also been active in particular Chinalco buying 9 percent of Rio Tinto, although its second attempt to double that holding did not succeed. In the DRC many small, artisanal copper smelters and refineries were set up by private companies and private capital when copper prices were high in 2007/2008. As a result of the financial crisis and the fall in copper prices most of them were closed in early 2009. Construction companies such as China Railway Engineering Corp have also been active partly in order to supply their skills in the construction of infrastructure such as railways and ports which will be required to bring new iron ore deposits into production.

- Most of the outbound investments go into minority stakes indicating that the Chinese are not yet ready to take full undivided control of new ventures abroad. There is however no doubt that the Chinese mining investors will gain experience both from their foreign investments and the domestic mines as they introduce modern, large scale mining methods to modernize and expand their operations. When this happens they will also most probably be prepared to take full control over foreign operations.

In the Chinese quest for access to foreign mineral resources, the government and companies are the two major actors. As discussed above, although these two parties often have similar goals there might be instances that their motives might be diverging and the commercial agendas of the companies will not always coincide with the government's political agenda. If the companies want to have access to cost competitive resources and continue their commercial goals, they will need to invest abroad. In this way the companies can both grow and become truly internationally competitive, while management can expand their operational and their staff-skills.

In this way government policy and company motives are coinciding and foreign expansion has been rapid. The government is convinced that the ownership of mineral deposits will improve the security of supply; much in line with the policy which has been pursued on the energy

side for a longer period of time. There are also industrial policy motives behind the government's interest in foreign metal deposits. By securing the flow of iron ore, the Chinese steel industry will be in a position to supply the infrastructure necessary for a growing economy. The same reasoning can be applied to other metals to varying degrees.

As mentioned, the structure of the Chinese mining sector is gradually changing and the industry is becoming more complex. The initiative to consider a new project is always proposed by the companies, the central or regional governments have neither the knowledge nor the capacity to develop new FDI ideas. The countries chosen are those with the best potential and logistically most suitably located, in iron ore for example Australia and West Africa. If the competition from the established mining multi-nationals in the target country is not that strong for reasons of political risks or lack of infrastructure this can be an advantage to the Chinese investors which generally have a longer time perspective than their competitors. There are lists of favored countries for outward investments issued by government and regularly updated and coordinated between the ministry of foreign affairs and the ministry of commerce and other ministries but the coordination in the mining sector is not as tight as in the energy sector. There are coordinating agencies such as the Secretariat of China-Africa Cooperation Forum and others, however with limited influence. Given the decentralized manner in which the projects are assessed within each company it is often the case that the package of infrastructure development, general trade agreements, and economic development support are prepared as a next step after the companies have already taken the first initiatives.

For any major investment, approval from the central government (NDRC and State Council) is required, in some cases also to obtain the necessary funding. The role of government is mostly reactive; it sees the need for new foreign direct investment (FDI) in mining and has issued its general policy but reacts to the project proposals on a one by one basis. In spite of this lack of complete control, state control over foreign expansion of the Chinese mining industry is still considerable and no major project is undertaken without full government support.

Chinese investments into African metals and oil have been highlighted and intensively discussed in recent years. It is, for example, estimated that over 800 Chinese state-owned companies are active in Africa. The Chinese offer African countries soft loans and technical assistance to develop infrastructure of all types, railroads, ports, power lines, and

so forth.[21] Iron ore junior Bellzone Mining has announced that China International Fund (CIF) has agreed to fund the entire $2.7 billion infrastructure required for its Kalia project in Guinea in return for the right to the mine's entire production.[22] China Nonferrous Metal Mining (CNMC) plans to invest $600 million in Zambian copper in 2010 and 2011.[23] In Guinea Chinese investors have announced to invest $7–9 billion in the next five years on mining infrastructure, housing, electricity, roads, and water supply.[24]

Although the focus has been on the Chinese presence in Africa, it is important to note that the share of African mine production which comes from Chinese controlled operations is still very limited. When looking at exploration expenditure, that is, the long term future of mining in Africa; the Chinese presence is almost zero. The main Chinese investment projects are focused on known deposits mostly in iron ore and all of them at an early stage. Iron ore is a special case as most iron ore deposits have been better defined than deposits of other metals because most major iron ore deposits in the world were identified during the last iron ore boom in the 1960/70s when major efforts were made to explore for iron ore around the world. To start an iron ore mine is hence not a matter of applying ingenious geological models and putting skilled geologists with sophisticated high tech instruments to work, but rather to solve logistical and operational issues: to supply a large mining operation with all the necessary inputs—not least of which are water and energy in different forms, as well as workers, qualified engineers, maintenance staff, and most importantly to transport millions of tons of ore to a deep water port and ship it. In some cases companies involved in the infrastructural support of mining have taken the lead in the Chinese projects in Africa.

As different companies act in their own different ways in each African project, it is not yet possible to present a number of general applicable conclusions on how these projects will be executed or what the developmental effects will be. This is especially the case as the number of projects which have been completed is small and hence there are only a limited number of projects which can provide insights for the future.

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[21] Mining Weekly, Johannesburg, 2007 09 28.

[22] Webb, Mariaan, Mining Weekly.com, *Chinese firm backs $2,7bn Guinea iron-ore infrastructure project*, 24 May 2010.

[23] Reuters Africa Online, *China firm to invest $600 mln in Zambia copper mines*, 8 April 2010.

[24] Mining Journal Online, *China Africa investment relations*, 28 May 2010.

Topics for Further Discussion

Introduction

The global privatization process in the mining industry was more or less completed in the early 2000s. What remains are a few either exclusive, well-performing companies such as Codelco, LKAB, Polish Copper, and NMDC in India or politically risky assets with long-term potential, such as Gecamines and the Venezuelan iron ore and aluminum industry and parts of some of the Indian state mining companies. The development of these state-owned companies in these countries will take time—either because of the complete breakdown of society, as in the DR Congo, or the strong political opposition to privatization in both India and Venezuela. The downward trend in the privatization of mining companies can be seen both from the number of transactions and the amounts involved in these transactions. From a peak of almost $5 billion in 1997 (20 deals) the figure was down to $0.3 billion (4 deals) in 2000 and almost zero in the following years.

The following discussion is primarily intended to serve as an introduction to an important set of questions and to provide a basis for further discussion and deeper studies. It is divided into three parts: first some thoughts about the history of nationalizations and why some metals are more likely to come under state control; second some preliminary conclusions and lessons learned both positive and negative from the work for this study; and a concluding section of what to do to avoid the mistakes made in the past.

Why are Some Metals More Likely to be Under State Control?

When looking at the history of state ownership of the metals under study both at the mining and refining stage over time, one sees that the picture is complex and it is not possible to draw any simple conclusions. To put this in a different way: It is not possible to fully answer questions such as: Why is the level of state control in the market economy countries at

the refining stage only 5 percent for nickel, but 16 percent for copper, and 17 percent for aluminum? Why did state ownership in nickel in the MECs peak at 43 percent in 1989 and tin at 68 percent but only in the year 2000?

It is however possible to obtain some or at least part of the answers to these questions by looking back at the period of nationalizations and the rationale given at the time for these actions. There is no indication that a clear strategy existed in regard to which metals or what stages of the production chain should be nationalized. The objective was to capture rent and to safeguard the national patrimony, most often because of a perception that international mining companies or foreign investors obtained most of the rent, leaving very little for the host country. The most important mining companies, regardless of which metals were mined, were taken over by the state. Nationalizations were often made in connection with the decolonialization process of developing countries. The previous colonies, most often in the Southern hemisphere whether in Africa or Asia—most Latin America states won their independence earlier—are mostly in tropical climates and hence metals which are more abundant in those climates show a higher degree of state ownership than those metals which were not. This was the case for copper where Zambia and the former Congo were important copper producers at the time when the two African countries gained their independence. Also, during the 1960s, the political climate was generally in favor of state interventions based on the experience of the Soviet Union and social democratic countries. In Chile the nationalization was commenced by a nationalistic government from the center/right, which created Codelco. In South East Asia tin was nationalized in Indonesia following its independence from the Netherlands. After the tin crash in the mid-1980s the mines in most other countries in the region and elsewhere were closed down but the Indonesian operations survived partly with state support and the level of state control in tin has remained high since then. In the case of nickel it is interesting to note that the lateritic nickel deposits, which are found in tropical environments, have recently become economical through a new hydrometallurgical process. It will be interesting to see if the degree of state control over nickel production might increase after this.

Apart from geographic/geological reasons, the historic locations of mines, and the wave of independence for mineral rich former colonies, political security considerations can explain higher levels of state control in aluminum. In the first half of the 20th century, aluminum was considered a strategic metal because of its importance in the aircraft industry

on the military side. Hence it was considered important to keep at least part of this industry under state control. Even in the United States the aluminum industry was put under tight state control during the Second World War and some of the major companies in the post war period, such as Kaiser owed a lot of their growth to state protection and intervention during the war. The vital importance, given by governments to the energy supply in many countries is certainly the most important explanation of the high level of state control in the energy sector. In regard to iron ore, broader industrial policies and an understanding of the central importance which this sector has for economic development in general have contributed to the slightly higher levels of state control. Iron ore mines were nationalized not only in developing economies but also in countries such as Sweden and other European countries. Gold on the other hand has no or at least limited industrial use, hence the level of state control is low.

As mentioned earlier, in addition to the nine metals analyzed, others such as diamonds and phosphate have large state-controlled sectors and these examples underline the relevance of the hypothesis that there is no metal-specific approach, except the wish to control as large a part of the industry as possible. In Namibia and Botswana diamonds are the most important minerals and in Morocco it is the phosphate industry.

Lessons from Previous Periods of State Ownership

State ownership of a mining company is not necessarily bad

As has been pointed out there are many similarities between the oil industry and hard rock mining but there are equally important differences. One is the ownership situation where particularly in the oil industry state-controlled national oil companies (NOCs) have become the norm. The international oil companies are still important but play a subordinated role compared to the NOCs. In mining the situation is the opposite. Most state-owned mining companies have over the years and in particular in developing countries not been able to operate successfully, leading to privatization. The energy sector shows, however, that such poor performance is not a corollary of state ownership. There are also a few and important examples of successful state owned mining companies such as LKAB, Codelco, Outokumpu, Debswana, and a few others. The success of a state-owned mining company is determined by the governance framework/structure, assets, and capital base. The following observations can be made in this respect.

Capacity to govern a company must be present

An independent Board of Directors consisting of members with sufficient experience and knowledge of the mining sector including finance in mining both domestically and internationally is a prerequisite for a successful company. If such persons are not available within the country they have to be attracted from abroad. It is equally important that the day-to-day management is placed in the hands of experienced and motivated professional managers who know both the mining industry and the country-specific conditions.

Reinvestments must be made continuously

A mining company cannot be used or considered as merely a revenue generator by the government to cover budgetary deficits or other demands for money, skills or capital elsewhere in the national economy. Whereas the expectation of a transfer of skills, experienced people, and not the least annual profits from a state-owned mining company to the state is justified, these contributions must be appropriate compared to the size and profitability of the company. Mining, and in particular sustainable mining, demands re-investment in exploration and development to maintain current reserves and to provide for future production, which includes developing at least 5–10 years of ore reserves.

Politicians need to understand the long term and truly international nature of mining

In most countries, industrialized and developing alike there is a need for politicians to understand that it takes 10–15 years to develop a mine and that the industry is a high risk sector. If this understanding is lacking, hopes for quick results and short-term gains will not be realized, disappointing parliamentarians and their electorate. In the same way the stability and continuity provided by mining compared to other branches of industry must also be better understood. If a mine is established it will operate for at least a period of 8–12 years, the average life-of-mine at the start of a new project. During this period the mine will most likely not be closed down and it cannot be relocated. In many cases the mine will continue to operate as new reserves are developed as a result of further exploration work is done properly. A time perspective of 10–15 years is necessary to be able to evaluate a state mining project.

The company must be adequately sourced in relation to its size

Mining is not only a long-term business, it is also a highly capital intensive industry with high risks of failure for a new project. There are

geological risks: will a good deposit be found; mining risks: is the shape and geometry of the deposit sufficiently understood to make use of large-scale, efficient mining methods; metallurgical risks: can the metal be extracted profitably; market risks: will demand and price for the metal remain at the expected levels?; financial risks: will investors provide capital; and other risks. If the company does not have a sufficient size and capital base to attract the necessary expertise and to operate for a number of years without positive cash flow, it will fail. In order to be successful in an international competitive environment such as mining only companies with the best management and resources will survive and this is regardless if the owner is a state or private investors.

Competitiveness must be sustained

A state company must be subjected to the same competitive conditions as its international peers. Taxes, royalties and other fees should be levied as per the industry standards in the country. If a state company is given exceptional treatment for example reduced environmental standards or additional demands for example the need to hire local staff even when such staff is not available or in short supply this will affect its competitive position and hence its ability in the long term to perform compared to the rest of the industry.

Mixed capital companies may stand better chances

In the mining sector most state-controlled companies have been 100 percent state owned. Some exceptions exist such as the Outokumpu Company, the capital of which was partially listed on the Helsinki stock exchange. In the case of developing country companies, partial privatizations have been carried out, with mostly positive results, such as in Indonesia. For new state-owned enterprises it could be of interest to create a mixed capital type of company with a set timetable for gradual transfer of ownership from the state to private national entities and investors on a jointly agreed timetable.

What Can Be Done to Avoid Future Mistakes?

Clear distinction between the state as an owner and a regulator

Governance of a state mining company should be separately assigned from all other mandates of the sector ministry (in most cases the ministry of mines) and preferably not even in the same ministry but rather in the ministry of finance or similar. Clear goals and objectives should be set for economic performance, employment creation and other non-economic

goals in order to make the best use of the advantages of having the state as an owner.

Clear communication lines between owner and the company

There must be clear communications and reporting lines, which is valid for all companies and not specific for the mining sector, with the owner providing its input at the AGM and through its Board members with the role of the Board to oversee that the strategy of the company and its plans for the future are developed and executed accordingly. The day-to-day management must be left to the management of the company without interference by either the Board or the ultimate owner.

The company should not be part of the treasury

Decision making power over the use of the cash flow should be the prerogative of the Board and not the treasury department of the owner. It is particularly important that sufficient re-investments are made to secure the long term performance of the company.

Full transparency

Many governments believe that confidentiality and opacity or non-transparency are important to manage and operate a state-owned company. In the long run, the opposite is true. A state-owned company should be fully transparent and follow the most stringent reporting rules even if it is not required to do so from a formal point of view. In all respects a state-owned company should be a model for private companies rather than the opposite.

Clear and transparent non-profit goals

Long-term, government strategic goals such as the establishment of downstream operations, training and hiring a certain number of nationals, and so forth have to be coordinated and set in line with the company's abilities and its other priorities. These goals should be clearly stated and transparent.

Listing of a state owned company

Listing of a state owned company is often an excellent way to share the burden to raise capital particularly in countries where the government's capital-resources are limited with competing demands on these resources. A listing will also subject the company to more stringent reporting,

governance and other public aspects requirements in regard to the management and operation of the company.

The Future

The degree of government's interest in the mining sector reflects to a large extent the cyclicality and success of the sector. In the 1960s and 1970s governments pinned their hopes on the socioeconomic development potential of mining, based on the industry's economic performance over the preceding decades. With the benefit of hindsight it is now obvious that the period between the Second World War and the mid-1970s was a period of exceptional and unprecedented growth in metal production and metal prices. In this period the reconstruction of Europe and Japan after the Second World War and the industrialization of the Soviet Union resulted in a rapid growth in metal demand. Most nationalizations were done toward the end of this period at the market's height. Over the ensuing 30 years metal prices were in almost continuous decline. Profits fell and the industry could not meet its societal responsibilities. Privatization occurred during this period of downturn. Developing country governments entered the industry at the top of the market and exited when the markets were down.

However, the privatization process had hardly been completed before governments around the world started to exhibit signs of a renewed interest in the sector as a result of the dramatic metal price increases over the past number of years beginning in 2003/2004. The financial crisis in 2008 put a temporary stop to this but the swift recovery of metal prices in late 2009 and 2010 created new ambitions for mineral-rich countries. Demands for an increase in the sharing of the profits have came from civil society groups, political parties, trade unions and in Latin America, in countries such as Venezuela, Bolivia, and Ecuador government-control over mineral resources has been put back on top of the political agenda. In both Bolivia and Venezuela nationalizations have also been made. In Africa there is an increased interest in nationalization and initiatives to start state mining companies are concentrated in the Southern African countries, which obtained their political independence after the main nationalization wave in the 1960s and 1970s. They have hence not experienced the negative outcomes of state-ownership of Zambia, Tanzania, Zimbabwe, and others. On the contrary, South African state owned companies, such as IDC, Eskom, and others have been quite successful. Botswana is another positive example in the region that success is

possible. In Asia the interest in state control over resources is much less pronounced and with the exception of Mongolia these issues have not been on the top of the political agenda in recent years.

Even if direct control over mineral resources through ownership is only a priority in a few mineral-rich countries, a much larger group of countries are in the process to reconsider their mineral policies to find ways to increase the potential benefits of mineral resources. This renewed political interest is expressed in several ways:

- Increase in taxes and royalties in several countries including industrialized countries.
- Legislation to transfer ownership to certain groups (so called black economic empowerment) in Southern Africa.
- Concerns over security of supply of metals and minerals in China as well as Japan, the United States, and the European Union.
- Discussions and actions to limit foreign ownership of strategic resources in Vietnam, China, Venezuela, and others.
- Re-negotiation of mining agreements in Venezuela, Mongolia, the Democratic Republic of Congo, Guinea, Ghana, and others.
- Establishment of state-owned mining development companies to function as an alternative to the private companies in Southern Africa.

The number of actual nationalizations carried out during the current metal prices boom is limited and it does not appear that this route to more influence and to secure a larger share of mineral rents will be the preferred method. Even in South Africa, where calls for nationalization have been vocal, it is doubtful if these demands will gain wider support.

Given the poor experience from their previous entry into mining, governments can make the case and explain that government should stay out of the industry and allow it to be operated by the private sector. This would then lead to demands of revised taxation or other economic means of extracting a larger share of the profits and mineral rent to achieve the objective of increasing the benefits obtained by the host country. Or a government could reason that it was not so much the state ownership itself that was the problem but the way the state structured the governance and managed the companies it owned and controlled and that lessons have been learnt, using the successes of LKAB, Codelco, and other fully state-controlled companies or those partially controlled such as Debswana or Namdeb and even those not state controlled anymore such as Outokumpu, Pechiney, and possibly Norilsk and Alrosa as examples. The proposed state-owned mineral development companies, to be set

up in Southern Africa, as an alternative to the private junior exploration companies under fully competitive conditions with the private sector would be an interesting example of this approach and thinking. These could be seen as a sign of a new understanding from governments of the long-term nature of the mining industry based on the assumption that the current minerals boom will last. It is however not at all certain that governments fully realize the need to formulate a long-term strategy for the sector. Demands for an increased share of the rents during times of high metal prices will continue and are understandable. So far most of these demands have resulted in changes to the tax system, such as the introduction of windfall taxes and super profit taxes and in comparisons with the government's experience with the oil sector to obtain an increase in the benefits derived from the sector.

Given that the likelihood of a longer period of relatively high metal prices seems to be fairly high it is important that the establishment of these state mineral development companies and the introduction and development of new, flexible, and ingenious taxation systems are based on lessons learnt and on what constitutes good practice and that key stakeholders are consulted to obtain the necessary support for the proposed actions. A key objective of these initiatives is to ensure that the industry contributes effectively to the socioeconomic development of the various countries and regions in a sustainable way. In this context there is a need for a systematic evaluation of the role and contributions of state owned mining and mineral development companies to facilitate and guide governments in the present situation.

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Appendix 1: Definition of State Control

In the analysis of state control, two concepts are of basic importance, ownership and control. Ownership refers to holding of shares in a company and is easy to define and measure; in principle that information is to be found in the share register of a company. The concept of control is more difficult to define and even more difficult to measure accurately. State control is even less clearly defined in the literature than the overall concept of corporate control.[25] In this study the following definition has been used.

> *To be in control is to have possibility to act decisively on strategically important issues. Such issues include the broad policies of a company, decisions on large investments, buying or selling of subsidiaries and power to appoint or dismiss management. To be in control of a company does not necessarily include having day-to-day influence over all its decisions.*

Traditionally direct control through ownership has been the most important means of control over a mining company and often it is presumed that ownership and control are closely correlated. Control can, however, be exercised by many means, of which ownership is the most common and the most important. Other direct means of exercising control are, for example, through administrative and technical management, vertical integration, and interlocking directorates. Indirect control can be exercised through long-term contracts, market knowledge, proprietary technology, and financing arrangements. The importance of these different ways of exercising control varies considerably. An interlocking directorate is clearly not crucial but the pattern of financing and

[25]Marian Radetzki, *State Mineral Enterprises, an Investigation into Their Impact on International Mineral Markets*, Resources for the Future, Washington DC, 1985.

access to know-how about a particular market is vital to control over a company.

It can be argued that the powers of the state to create and implement general economic policies, mineral laws, and mining taxation regulations together with a minority equity stake in a mining company are enough for control should the need arise. However, this would be to simplify too much and almost all mineral companies in most developing countries would be considered state controlled by this definition, which they clearly are not. There are several examples to show that it may not be enough to have even a majority of the equity in a company to be in full control.

Applying the definition of control given above, state mining enterprises in the mining and smelting industry form a heterogeneous group of companies, which nevertheless can be divided into two broad country categories:

- State-owned companies in market economies countries; and
- State-owned companies in centrally planned economies.

For the years 1975–1989, countries included in the CPE (centrally planned economies) are: Albania, Bulgaria, Cambodia, China, Soviet Union, Cuba, Czechoslovakia, Germany, Hungary, Mongolia, Democratic People's Republic of Korea, Poland, Romania, and Vietnam.

For the years 2000–2006, countries included in the CPE are: China, Cuba, Democratic People's Republic of Korea, Laos, Mongolia, and Vietnam. For the years 2007–2009, countries included in CPE are: China, Cuba, Democratic People's Republic of Korea, Laos, and Vietnam.

Please be aware that refined lead production is not included as secondary lead production accounts for over 50 percent of total refined production and this production is not properly reported.

The method of calculating control based on ownership figures is described in *Who owns Who in Mining 1999* page 531.[26]

[26] *Who owns Who in Mining 1999, Ownership and control in the world mining and refining industry*, Raw Materials Group, Roskill Information Services Ltd., London May 1999.

Appendix 2: State/Private Control of Mining/ Refining of Selected Minerals

Table 1: State/Private Control of Mining of Selected Minerals

		Controlled Share of World Production %								
Mineral	**Entity**	**1975**	**1984**	**1989**	**2000**	**2005**	**2006**	**2007**	**2008**	**2009**
Bauxite	MEC states	17.4	24.8	26.7	18.7	13.5	13.1	13.4	13.1	na
	CPEs	14.3	13.1	11.6	5.8	10.9	11.6	16.2	16.8	na
	Of which China	1.04	2.5	3.4	5.8	10.9	11.6	16.2	16.8	na
	State total	31.7	37.9	38.3	24.5	24.4	24.7	29.6	29.9	na
	MEC private	68.3	62.1	61.7	75.5	75.6	75.3	70.4	70.1	na
	State total + MEC private	100	100	100	100	100	100	100	100	100
Coal	MEC states	na	8.7	8.7	13.1	13.0	12.4	11.1	10.8	na
	CPEs	na	55.4	54.2	29.1	38.5	39.0	40.2	41.7	na
	Of which China	na	18.8	21.9	28.2	37.4	38.4	39.5	41.0	na
	State total	na	64.1	62.9	42.2	51.5	51.4	51.2	52.5	na
	MEC private	na	35.9	37.1	57.8	48.5	48.6	48.8	47.5	na
	State total + MEC private	0	100	100	100	100	100	100	100	100

(continued)

Table 1: State/Private Control of Mining of Selected Minerals *(continued)*

		Controlled Share of World Production %								
Mineral	**Entity**	**1975**	**1984**	**1989**	**2000**	**2005**	**2006**	**2007**	**2008**	**2009**
Copper	MEC states	26.7	35.2	30.6	22.4	20.3	18.4	17.5	17.1	18.2
	CPEs	22.0	23.5	21.9	5.3	5.2	5.9	6.4	6.6	6.8
	Of which China	2.0	2.9	3.3	4.4	4.4	5.0	6.0	6.0	6.0
	State total	48.7	58.7	52.5	27.7	25.5	24.3	23.9	23.7	25.0
	MEC private	51.3	41.3	47.5	72.3	74.5	75.7	76.2	76.3	75.0
	State total + MEC private	100	100	100	100	100	100	100	100	100
Gold	MEC states	2.3	3.4	2.3	6.2	4.7	4.3	4.4	4.6	4.1
	CPEs	19.9	25.1	19.0	7.0	10.3	11.0	11.9	13.0	13.5
	Of which China	0.1	4.0	4.3	6.3	9.1	9.8	11.5	12.5	13.1
	State total	22.2	28.5	21.3	13.2	15.0	15.3	16.3	17.6	17.6
	MEC private	77.8	71.5	78.7	86.8	85	84.7	83.7	82.4	82.4
	State total + MEC private	100	100	100	100	100	100	100	100	100
Iron ore	MEC states	19.5	23.0	22.5	27.1	14.7	13.8	13.0	13.1	11.4
	CPEs	33.9	44.5	42.4	10.9	15.0	18.5	18.2	18.2	20.4
	Of which China	5.7	7.4	8.3	10.8	15.0	18.5	18.0	18.0	20.2
	State total	53.4	67.5	64.9	38.0	29.7	32.3	31.2	31.3	31.8
	MEC private	46.6	32.5	35.1	62.0	70.3	67.8	68.8	68.7	68.2
	State total + MEC private	100	100	100	100	100	100	100	100	100

(continued)

Table 1: State/Private Control of Mining of Selected Minerals *(continued)*

		Controlled Share of World Production %								
Mineral	**Entity**	**1975**	**1984**	**1989**	**2000**	**2005**	**2006**	**2007**	**2008**	**2009**
Lead	MEC states	8.6	12.7	8.2	4.1	2.4	2.2	2.5	2.6	2.5
	CPEs	29.9	31.3	32.6	22.3	33.8	34.3	39.7	39.4	43.4
	Of which China	3.9	6.2	11.1	21.6	33.5	34.3	38.9	38.5	42.5
	State total	38.5	44	40.8	26.4	36.2	36.5	42.2	42.0	45.9
	MEC private	61.5	56	59.2	73.6	63.8	63.5	57.8	58.0	54.1
	State total + MEC private	100	100	100	100	100	100	100	100	100
Manganese	MEC states	22.8	13.1	13.4	14.1	9.4	10.3	9.7	8.5	na
	CPEs	41.9	55.1	48.7	17.9	24.1	24.0	25.0	25.6	na
	Of which China	4.2	12.1	12.6	17.9	24.1	24.0	25.0	25.6	na
	State total	64.7	68.2	62.1	32.0	33.5	34.3	34.7	34.2	na
	MEC private	35.3	31.8	37.9	68.0	66.6	65.7	65.3	65.9	na
	State total + MEC private	100	100	100	100	100	100	100	100	100
Nickel	MEC states	2.8	14.2	12.2	9.6	8.9	9.2	10.9	11.7	10.7
	CPEs	23.4	31.1	32.8	10.1	9.9	10.0	9.1	9.4	10.8
	Of which China	na	2.4	3.8	4.3	4.3	4.7	4.2	4.6	6.0
	State total	26.2	45.3	45	19.7	18.8	19.2	20.0	21.0	21.5
	MEC private	73.8	54.7	55	80.3	81.2	80.8	80.0	79.0	78.5
	State total + MEC private	100	100	100	100	100	100	100	100	100

(continued)

Table 1: State/Private Control of Mining of Selected Minerals *(continued)*

		Controlled Share of World Production %								
Mineral	**Entity**	**1975**	**1984**	**1989**	**2000**	**2005**	**2006**	**2007**	**2008**	**2009**
Tin	MEC states	22.1	24.0	15.7	17.4	15.7	19.8	19.6	18.2	16.1
	CPEs	16.6	18.9	22.0	40.5	35.8	36.4	42.2	38.1	38.2
	Of which China	9.2	8.9	14.8	38.8	34.3	34.8	42.0	37.9	38.1
	State total	38.7	42.9	37.7	57.9	51.5	56.2	61.7	56.3	54.3
	MEC private	61.3	57.1	62.3	42.1	48.5	43.8	38.3	43.7	45.7
	State total + MEC private	100	100	100	100	100	100	100	100	100
Zinc	MEC states	10.6	14.0	11.7	9.5	3.9	3.8	3.7	4.0	4.1
	CPEs	27.4	25.9	29.2	20.9	25.9	28.4	27.9	27.6	28.0
	Of which China	2.2	4.3	9.2	20.2	25.2	27.7	27.5	27.2	28.0
	State total	38	39.9	40.9	30.4	29.8	32.2	31.6	31.6	32.1
	MEC private	62	60.1	59.1	69.6	70.2	67.8	68.5	68.4	67.9
	State total + MEC private	100	100	100	100	100	100	100	100	100

Sources: Ericsson and Tegen 1992, Raw Materials Data 2010.

Note: na: not available.

MEC states: Market Economy Countries, state owned companies.

MEC private: Market Economy Countries, private owned companies.

CPE: Central Planned Economies, state owned companies.

Table 2: State/Private Control of Refining of Selected Minerals

		Controlled Share of World Production %								
Mineral	**Entity**	**1975**	**1984**	**1989**	**2000**	**2005**	**2006**	**2007**	**2008**	**2009**
Alumina	MEC states	9.6	17.5	18.6	13.6	9.8	9.7	9.6	9.0	na
	CPEs	16.6	18.2	19.8	8.1	13.1	19.0	25.3	28.2	na
	Of which China	1.5	3.4	3.4	8.1	13.1	19.0	25.3	28.2	na
	State total	26.2	35.7	38.4	21.7	22.9	28.7	34.8	37.2	na
	MEC private	73.8	64.3	61.6	78.3	77.1	71.3	65.2	62.8	na
	State total + MEC private	100	100	100	100	100	100	100	100	100
Aluminum	MEC states	11.9	22.7	26.5	22.1	20.4	20.3	17.5	17.0	16.4
	CPEs	20.7	20.2	20.2	12.1	24.5	27.6	33.0	33.1	35.1
	Of which China	na	2.8	3.9	12.1	24.5	27.6	33.0	33.1	35.1
	State total	32.6	42.9	46.7	34.2	44.9	47.9	50.5	50.1	51.5
	MEC private	67.4	57.1	53.3	65.8	55.1	52.1	49.5	49.9	48.5
	State total + MEC private	100	100	100	100	100	100	100	100	100
Copper	MEC states	16.2	24.7	22.8	19.9	17.0	16.1	14.9	15.0	16.0
	CPEs	24.9	24.6	22.8	9.0	14.9	16.9	19.7	20.8	22.4
	Of which China	2.9	3.4	4.3	9.0	14.9	16.9	19.3	20.5	22.0
	State total	41.1	49.3	45.6	28.9	31.9	32.9	34.6	35.9	38.4
	MEC private	58.9	50.7	54.4	71.1	68.1	67.1	65.4	64.1	61.6
	State total + MEC private	100	100	100	100	100	100	100	100	100
Nickel	MEC states	1.0	8.7	9.8	4.2	3.1	3.5	5.1	4.7	na
	CPEs	24.0	32.3	33.4	8.1	10.6	10.9	11.0	12.4	na
	Of which China	na	2.4	3.1	4.6	7.6	8.0	8.0	9.2	na

(continued)

Table 2: State/Private Control of Refining of Selected Minerals *(continued)*

Mineral	Entity	Controlled Share of World Production %								
		1975	1984	1989	2000	2005	2006	2007	2008	2009
	State total	25.0	41.0	43.2	12.3	13.7	14.4	16.1	17.1	na
	MEC private	75.0	59.0	56.8	87.7	86.3	85.6	83.9	82.9	na
	State total + MEC private	100	100	100	100	100	100	100	100	100
Tin	MEC states	11.4	21.3	20.2	19.6	15.7	14.2	17.2	15.3	14.1
	CPEs	17.4	23.2	21.6	43.0	34.5	40.4	42.8	40.2	41.6
	Of which China	9.7	13.3	12.3	42.3	33.5	39.2	41.6	39.0	40.4
	State total	28.8	44.5	41.8	62.6	50.2	54.6	60.0	55.5	55.7
	MEC private	71.2	55.5	58.2	37.4	49.8	45.4	40.0	44.5	44.3
	State total + MEC private	100	100	100	100	100	100	100	100	100
Zinc	MEC states	9.7	13.8	10.4	9.1	4.6	4.7	4.0	4.3	4.2
	CPEs	31.3	26.5	27.9	21.8	27.4	30.0	33.0	33.6	38.2
	Of which China	2.6	3.6	6.7	21.4	26.8	29.4	33.0	33.6	38.2
	State total	41.0	40.3	38.3	30.9	32.0	34.7	37.0	37.9	42.4
	MEC private	59.0	59.7	61.7	69.1	68.0	65.3	63.0	62.1	57.6
	State total + MEC private	100	100	100	100	100	100	100	100	100

Sources: Ericsson and Tegen 1992, Raw Materials Data 2010.

Note: na: not available.

MEC states: Market Economy Countries, state owned companies.

MEC private: Market Economy Countries, private owned companies.

CPE: Central Planned Economies, state owned companies.

Appendix 3: Interviews

Following persons have been interviewed.

Name	Organisation/Company	Country
Eduardo Vale	Consultant	Brazil
Dale Hull	Government rtd. NRCAN	Canada
Philip Andrew Speed	University of Dundee	Scotland
Xiaogang Hu	Industry/London Mining	China/Canada
Ousmanne Cisse	Government	Senegal
Paul Jourdan	Government rtd.	South Africa
Krzysztof Kubacki	Industry/Polish Copper	Poland
Ann-Christine Cederlund	Government	Sweden
Anonymous	Industry org./WSA	China
Andrey Melnikov	Consultant/SRK	Russia
Olle Östensson	Consultant/rtd. UNCTAD	France
Ramon Tiongco	Government rtd.	Namibia
Prof A.K. Ghose	University	India

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The World Bank Oil, Gas, and Mining Unit

The World Bank Group's role in the oil, gas, and mining sectors focuses on ensuring that its current interventions facilitate the extractive industries' contribution to poverty alleviation and economic growth through the promotion of good governance and sustainable development.

The Oil, Gas, and Mining Unit serves as the Bank's global sector management unit on extractive industries and related issues for all the regions of the world. It is part of the Bank's Sustainable Energy Department.

Through loans, technical assistance, policy dialogue, and analytical work, the Unit leads a work program with multiple sector activities in more than 70 countries, of which almost half are in Sub-Saharan Africa. More specifically, the Oil, Gas, and Mining Unit:

- Advises governments on legal, fiscal, and contractual issues and on institutional arrangements as they relate to natural resources, as well as on good governance practices.
- Assists governments in setting up environmental and social safeguards in projects in order to promote the sustainable development of extractive industries.
- Helps governments formulate policies that promote private sector growth and foreign direct investments.
- Advises governments on how to increase the access of the poor to clean commercial energy and assess options for protecting the poor from high fuel prices.

In essence, the Oil, Gas, and Mining Unit serves as a global technical advisor that supports sustainable development by building capacity and providing extractive industry sector-related advisory services to resource-rich governments. The Unit also carries out an advocacy role through the management of the following global programs:

- The Extractive Industries Transparency Initiative (EITI) Implementation Support Facility, which supports countries implementing EITI programs
- The Global Gas Flaring Reduction (GGFR) Public-Private Partnership, which brings governments and oil companies together to reduce gas flaring
- The Communities and Small-Scale Mining (CASM) Partnership, which promotes an integrated approach to addressing issues faced by artisanal and small-scale miners
- The Women and Extractive Industries Program, which addresses gender issues in extractive industries
- The Petroleum Governance Initiative (PGI), which promotes good governance.
- The Extractive Industries Technical Advisory Facility (EI-TAF), which facilitates "rapid-response" advisory services on a demand-driven basis to build capacity for extractive industry resource policy frameworks and transactions.

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