

STRATEGIC PLANNING OF THE LARGEST MINING TNCs

Iran F. Machado¹

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RESUMO

Uma pesquisa está sendo conduzida para investigar o comportamento recente das trinta maiores transnacionais da indústria mineral e para elaborar possíveis cenários de suas opções estratégicas para a próxima década, com referência à seleção de "commodities" minerais, abrangência geográfica e modalidades preferidas de atuação empresarial. No período mais recente, tem-se observado que a maioria das TNCs tem-se comportado de acordo com cinco diretrizes básicas: 1. Orientar suas políticas de globalização e modo de operar em resposta a mudanças globais em curso na indústria mineral internacional; 2. Monitorar as mudanças contínuas no padrão de consumo dos bens minerais e de outros materiais; 3. Usar tecnologias mais eficientes, não apenas para reduzir custos, mas também para se tornarem mais limpas do ponto-de-vista ambiental; 4. Otimizar seu portfólio de investimentos ao redor do mundo; 5. Reduzir gradualmente suas operações industriais nos países de origem, diversificando para atividades mais intensivas em tecnologia e relocando suas operações mineiras para países em desenvolvimento. Está fora de discussão que o planejamento estratégico das maiores transnacionais do setor mineral terá um importante impacto sobre as economias do Terceiro Mundo na próxima década, interagindo com essas economias e tendo implicações diversas para as ações dos seus governos, mormente para: a. formulação de novas políticas no setor mineral; b. lidar com os processos de "transmaterialização" e "desmaterialização"; c. reestruturar suas empresas estatais; d. elaborar ou adaptar seus programas de privatização; e. redirecionar seus esforços de exploração mineral; f. desenvolver ou melhorar processos de tecnologia ambiental; g. estabelecer novos procedimentos ou nova legislação ambiental. Uma preocupação relevante consiste em examinar como o setor mineral brasileiro, competindo com outros países mais agressivos (México, Chile e mesmo a Suécia), irá interagir dentro do novo padrão perseguido pelas maiores transnacionais de mineração.

ABSTRACT

Research is being conducted to investigate the recent behavior of the 30 largest TNCs (transnational corporations) in the international mining industry and to design possible scenarios of their strategic options and moves for the 90's, regarding selection of mineral commodities, geographical scope and preferred patterns in the corporate environment. In recent times, it has been observed that most TNCs behave

¹ Professor at Departamento de Administração e Política de Recursos Minerais, Instituto de Geociências/UNICAMP, Campinas, Brazil.

according to at least five basic guidelines: 1. To reorient their globalization policies and mode of operation in response to overall changes in the international mineral industry; 2. To monitor the continuing changes in the consumption pattern of mineral commodities and other materials; 3. To use more efficient technologies, not only for reducing costs but also to become more environment-friendly; 4. To optimize their investment portfolio around the world; and 5. To reduce gradually their industrial operations in the home countries, shifting to more knowledge-based activities and moving offshore for mining purposes. It is out of question that the strategic planning of the largest TNCs in the mining industry will bear an important impact on Third World economies in the 90's, interacting with them and having strong implications for their government actions regarding to: a. formulation of new mineral policies; b. dealing with the "transmaterialization" or "dematerialization" process; c. restructuring their state mineral enterprises; d. designing and/or adapting their privatization programmes; e. design of new exploration efforts; f. upgrading or adopting environmental technology; and g. establishing new environmental laws and procedures. A major concern is to grasp how the Brazilian mining sector, competing with other so far more aggressive countries (Mexico, Chile and even Sweden), will fit the new pattern pursued by the largest mining TNCs.

Major Concerns Shared by TNCs

Research is being conducted to investigate the recent behavior of the 30 largest TNCs in the international mining industry and to design possible scenarios of their strategic options and moves for the 90's, regarding selection of mineral commodities, geographic scope and preferred patterns in corporate environment (autonomous position, joint ventures, strategic alliances, and so on).

In recent times, it has been observed that most TNCs behave according to at least five basic guidelines:

1. To reorient their globalization policies and mode of operation in response to: (a) overall legal, institutional and fiscal changes in the approach to foreign direct investment presently occurring in most Third World countries, e.g. in Latin America; and (b) drastic transformations in macroeconomic policies and institutional arrangements following an unpredictable course in CIS and Eastern Europe;
2. To monitor the continuing changes in the consumption pattern of mineral commodities and other materials, notably the trends in substitution and recycling practices adopted worldwide, especially by the OECD countries;
3. To use more efficient technologies, not only for reducing production costs but also to become more environment-friendly, in order to gain better acceptance from the

neighboring community mainly in their home countries;

4. To optimize their investment portfolio through a proper balance of projects in developed and developing countries, based on: competitive advantages offered by either category; risk assessment for each project; and ongoing trends for the next decades;
5. To reduce gradually their industrial operations in the home countries, replacing the original activity for more technology -intensive areas, such as equipment manufacturing, production of engineered materials and consulting services; this way the supply of conventional mineral commodities is shifting to less developed and developing countries, as did Germany and Japan during the second half of this century.

Different criteria may be adopted to rank the largest mining TNCs, including or excluding the value of mineral processing. This author prefers to use the first assumption, as the aim of this project is to assess the future tendencies of the international mineral industry, based on strategic decisions taken by their leading corporations. In this case, the processing activity is actually relevant and eventually represents the linkage of mining as such to the marketplace. If the market evolves into this or that direction, the processing stage will follow it and demand will act ultimately upstream upon the mining output.

With these considerations in mind, it was decided to use the Fortune Global 500 list as the source for selection of the largest mining TNCs. The industries labeled "Metals" and "Mining, crude-oil production" cover all TNCs selected in this project, except that steel, coal and crude-oil producers are excluded from this study. The 1992 rank is shown in Table 1.

Recently, Ala-Harkonen¹ established a classification of mining corporations into three categories:

- minerals-driven corporations;
- technology-driven corporations;
- business opportunity-driven corporations.

The minerals-driven category is the most sensitive to the structural competitive advantage (e.g. high-quality ore body), which is rather common to the majority of developing countries' state companies. It is also the most conservative

regarding the business climate of today, characterized by the need to react quickly to external shocks, which may lead to temporary or long lasting crises. On the other hand, the other two categories are more related to skills-based competition, a competitive advantage more typical of developed countries, as pointed out by Schofield². It is also recognized that the business opportunity-driven companies require a major change in corporate culture and in top management; they must be also finance-driven and cash-driven. Undoubtedly they represent the most up-to-date profile for a corporation eager to satisfy short and medium-term investors.

Presently, the decision-making process of TNCs is oriented toward this dilemma: either to take advantage of skills-based factors in their home countries or in other developed countries, complying with environmental and other constraints; or to take advantage of resource-based factors, accepting various political risks or uncertainties posed by developing countries.

The Response of Developing Countries to the New Winds

From their standpoint, the Third World economies will have to be concerned with the strategic planning of the largest TNCs in the 90's, as they bear strong implications for:

- the formulation of new mineral policies and legal framework;
- coping with the transmaterialization process dictated by the developed countries;
- restructuring their state mineral enterprises;
- designing their privatization programmes;
- the set up of new exploration efforts;
- upgrading or adopting environmental technology;
- establishing new environmental laws and procedures.

It is foreseeable that not all mineral economies will succeed under the New International Order. The competition between developing countries will be fiercer in the years ahead and newcomers like the eastern European countries and CIS nations will have their share in the international market. In the long run, the mineral policy adjustments and legal amendments will be fairly equalized, so that the resource base factor and cultural idiosyncrasies will be the only major differentials between mining

countries.

The transmaterialization waves are almost independent of the supply capacity provided by the developing countries, inasmuch as the technological innovations improve their outcomes in an age of multiple choices between competitive materials. Metals like tin and the so-called heavy metals (lead, mercury, cadmium) gradually lose their conventional role in modern consumption patterns due to substitution and/or to potential harm to the environment.

State mineral enterprises have had their golden age, but the public sector exhausted its financial resources, shifting them to social priorities such as health, education, job creation, shelter, sanitation, retirement plans, infrastructure, and so on.

The privatization programmes represent an important issue for all developing countries, as they redefine the role of State in its relation with society and, in addition, bring an inflow of extra funds to the Treasury without additional taxation. Most privatization programmes are being designed to attract foreign capital, mainly because some poor countries have no choice.

The exploration efforts have to be set up according to the potential demands of the future, rather than of the present market situation. Prospective studies on mineral economics, competitive advantage, new materials, technological innovations, consumption trends, are needed now more than ever, in order to prevent waste of precious resources on senile minerals that were once important and profitable.

Developing countries do not feel the same pressure as other countries regarding environmental protection, reclamation and remediation. Nevertheless, the consumer countries expect that the former do their best effort to improve technology to acceptable standards, to be in tune with the sustainable development philosophy predicated by the United Nations. Otherwise, this would mean an unfair competition practiced by the less developed countries. Similarly, adequate environmental laws and procedures must be adopted by developing countries to comply with minimum international standards, partly because the international lending agencies will present strong demands in this direction. Yet, the environmentalism will not affect them with the same magnitude as it does in industrialized countries because the former lack the activism of interest groups doing their job.

There is some uneasiness inside the management of U.S. mining industry due to present and future competition played by developing countries. In a study sponsored by the National Research Council³ and performed by the Committee on Competitiveness of the Minerals and Metals Industry, their members identified sixteen

factors that work to its disadvantage vis-à-vis the developing countries, and six factors that operate to the advantage of U.S. producers (Table 2). The most relevant factors mentioned to its disadvantage are:

- Decline in ore grades in domestic deposits, relative to the high-quality ores being found in many developing countries;
- Cost burden of compliance with environmental, land use, and safety regulations that are more stringent than those borne by foreign producers;
- Readiness of some foreign governments to continue production at levels not supported by the market in order to maintain jobs and income stream, whereas the U.S. government relies primarily on free markets.

An additional problem, neglected in the above study, is the amendment of the General Mining Law of 1872, now being discussed in the Congress and very likely amenable to the introduction of a royalty on the extraction of metals by U.S. companies.

On the opposite side, the first three factors quoted to its advantage are the following:

- High productivity of the domestic work force;
- Faster access to new technologies;
- Lower transportation costs in serving most of the large U.S. market.

In spite of the tremendous efforts developed by the U.S. industry, academe and government in the last decade, it may be observed that the mineral industry is gradually being relocated to the Third World, and also to the former socialist countries, in the more recent years.

Secondly, mineral producers inside the Third World will face in coming years a growing competition among them and from outside, as a number of countries are aggressively trying to attract foreign investment. A brief survey of Mining Journal Country Supplements, performed by Mining Journal Research Services, and other international publications, shows quite clearly that a number of nations is calling the attention of foreign investors for their endowment and political good will (Table 3). The common trait is the liberalization of foreign investment rules, combined with an acceptable fiscal regime.

How Will Brazil Fit the New International Order?

Since October 1988 the Brazilian Congress decided to create an obstacle to foreign capital in mineral exploration and mining projects. Under the Constitution now in force, any foreign company is limited to control up to 49% of voting shares of a mining concern.

The practical results of this policy change are evident in the downturn of investments in exploration and in mine developments (Figs. 1 and 2).

Other criticisms from industry mostly refer to:

- high levels of taxation
- unfair competition of "garimpos"
- restrictions to mining in aboriginal lands
- environmental control procedures (rather than constraints)

The government agencies have suffered continuous administrative changes during Collor administration, when four Ministers of Mines and Energy took office in less than two years and half. After the impeachment of President Collor, the Itamar Franco administration is trying to recover the time and effort so badly wasted. Unfortunately, the Departamento Nacional da Produção Mineral (federal agency in charge of the application of the mining code) was seriously hit by this administrative 'imbroglio' and is almost paralyzed, waiting for the Constitution reform to start in late 1993.²

One of the priorities of the federal government is the privatization programme. It started with the state steel sector, the petrochemical and later the fertilizer industry. In June 1993 a public discussion was triggered about the privatization of Companhia Vale do Rio Doce-CVRD, which has interests in iron ore, bauxite, aluminium, manganese, gold, potash, kaolin, forests and pulp, and transportation facilities.

Although Brazil does not appear in the international arena as a mineral economy, it presents a number of positive factors that might persuade foreign

² Only recently, in December 1993, the Ministry of Mines and Energy under DNPM's initiative established the "Plano Plurianual para o Desenvolvimento da Mineração Brasileira", an ambitious plan encompassing studies on 25 different themes varying from basic geological surveys to mining restrictions in aboriginal lands, for instance.

investors to select it primarily:

- an attractive geological potential;
- a fair complete infrastructure;
- skilled human resources and labor;
- a fair technological level;
- a positive climate for privatization.

Nevertheless, it is imperative that the Brazilian government has the right determination to make some urgent improvements, such as:

- to modify the legal framework;
- to amend the fiscal regime;
- to overcome bureaucratic problems in the concession system;
- to apply sound principles of sustainable development.

If it fails to use the proper timing to do so, the Brazilian mineral industry will lag behind the competition, and ultimately the economy will suffer its undesirable consequences.

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Table 1. The Largest Mining Transnational Corporations³ (1992)

Sales in US\$ millions

1. Metallgesellschaft	16,390.5
2. Sumitomo Metal Ind.	13,803.0
3. Pechiney	12,344.4
4. Barlow Rand	12,085.1
5. Broken Hill Pty.	11,238.0
6. Norsk Hydro	9,770.8
7. Alcoa	9,588.4
8. Nikko Kyodo	9,321.4
9. Degussa	8,175.0
10. Alcan	7,596.0
11. Noranda	7,138.8
12. RTZ	5,888.0
13. Reynolds	5,620.3
14. Alusuisse-Lonza	4,651.5
15. Trelleborg	4,165.1
16. Sumitomo Metal Mining	4,146.9
17. CRA	3,875.0
18. Union Minière	3,754.8
19. Amax	3,703.0
20. De Beers	3,667.3
21. Outokumpu	3,411.6
22. Zambia Industrial & Mining	3,042.5
23. Codelco	3,016.7
Total sales	US\$166,394.1

Source: The Fortune Global 500 - July 26, 1993.

³ This list includes metals processing companies. For unknown reasons, Fortune does not mention Anglo American Corporation, from South Africa.

Table 2 - Factors affecting the competitiveness of the U.S. minerals and metals industry

The domestic minerals and metals industry has had to cope with a number of factors that work to its *disadvantage* relative to foreign producers and processors. Among these are:

- Decline in ore grades in domestic deposits, relative to the high-quality ores being found in many developing countries.
- Increasing development of facilities for downstream processing by foreign producers, resulting in over-capacity and overproduction.
- Rapidity of international development and transfer of technology at moderate cost, minimizing the comparative advantage in technology traditionally enjoyed by U.S. producers.
- Comparative disadvantage in labor costs, relative to the lower wage rates prevailing in nearly all other producer countries.
- Relative decline in the size of the U.S. domestic market in comparison to the world market.
- Fluctuations in exchange rates, which in the past have tended to favor imports rather than exports of U.S. minerals.
- Restricted access for some U.S. exports in some international markets.
- Ready availability of capital from international lending organizations for foreign mining and processing operations.
- Readiness of some foreign governments to continue production at levels not supported by the market in order to maintain jobs and income stream, whereas the U.S. government relies primarily on free markets.
- Presence of substantial coproducts (or by-products) in many foreign ore bodies, yielding multiple income streams.
- Shift toward incentives for short-term financial objectives and planning horizons of U.S. corporate management, along with injurious financial manipulation.
- Rising cost of energy relative to that of many other countries.
- Cost burden of compliance with environmental, land use, and safety regulations that are more stringent than those borne by foreign producers.
- A more pronounced shift toward alternative materials and less metal-intensive products in the domestic economy than in other markets.
- Loss of public support and confidence (poor image).
- Changes in ownership of U.S. companies and erratic management performance, at least in the recent past.

The following factors operate to the *advantage* of U.S. producers, relative to those of most foreign countries:

- High productivity of the domestic work force.
- Faster access to new technologies.
- Lower transportation costs in serving most of the large U.S. market.
- Less interference by the government.
- Lower net tax burden.
- Market-determined input prices.

Table 3 - Some countries developing aggressive mineral policies to attract foreign investment

1. ALBANIA	<i>chrome, copper, nickel, precious metals</i>
2. ANGOLA	<i>diamond, marble, phosphate</i>
3. ARGENTINA	<i>gold, non-ferrous metals, silver</i>
4. AUSTRALIA	<i>metallic, non-metallic, and fuel-minerals</i>
5. BOLIVIA	<i>non-ferrous metals, gold, silver</i>
6. CHILE	<i>copper, molybdenum, gold, silver, lead, zinc, iron, manganese, nitrates, borates, iodine, lithium</i>
7. ECUADOR	<i>gold, non-ferrous metals, silver</i>
8. GREENLAND	<i>lead, zinc, copper, gold, chrome, iron, tungsten</i>
9. INDIA	<i>metallic, non-metallic, and fuel-minerals</i>
10. INDONESIA	<i>coal, copper, tin, nickel, gold, silver, bauxite</i>
11. LAOS	<i>precious metals, iron, coal, tin, gypsum</i>
12. MEXICO	<i>metallic, non-metallic, and fuel-minerals</i>
13. NAMIBIA	<i>uranium, diamond, non-ferrous metals, tantalite, gems</i>
14. NICARAGUA	<i>gold, silver, gypsum</i>
15. PERU	<i>non-ferrous metals, silver, gold, iron, coal, molybdenum, tungsten, cadmium</i>
16. PHILIPPINES	<i>copper, gold, nickel, chrome</i>
17. SWEDEN	<i>iron, non-ferrous, kaolin, quartz, diatomite, feldspar, talc, limestone, graphite, ilmenite, rare-earths</i>
18. TAJIKISTAN	<i>gold, silver, non-ferrous metals, gems, marble, coal</i>
19. TANZANIA	<i>gold, non-ferrous, nickel, chrome, platinum group metals, diamond, gems</i>
20. VIETNAM	<i>coal, gold, phosphate, rare-earths, bauxite, iron, tin, copper, chrome</i>
21. YEMEN	<i>gold, lead, zinc, silver, industrial minerals</i>

Source: Mining Journal Country Supplements, and other periodicals.

INVESTMENTS IN MINERAL EXPLORATION IN BRAZIL
(1987 - 1991)

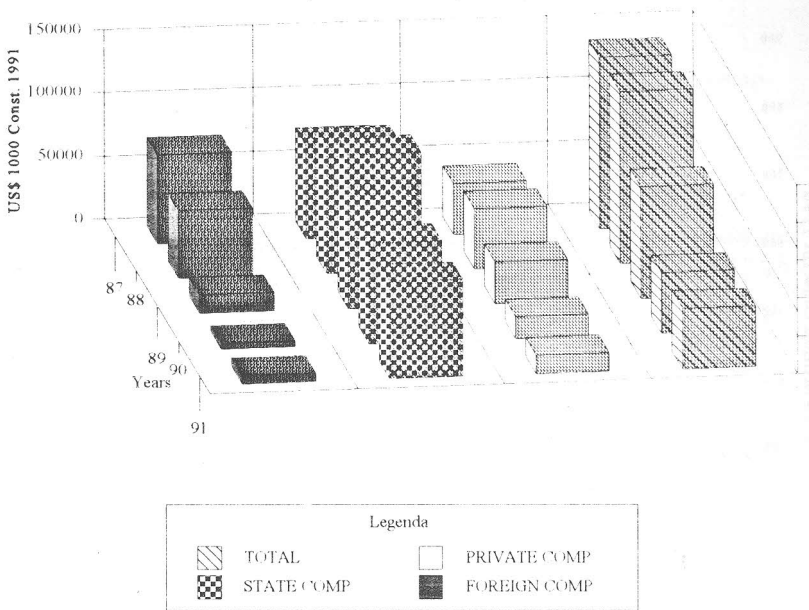


Figure 1
Source: DNPM (Brazil)

INVESTMENTS IN NEW MINES AND EXPANSIONS IN BRAZIL (1981 - 1990)

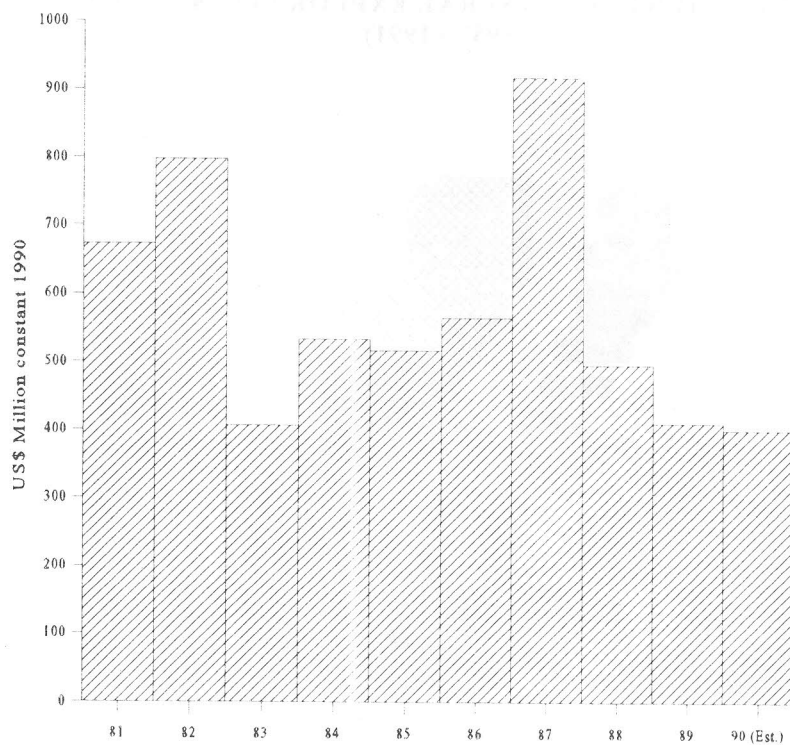


Figura 2

Source: Melo, 1992