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Santiago, Chile, 19 to 23 November 1984

THE ROLE OF THE PUBLIC SECTOR AND TRANSNATIONAL CORPORATIONS IN THE DEVELOPMENT OF MINING IN LATIN AMERICA */

*/ This document was prepared by Mr. J. Kñakal, a consultant to ALADI and ECLAC. The views expressed in this paper are the sole responsibility of the author and do not necessarily reflect the views of the institutions sponsoring the Workshop.

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SUMMARY

In the first part of the study an analysis is made of various types of experience in the mining countries of Latin America: the promotion and supervision of the transnational corporations during the boom period of large-scale mining, with particular emphasis on the case of the Peruvian agreements with the Southern Peru Copper Corporation and its subsequent renegotiation; the change of mine ownership in the case of the "Chileanization" and nationalization of copper in this country; the experience of the Bolivian public sector in mining and metallurgical integration; the new tax policy and the mixed enterprises in the bauxite industry in Jamaica and, finally, the experience of the public sector of Mexico in the processing of phosphates.

The empirical analysis of the different cases and the experience of other mining countries conduce in the second part of the paper to some considerations of a general nature. First, at the level of the centre-periphery system, the main countries and enterprises, an assessment is made of the structural changes in the decade of the 1970s which reflect a strengthening of the sovereignty of the Latin American and other developing countries over their mining resources, especially in the mineral-processing phase. Second, the problems relating to the role of the State and public enterprises in the mining and metallurgical development are discussed with emphasis on their mutual linkages in the context of social and entrepreneurial interests, the administrative capacity of the public sector vis-à-vis the transnational corporations and some domestic problems of the public enterprises. Finally, an attempt is made to draw up a summary chart of the divergent interests of the transnational corporations and the public sector of the peripheral mining countries in respect of the main aspects of their interaction and co-operation, along with the alternatives and forms of solution with emphasis on the possibilities of mutual understanding.

/INTRODUCTION

INTRODUCTION

This study presents a summary analysis of experiences in Chile, Peru, Jamaica, Bolivia and Mexico relating to the roles of the public sector and of transnational corporations in the development of the copper, bauxite, tin and phosphate industries (part I of the study). Particular attention is paid to those actions, policies and strategies, negotiations, conflicts and agreements involving these two agents which have a decisive effect on the gains yielded by these industries and on their distribution between the two groups. The purpose of this study is to contribute to a better understanding of the complex problems and interests which are involved and to offer some conclusions and proposals for discussion at the workshop. The more extensive experience of other third world mineral-producing countries has also been drawn upon in formulating the conclusions and proposals which are set forth in part II of this paper.

The empirical portion of this study is based on the findings of the interregional project on transnational corporations and Latin American export commodities which was directed by the author under the Joint ECLAC/CTC Unit and on subsequent studies concerning obstacles to the processing of commodities, which he conducted for the UNCTAD Commodities Division (see the annex to this document). Other studies and papers on the subject were also used in drafting the conclusions and recommendations, especially those published by ECLAC, CTC (United Nations Centre on Transnational Corporations), UNCTAD, etc. (see the corresponding bibliographic entries).

Finally, the author would like to express his sincere appreciation for the support, comments and critiques so generously provided over the years by the directing bodies of ECLAC, CTC, UNCTAD and UNDP and by colleagues at these United Nations institutions, especially in the ECLAC/CTC Unit and the Natural Resources (Minerals Section) and International Trade and Development Divisions, who made possible the case studies presented in this brief summary. The author wishes to express his special thanks to the many government officials and company officers in the countries where the surveys and research were conducted. It must be repeated, however, that the views and opinions expressed in this document, as well as any errors it may contain, are those of the author.

/I. SOME

I. SOME LATIN AMERICAN EXPERIENCES SINCE THE WAR

With the aim of taking greater advantage of their non-renewable natural resources, the governments of Latin America have made substantial changes in the production structure of the mining sector since the end of the war, expanding the share of the State in this sector's activities and applying active policies as well as carrying out negotiations with the transnational corporations which have traditionally been in control of the sector. In the absence of any national private enterprises with the necessary financial, technological and administrative capacity, the State has been obliged in some countries to undertake entrepreneurial functions and to establish public enterprises to mine, process and market minerals. In spite of this, however, in many cases dependence on the transnational corporations has persisted, especially in the fields of technology and world-level marketing.

This chapter analyses several types of experiences by the mining countries of Latin America: the promotion and supervision of transnational corporations in the boom period of large-scale mining, with particular emphasis on the case of the agreements between the Peruvian Government and the Southern Peru Copper Corporation and their subsequent renegotiation; the change of ownership of the mining industry in Chile, with the "Chileanization" and nationalization of that country's copper industry; the experience of the Bolivian public sector in the integration of mining and metal production; the new tax policy and mixed enterprises in the Jamaican bauxite industry, and, finally, the experience of the Mexican public sector in the processing of phosphates.1/ Although these admittedly only represent a limited number of experiences, they are nevertheless characteristic of the big changes which have taken place in the Latin American mining sector since the war and enable certain conclusions and recommendations to be arrived at later on in this study.

/A. PROMOTION

A. PROMOTION AND SUPERVISION OF THE TRANSNATIONAL CORPORATIONS IN THE BOOM PERIOD OF LARGE-SCALE MINING: THE AGREEMENTS BETWEEN THE PERUVIAN GOVERNMENT AND THE SOUTHERN PERU COPPER CORPORATION

1. Traditional legislation and concessions (enclave-type arrangements)

The beginning of the development of large-scale mining in Latin America was characterized by a notable imbalance between the bargaining powers of the governments and the transnational corporations. The former wished to take maximum advantage of the potential of their "Primary capital" of natural resources in order to increase the well-being of their peoples, but they did not have the necessary domestic saving, technology or independent entrepreneurial groups to undertake projects of this scale. The criterion therefore prevailed whereby foreign investment in large-scale mining was considered as additional rather than substitutive (a feature which is frequently attributed to it in manufacturing). The transnational corporations laid great stress on the factors which were lacking in the peripheral country, with the purpose of gaining control over supplies of strategic materials for the industrialized world and trying to maximize their profits and minimize --or rather secure the maximum possible compensation for-- the foreseeable risk deriving both from the scanty possibility of exactly forecasting the mineral yield of a project and the presumed uncertainty about the durability of the original political commitments assumed by the host government.

The small oligopolic group of transnational mining corporations had at its disposal in the peripheral countries great reserves of minerals and was able both to choose the deposits with the greatest metal content and to establish itself in those countries whose governments offered additional advantages through "promotional" and exceptional treatment. In these circumstances, at different times and in different places, Patiño, Anaconda, Kennecott and ASARCO (together with Cerro Pasco Corporation, Phelps Dodge and Newmont Mining) and ALCOA, ALCAN, Kaiser and Reynolds set up large-scale tin mining in Bolivia, copper mining in Chile and Peru and bauxite mining in Jamaica, with the same main impact of opening up to these countries new sources of foreign exchange and fiscal income: conditions which subsequently became determining factors for their development (at the end of the 1970s, the contribution of the mining sector to total export

/and fiscal

and fiscal income was 71% and 25% in Bolivia, 53% and 15% in Chile, 40% and 12% in Peru, and 76% and 25% in Jamaica.2/ On the other hand, the same positive phenomenon led to dependence on unstable markets, while the distribution of the profits of mining between the parties --particularly at times of favourable prices-- showed a disproportional bias in favour of the transnational corporations.

Furthermore, the excessive income which the transnational corporations appropriated for themselves was not capitalized in local mining or metal production, where it originated, but was increasingly concentrated, in keeping with the global strategy of the transnational corporations, in the industrialized countries; thus, during the period 1967-1975, the share of the latter countries in the direct investment of the United States transnational mining companies increased from 58% to 84%.3/

Let us now examine some outstanding features of the liberal or promotional treatment accorded to the transnational corporations, whose investments led to the boom period of large-scale mining in the countries in question, with special attention to the case of the Peruvian agreements on copper.

On the one hand, the mining codes held that the minerals in the soil and the subsoil are the property of the State, but on the other hand a system of very advantageous concessions was instituted for investors which gave them the right to use, enjoy and freely dispose of the product of their activities in the areas given to them under concession for a practically indefinite length of time (50 years or more), with guarantees of tax and exchange stability. The investors paid a very small land rent which enabled them to maintain large areas indefinitely without being exploited, as part of their world reserves for possible exploitations, while the host State, in practice, lacked the capacity to question or annul a concession.

The tax régime (royalties and taxes) applied during the boom period of large-scale mining gave foreign investors a number of advantages which facilitated the rapid recovery of their investments and high and stable profits. The taxation of profits was excessively low (between 6% and 25% of the taxable amount), while the effective rate of tax was even lower because of various types of deductions and exemptions. A typical deduction was based on the "depletion" factor of the deposits exploited by the transnational corporations, even though the non-renewable resource was the property of the State. Under these arrangements, the enterprises

/were allowed

were allowed to deduct, free of all charges, 15% and in exceptional cases even as much as 50% of their profits, although they were, it is true, obliged to reinvest the amounts corresponding to this deduction. Investors were also permitted to make accelerated depreciation reserves in respect of machinery and equipment at a rate of up to 20% per year and to readjust their capital to take account of variations in the purchasing power of the national currency.

The traditional forms of mining legislation and leases thus granted extensive powers and exclusive rights to foreign investors, but they did not safeguard the vital interests of the countries serving as sites for direct foreign investment. The governments in the region had little or no control over the management or conduct of foreign companies, which subordinated the actions of their local subsidiaries to the overall interests and strategies of the respective trasnational corporation. This naturally created points of future conflict (during the period when the investments were maturing) between them and the transnational corporations in relation to matters which would have a major impact on the countries' social and economic development and on their linkages with the exportation of non-renewable natural resources, such as: the dynamism and methods of exploring for and mining the various minerals, their distribution, marketing and processing; employment, training and the social status of local labour; captive technology and imported versus local inputs and services; the lack of fiscal transparency and the discretionary powers exercised by management in handling administrative and accounting matters as well as in setting export prices and, especially, transfer prices among the companies forming part of the same transnational corporation; environmental safety and protection and the development of infrastructure; etc.

In sum, the above-mentioned aspects indicate that the traditional forms of mining legislation and leases created a legal situation that permitted the establishment of foreign enclaves which challenged the host government's sovereignty over their natural resources and which laid the foundations for an unequal distribution of the profits between the two parties.4/

2. The traditional Toquepala lease

The Toquepala contract signed between the Government of Peru and the Southern Peru Copper Corporation in 1954 was a typical case of the application of a mining code which was liberal and advantageous for the transnational corporations. Under

/this contract

this contract, the investment was granted the exceptional treatment of being considered as a "marginal deposit", thus permitting the investor to pay only 10-20% of the taxes on profit. The Toquepala deposit was considered as marginal without taking into account the situation of some similar deposits in other countries. With its average copper content of 1.7% during the first year of operation and 1.3% even six years afterwards, it had metal contents higher than almost all the open-cut mines operated in the United States.

In 1966 the investigating committee of the Peruvian Parliament also identified other irregularities in the behaviour of this foreign subsidiary, including the under-valuation of export prices for the blister copper which had been, for the most part, transferred to the transnational corporation's shareholders (American Smelting, Phelps Dodge, Cerro Corporation and Newmont Mining) through the use of double bookkeeping involving substantial differences between the balances submitted to the Superintendent of Taxation of Peru and those submitted to the Securities and Exchange Commission in the United States. Thus, for example, the first set of figures reflected an over-valuation of US$ 66 million in expenses and US$ 44.5 million in the estimate of the depletion factor of the reserves.

As a result, the contract was renegotiated and its status of "marginal deposit" was cancelled, but no punishment was inflicted on the enterprise for the irregularities proved by the Parliamentary Commission. This leniency was connected with the Government's interest in arriving at an agreement with the transnational corporation regarding the new Cuajone deposit.

The above example of this transnational corporation's tax practices under a traditional type of lease illustrates one of the points of conflict and subsequent changes in the Government's policy. On the one hand, the exploitation of Toquepala resulted in a six-fold increase --from 30 000 to 182 000 metric tons-- in Peru's copper output in the 1950s (Southern accounted for 85% of the latter figure and provided for the ore's processing into blister copper at its Ilo foundry); on the other hand, the country's foreign exchange and budgetary income did not keep pace with this expansion, and a disproportionate share of the profits went to the transnational corporation.

/3. The

3. The "developmentalistic" Cuajone lease

The lease granted in late 1969 to Southern by the Peruvian Government under the mining contract governing the Cuajone copper deposits contains a number of advantages for the country's economy which were not provided for in previous "traditional" leases.5/ These relate particularly to increased linkages between investment and the economic and social development of the zone where the deposit is located (Moquegua Department) and of the Peruvian economy in general. However, the country's difficult external economic position obliged the Government to grant a number of tax incentives to the transnational corporation and to other project financiers, in addition to their traditional right to dispose of the goods they produced and their foreign exchange earnings from sales as they wished.

a) Closer links with the national economy

The contract awarded the transnational corporation title to leases covering over 7 000 hectares for the exploitation of previously explored deposits and for an annual output of 110 000 short tons of blister copper. The total investment originally estimated in the contract was US$ 355 million, but by the end of the work in 1976 the figure had practically doubled, as will be discussed in the following section. The feature of this contract which is of concern within the context of this study is the distribution or specific use to be made of the funds as laid down in the General Investment Plan, which was binding upon the transnational corporations (in accordance with clause 5 of the contract).

As indicated in table 1, actual mining production accounts for only 26% of the total estimated investment, while 19% of the total is represented by processing (concentrating the ore and smelting it into blister copper). Almost one-fourth of the total investment is allocated for the necessary economic infrastructure, including transport by rail and roadway (over 15% of the total) and energy, water and communications facilities (over 7%). In addition, a relatively large percentage (8% of the total investment) is earmarked for the construction of new urban centres to house the project workers and their families, educational centres and hospitals, etc. Finally, the remaining 23% corresponds to general services related to the investment. These include a large amount of interest (11.5% of the total) on the loans during the time construction is going on, as well as other general expenses and payments of the company.

/Table 1

Table 1

PERU: ALLOCATION OF THE ESTIMATED INVESTMENT AS SET FORTH IN THE CUAJONE CONTRACT

Allocation of the investment	Estimated distribution Millions of dollars	%
1. Mining production - total	92.0	25.9
a) Equipment	48.0	13.5
b) Land clearance and pre-production operations	35.0	9.9
c) Workshops, storage facilities, etc.	9.0	2.5
2. Processing - total	68.5	19.3
a) Ore concentration plant	51.0	14.4
b) Expansion of the Ilo foundry	17.5 a/	4.9
3. Economic infrastructure - total	84.3	23.7
a) Energy and communications	8.0	2.3
b) Expansion of the thermal plant (Ilo foundry)	8.3	2.3
c) Water supply	13.1	3.7
d) Roads	4.2	1.2
e) Railway, tunnels and equipment (including trains)	50.7	14.3
4. Social infrastructure (urban centres)	28.6	8.1
5. General services - total	81.6	23.0
a) Engineering services and inspection	15.2	4.3
b) Fees	5.0	1.4
c) Other company overhead	20.4	5.7
d) Interest payments during construction	41.0	11.5
Grand total	355.0	100.0

Source: Mining contract for the Cuajone deposits, clause 5, General investment plan, Lima, 19 December 1969.

a/ Corresponds to the annual production capacity of 110 000 short tons of blister copper.

/In view

In view of the above-mentioned percentage distribution of the total Cuajone investment, which is based on preliminary estimates contained in the contract,6/ it may be seen that, under this contract, the transnational corporation not only assumes the obligation of establishing and financing the additional mineral production capacity and the ore's primary processing (up to the stage of blister copper) but also assumes responsibility for the required economic and social infrastructure. This does not necessarily mean that the mining/metallurgical zone fostered by this new transnational investment ceases to represent an "export enclave" in the country's economy; nor does it by any means indicate that this total direct foreign investment package does not yield substantial profits for the investors (as will be discussed below in section 6). What it does indeed appear to indicate, however, is that the forward linkages of the Cuajone project were not confined to increasing the production and exportation of blister copper, but also included new economic and social services; although related to the project, these services could also potentially be used on a broader scale (energy, transport, communications) and could lead to the creation of more jobs and additional income. Obviously, the relative size of the investment in economic and social infrastructure which is involved in most mining projects in developing countries plays an extremely important role in alternative models for mining development whereby a public enterprise takes over a transnational's production functions and the State has to seek financing for the high cost of such infrastructure.

A public enterprise having a sufficient level of know-how and experience at its disposal might, however, be able to reduce some of the large outlays in foreign currency required for engineering services and inspection, fees and the overhead of the transnational corporation (11.5% of the total Cuajone investment).

Finally, the contract also obligates the transnational corporation "to carry out a progressive training programme for technical and administrative staff which will prepare them to serve at the various managerial levels and in the different areas of technical specialization" (of the company). Similarly, it provides for the establishment of a department of industrial relations "in order to fulfil the legal norms and regulations governing union activities, mining security, workers' rights and the training of operators".7/

/With a

With a view to increasing the utilization of local factors of production, it also makes it obligatory for the company to purchase domestically-produced materials, when available, so long as they are of the required quality and their prices are competitive with imports (a ceiling is set of 25% over the CIF price of a similar imported product).8/

b) Project financing

The financing of the Cuajone project was also a typical example of the new strategy of the transnational corporations, which consisted of distributing the risk of the investment among various financiers interested in one or another in the project. Whereas previously the transnational corporations provided the major part of the investment from their own capital or else had to go seeking credits on the capital market, now the sources of financing were diversified over a broad network of investment and commercial banks, suppliers of equipment and materials, and future consumers of the minerals, all of them coming from various industrialized countries whose governments also provided greater security for the investment through the direct participation of finance agencies, whether of their own country or of international status (but in which they possess most of the capital and the decisive votes).

Indeed, the owners of the subsidiary company of Southern Peru Copper Corp. contributed only 34% of the total Cuajone investment, which had reached some US$ 650 million dollars 9/ by the end of the project in 1976, and its minority-interest partner, Billiton Metallurgie Co., put in another 4%; the amount put up by the transnational mining corporations was supplemented by a loan from the Chase Manhattan Bank (31%), acting as part of a syndicate with another 28 banks from the United States, Europe and Japan. The suppliers of equipment and machinery, along with their banks, contributed 22%, a large portion of which was accounted for by the Export-Import Bank of the United States (9%). Finally, future buyers of Cuajone blister copper provided 8% and the World Bank furnished 1.5% (see table 2). Clearly, this complex interrelated network of foreign interests provided the best possible means of protecting foreign investment against any unilateral action that might be taken by the government of the host country since, if it were to declare the terms and guarantees extended to the financiers of the project null and void or were to change them unilaterally, it would run the risk of provoking commercial and financial embargoes as well as political pressure (which, as will be seen further on, is what happened in Chile). /Table 2

Table 2

PERU: FINANCIERS FOR THE CUAJONE INVESTMENT (UP TO JUNE 1976)

(Estimates in millions of dollars and as a percentage of the total)

Financiers	Investment	%
1. Chase Manhattan Bank, as part of a syndicate with 28 other banks a/	200	30.8
2. Suppliers of equipment and machinery (and their banks) b/	140	21.6
3. World Bank (IFC) c/	10	1.5
4. Future buyers of blister copper d/	54	8.3
Credits, subtotal	404	62.2
5. Southern Peru Corporation	220	33.9
6. Billiton Metallurgie Co.	25	3.9
Company partners, subtotal	245	37.8
Budgeted investment, total	649	100.0

Source: Ministry of Economic Affairs and Finance.

a/ From Austria, Belgium, Canada, France, Italy, Japan, the United Kingdom and the United States.

b/ Includes the Export-Import Bank of the United States Government, Wells Fargo Bank, Manufacturers Hanover Trust, etc.

c/ International Finance Corporation.

d/ Includes a Japanese group (Mitsubishi Metal, Dowa Mining, Mitsui Mining and Smelting, Sumitomo Metal Mining and Furukawa); an English group (Imperial Metal Industries, British Insulated and Enfield Rolling) and Billiton Metallurgie of the Netherlands.

/On the

On the other hand, neither the Peruvian State nor its public enterprise, MINEROPERU (which was founded after the contract was signed), assumes any responsibility whatsoever for the amortization of the Cuajone project loans or for guaranteeing that financing.10/ This arrangement, once again, sets the Cuajone contract apart from other forms of participation by transnational corporations in mining development, such as in semi-public ventures where the State or a public company assumes a share of the financing and capital of mining projects.

c) Full discretion in the disposal of goods and foreign exchange

By virtue of its exclusive ownership of the Cuajone copper deposits, concentration plants and foundry, the Coppercorp subsidiary of Southern was granted extensive guarantees in its contract with the Government pertaining to its freedom to export and sell the goods produced and to dispose of the foreign exchange obtained from these transactions.

With respect to the company's freedom to market its products, the Government was expressly prohibited from suspending or delaying exports to any external market whatsoever and from compelling the company to undertake sales or barter arrangements involving prices or currencies not corresponding to prevailing practices on the international market. The transnational's unilateral marketing rights were, however, restricted by the clause, "once the country's domestic consumption needs have been met in accordance with the Industrial Promotion Law ...".11/ As will be discussed later on in section 4, the new mining policy and public sector which were established in the early 1970s managed to have the blister copper produced by Coppercorp refined locally and to achieve some degree of State involvement in the marketing of copper.

The company's freedom to dispose of its foreign exchange was guaranteed by the contract provision requiring the Central Reserve Bank to send an irrevocable authorization for the opening of an account (No. 1) in the bank that headed up the financing for the project (Chase Manhattan) which specified that the account was for the deposits resulting from Southern's sales so that payments could be made from it on the financial commitments incurred. This account is used for the recovery of the investment and the funds corresponding to amortization, interest and other payments related to the financing agreements are therefore deposited in it. In addition, the Central Bank was required to open another account (No. 2) using the surpluses from account No. 1. The funds deposited in this account enter

/the country

the country through the Central Reserve Bank. The company uses these monies without any significant degree of interference, in accordance with the mining and exchange control legislation which empowers the State to inspect companies' financial transactions (keeping records of foreign trade transactions, credit operations, etc.).

In sum, the Cuajone contract guaranteed that the investing company would be free to dispose as it wished of the goods produced and the foreign exchange received from its sales, so long as it observed the legislation governing this area and the provisions of the contract. To a great extent, the State's political will and administrative capacity therefore determined the distribution of the profits resulting from the transnational corporation's operations.

d) The transnational corporation's tax arrangements and supervision

The tax arrangements for the foreign subsidiary corresponded to the investment promotion régime which minimized the enterprise's costs because it was given a number of unilateral advantages compared with the régime in force for national investors. The flat rate of tax for the first six years of the recovery of the investments was set at the equivalent of 47.5% of the taxable income, increasing to 54.5% for the following six years, i.e., the prevailing rates set by mining contracts during the 1970s. The effective rate of tax, however, was much smaller because of various types of deductions such as the already mentioned "depletion factor", variations in the exchange rate, losses incurred during the five years before the signing of the contract, profits derived from the revaluation of assets, exemption from duties on financial operations, etc. During the period when the investment was being recovered (i.e., until the beginning of the 1980s), the transnational was also exempt from any tax established after the contract was signed. This was, for example, the case with the tax surcharge on traditional exports.

In addition, the transnational corporation enjoyed preferential customs treatment consisting of exemptions from duty and facilities for the temporary importation, sale or re-export of the equipment and machinery imported during the construction stage.

Unfortunately, there is no data available on the government's budgetary income in relation to the Cuajone project, except that it equalled zero during the first three years of exploitation (1976-1978), when the subsidiary company

/suffered heavy

suffered heavy losses in relation to the financial charges connected with the investment and previous losses (it must be remembered that the cost of the former rose from US$ 355 million to US$ 650 million between the time when the original contract estimate was prepared in 1969 and the time when construction was completed in 1976 12/).

It is abundantly evident that a mining contract of the size and complexity of that for Cuajone involved a wide range of sectors of the public administration in the supervision of the various aspects of the investment itself, as well as in trade, customs, taxation, exchange rate and other aspects. At the end of the 1960s, Peru did not possess sufficient infrastructure or qualified personnel to supervise and control the compliance with the various undertakings entered into, nor was there sufficient co-ordination between the various State bodies, so that there was a marked sectoralism which adversely affected the definition of a joint strategy for supervising the project. The new mining policy formulated by the Peruvian Government at the beginning of the 1970s sought to surmount these obstacles standing in the way of the proper supervision of the Cuajone agreement and even renegotiate some of its aspects in order to obtain bigger benefits for the country.

4. The establishment of the public sector in the 1970s

At the beginning of the 1970s, the Peruvian Government adopted as the main objective of its mining policy the fuller utilization of the known reserves by seeking to promote the opening up of deposits not yet exploited; to develop the entrepreneurial activity of the State in the exploitation, refining and marketing of minerals; to promote new types of links with foreign capital, and to guarantee the participation of the mining workers in the private enterprises in the sector.

In order to open up the deposits not yet exploited, the principle of "no work, no protection", was applied, whereby the concession-holders were obliged to submit new investment projects to the Government for approval. This measure led to the cancellation of over 4 000 mining concessions, among which the most important belonged to such transnational corporations as Anaconda, ASARCO (American Smelting and Refining Corporation), Cerro Pasco and Lampa Mining.

/In order

In order to promote the expansion of the mining sector, the Government set up a public enterprise --MINEROPERU-- responsible for carrying out preinvestment studies, negotiating with foreign investors, preparing the projects assigned to the State and supervising the marketing of minerals. Another public enterprise, MINEROPERU Comercial, was subsequently set up for the marketing of minerals. Of the large number of deposits which the State had at its disposal as a result of the principle of "no work, no protection" it only proved possible to put into operation and finance with foreign credits a single mine: Cerro Verde, administered by the public enterprise CENTROMIN. In addition, MINEROPERU embarked in 1971 on the construction of the Ilo copper refinery with a capacity of 150 000 tons per year, calling for investments of over US$ 60 million which were financed through long-term sales commitments to the Japanese group Mitsu-Urakawa.

5. The public sector's role in copper refining and renegotiation with the transnational corporation

The Peruvian State's entry into the processing of copper via the government-owned refinery at Ilo represented a qualitative change in the country's development of the mining and metallurgical industries which paved the way for an increase in the value added to the ore locally 13/ and for greater control over the marketing of copper. The start-up of the State refinery made it necessary for the Cuajone contract to be renegotiated. Originally, this contract provided that the owners of the mine could dispose freely of its output so long as priority was given to domestic supply. This latter condition was used by the Government in order to renegotiate the contract and ensure the supply of the State refinery at Ilo. The future users of the output of Cuajone, who were entitled, under the terms of the credits provided, to about 100 000 short tons a year of blister copper for refining in the United Kingdom, Japan and the United States, had to sign contracts with the Ilo refinery, and it was also agreed that part of the copper should be supplied as blister to certain financiers of the project.

Table 3 provides an approximate indication of the results of the renegotiation. Under the original agreement, the Japanese, English and Dutch financiers were guaranteed around 60% of the blister copper produced from the Toquepala concentrates per year, while the transnational corporations would be free to dispose of the remaining 40%. All of the blister had to be processed

/Table 3

Table 3

PERU: THE MARKETING AND REFINING OF BLISTER COPPER FROM CUAJONE

(Estimates in thousands of short tons and the percentage) distribution of total output)

Buyer	Volume	%
A. Distribution of the blister copper		
1. In payment to investment financiers a/		
a) Japanese group	30	17.6
b) English group	40	23.5
c) Billiton Metallurgie (Netherlands)	30	17.6
Payment of credit, subtotal	100	58.8
2. At the disposal of the corporation's partners	70	41.2
Total estimated output	170	100.0
B. Refining of the blister copper		
1. Original agreement b/		
Buyers' foreign refineries	170	100.0
2. 1974 renegotiation c/		
a) MINEROPERU (Ilo refinery) under contracts with:		
i) Investment financiers	40	23.6
ii) Southern Peru Copper Corp.	70	41.2
MINEROPERU, subtotal	110	64.8
b) Foreign refineries	60 d/	35.2

a/ Corresponds to the US$ 54 million credit granted to Southern Peru Copper Corp., by the future buyers of Cuajone blister (see table 2 above).

b/ Resulting from the freedom to dispose the product of the investment, as stipulated in the Cuajone contract.

c/ MINEROPERU contracts with Japanese financiers, Southern Peru and ASARCO (Geneva, 19 September and Lima, 1 August 1975).

d/ Financiers of the Japanese group: 30 000 short tons; British Insulated and Imperial Metal Industries: 15 000 short tons each.

/in foreign

in foreign refineries. Under the new agreement the MINEROPERU refinery was to process around two-thirds of the blister from Toquepala, while the other third would be handled by foreign refineries. The data available for the 1976-1978 period indicate that the income of the State refinery at Ilo from the processing of the Cuajone blister copper rose from US$ 0.5 million to US$ 15.5 million. The earnings of the foreign refineries, however, were substantially greater (US$ 3.2 million and US$ 23.4 million, respectively).14/ This imbalance was primarily due to the high processing costs of the foreign refineries in comparison to those of the Peruvian refinery. In any case, the public sector's entry into copper refining raised its share of total copper output from 16% in 1970 to 51% in 1980.

6. The public sector's role in the marketing of copper

a) Transnational corporations and transfer prices

The objectives pursued in the marketing of minerals differ depending on the interest of the actors involved. Whereas the governments and, eventually, its public enterprises tend to maximize the foreign currency income from exports and the tax revenue for the benefit of the national budget, the transnational corporations, as in other fields of their activities, consider the marketing in the host country as just one link in the complex network of their world operations. The international scale of their operations permits the use of transfer prices between different units in the same enterprise in order to artificially undervalue the export income declared in the host country and transfer the generation of profits to the subsequent phases of the processing and marketing of minerals, which are usually carried out in the industrialized countries, thus avoiding the taxation and exchange controls of the host country. This trading policy of the trasnational corporations is facilitated by the high degree of oligopolic power which they have in both the local and world markets.

The marketing of the concentrates produced by the medium and small-scale miners is generally dominated by the international intermediaries, who fix a particular price, or, more likely, act as agents who receive a commission for their services. The bargaining power of these intermediaries lies in their knowledge of and contacts in world markets and in possessing sufficient capital to finance the purchase of the output and possibly investment in the activities of the medium-

/and small-scale

and small-scale producers, who are thus controlled by or "tied" to trading firms. The profit margin of the intermediaries depends principally on the formation of "export lots", made up of purchases of concentrates of very heterogeneous quality, and on the moment at which their shipments are made, in accordance with the situation on world markets. The mining banks promoted by the State, for their part, try to take the place of the intermediaries in the small-scale mining sector by purchasing low-content minerals or concentrates, providing credit and technical assistance, and exporting the output to world markets.

In order to increase the margins of difference between the prices prevailing on the world markets to which the products are sent and the export prices declared in the host country (or the prices at which the products are purchased from the domestic miner in the case of international intermediaries), various trade policy instruments can be used, such as agreed discounts in respect of the cost of processing the mineral ("maquila" charges) and the advantage of renting refining capacity abroad ("tolls"); discounts or premiums on the basis of the metal content of the concentrates and their level of impurities; discounts on competitive markets or premiums on others where there is less competition; careful selection of the time of shipment in order to obtain the best quotation and decisions to exchange geographical supply positions ("swaps"); policies on the destination of exports in general, and the fixing of international reference prices and standards. Obviously, the integrated nature of the transnational corporations' production and trade operations and their oligopolic position on world markets facilitate the use of these trade policy instruments to maximize their profits and ensure that these are generated where it suits them most.

b) The MINPECO public enterprise

In Peru, the conditions for marketing minerals have changed since the public enterprise MINEROPERU set up a trading department (in 1973) and subsequently (1974) an autonomous public enterprise. MINEROPERU Comercial (MINPECO), was set up for the marketing of minerals. In the mid-1970s, the State controlled over 90% of the national mineral exports through this enterprise. Nevertheless, only one-tenth of its activities were carried out through direct buying and selling; the rest corresponded to "back to back" operations where the conditions of the trade contract were transferred to the producer enterprise and MINPECO charged about 2% commission on the FOB export prices. In the case of the tripartite

/contracts,

contracts,15/ through which the blister copper from the Cuajone deposit was sold, the 1.36% commission charged represented for Southern Peru a kind of tax paid in return for the State guarantee on sales to the financiers of the project, since MINPECO did not possess suitable instruments for supervising these contracts.

Under the contracts in question, the importers of blister copper --the financiers of the investments in Cuajone-- enjoyed considerable unilateral advantages in fixing the prices for the imported product, since they could define, as suited them best, the date of quotation for the metal within the two months after the arrival of the shipment, or else they could opt for a "marketing bonus" which meant a discount of 1% from the value of the copper quotation, fixed with respect to a base year selected by the purchaser. They also had the opportunity to fix as they saw fit the discounts for the cost (maquila) of refining the blister in their countries of origin. It can be seen from table 4 that during the period 1977-1982, on average, the refining costs discounted by the associates and financiers of Southern Peru, and especially by the Japanese firms, were substantially greater than those for the Toquepala blister marketed by the MINPECO public enterprise. Thus, the transfer prices between the participants in the foreign investment facilitated the relocation of profits to their own countries of origin, while reducing the fiscal revenue of the metal-producing country. Naturally, the difference in refining costs was reflected in different levels of export prices and income. If the Cuajone blister had been sold at the same price as that from Toquepala, marketed by MINPECO, over the period 1976-1982 the country would have obtained nearly US$ 47 million more in foreign exchange.16/

The effectiveness of State control of the marketing of minerals was adversely affected by a number of drawbacks of an administrative and bureaucratic nature. Like other sectoral marketing directorates, MINPECO was subordinated during the 1970s to the Ministry of Trade, where all the activities of planning, promoting, co-ordinating and controlling the internal and external marketing of the country's mineral products were concentrated. This centralization generated serious discrepancies with the producer enterprises, while there was no adequate co-ordination between the respective ministries. The bureaucratic rigidity of MINPECO was reflected in the lack of any stimulus to increase marketing profits, the lack of budget autonomy, and the absence of wage policies, to such an extreme that it was necessary to secure a decree from the then Government in order to

/Table 4

Table 4

CUAJONE BLISTER: AVERAGE COST OF EXTERNAL PROCESSING
(US$ per metric ton)

Year	Japanese consumers	Cuajone blister, average	Toquepala blister, average
1977	255.6	205.0	118.2
1978	305.2	231.0	107.1
1979	226.8	233.2	102.9
1980	239.4	268.3	125.3
1981	251.7	274.7	127.3
1982	240.0	235.5	153.2

Source: MINEROPERU Comercial (MINPECO).

/make each

make each of the journeys required by marketing abroad. The international marketing infrastructure was limited to some offices attached to the embassies (London, New York, São Paulo and Peking) which did not have any authority to conclude sales or collect payments abroad. Another serious problem was the financing of the production and investments of the medium-sized and small-scale miners, since in this sector MINPECO lacked the necessary resources to take over the functions previously discharged by the international intermediaries.

7. Concluding remarks

Despite all the limitations and problems of execution of the mining policies of the then Government already referred, it should be noted that during the 1970s it proved possible to increase copper production from 218 000 to 366 000 tons, or by 68% (compared with the increase of 20% achieved in the previous decade), and at the same time greater benefits were obtained for the economy of the country. The value retained in the country in respect of exports of copper increased with the establishment of the public sector, in this area with MINEROPERU and CENTROMIN having a 15% share of total copper output in 1980 and with MINPECO supervising a large part of copper marketing. The value added locally to the ore increased from 16% to 51% of the refined output, as a proportion of total production in 1970 and 1980, respectively; in addition, the markets for which the copper was destined were diversified, and direct sales were made to the countries of the region and to the State companies of the socialist countries.17/

Early in the 1980s, the Government of Peru eliminated the State monopoly on the marketing of ore, which had, in any case, essentially been a formality in so far as the sales of the transnational corporation were concerned. MINPECO, a public company, continues to export the output of the public CENTROMIN and MINEROPERU enterprises directly and competes with international marketing firms in acquiring and exporting the output of medium-sized and small companies (whose share of total copper production was approximately 8% in 1980). The relation between the public enterprise and Southern Peru has been determined through a new contract which involves a reduction from 2% to 0.75% of the previous commission on the FOB value of exports from Toquepala and the maintenance of the 1.36% commission on sales from Cuajone. Obviously, the new arrangements reduced MINPECO's income, but they may have facilitated marketing.18/

/B. THE

B. THE CHANGE OF OWNERSHIP IN THE LARGE-SCALE MINING INDUSTRY: THE "CHILEANIZATION" AND NATIONALIZATION OF THE COPPER INDUSTRY

1. The Chilean tradition of State intervention and the national learning process

The boom in the large-scale copper mining industry in Chile in the first half of this century was due to investments of the order of US$ 1.6 billion (at 1979 prices) by two of the main United States copper-producing companies: Anaconda (the Chuquicamata and Potrerillos mines) and Kennecott (the El Teniente mine). Copper production increased from 100 000 tons in 1918 to a pre-Chileanization peak of 528 000 tons in 1964, i.e., 5.3 times, and in the latter year Chile was responsible for 11% of world production.19/ As in the case of Peru, the boom in large-scale mining was accompanied by a large "additional" inflow of foreign exchange (in 1970, for example, copper was responsible for 78% of total income in respect of exports of goods) and fiscal revenue (21% of the total in the period 1965-1969); but at the same time it involved an unequal distribution of benefits in favour of the transnational corporations, which took advantage of the promotional policies of successive governments with respect to foreign enterprises and Chile's unilateral dependence on the United States market. Thus, for example, during the period before the war, the government authorities received only 17%-29% of the gross profits of the transnational corporations, which moreover imported almost half of the inputs required for their activities in Chile, so that the overall value retained in the country remained at extremely low levels of between 30% and 40% of the total export receipts. As in Bolivia and Peru, the unilateral dependence on the United States market meant heavy losses of foreign exchange at times of price freezing by the United States Government (about US$ 500 million during the Second World War, for example).

After the war, the growing awareness of the potential and not fully exploited importance of copper for the well-being of the country led --with the natural ups and downs depending on the orientation of successive governments--, to greater State intervention in the industry and greater tax pressure on the transnational corporations. Between the five-year period 1935-1939 and 1960-1964 the value retained in the country in respect of copper exports more than trebled (from US$ 152 million to US$ 488 million per year, on average, in constant 1979 dollars),

/reflecting mainly

reflecting mainly a considerable increase in the taxation and local expenditures of the industry. These changes are typical results of the pressure which governments exert on transnational corporations to extract greater benefits from them for the country, not always on the basis of a detailed analysis of the situation or as part of a definite strategy, but rather in response to conjunctural pressures to pay for certain expenditure under the national budget: examples of this are the increase in taxation in 1934 because of the decline of the nitrates industry, the effects of the world crisis and the need to face social reforms; the promotion of substitutive industrialization through the establishment of the Production Development Corporation (CORFO) in 1939, etc.

Finally, an important aspect of mining policies before the "Chileanization" and nationalization of the copper industry was the more or less continuous and growing tendency towards a higher level of training of Chilean professionals, who fitted themselves not only in academic circles but also in government work to supervise the marketing and income of large-scale mining, which in turn prepared them for the subsequent task of direct participation in running the enterprises. Hence the significance of the establishment in 1955 of the Copper Department, which, as part of the Ministry of Mining,20/ had an extremely favourable influence on the improvement of the knowledge and negotiating skills of Chilean specialists.

2. Mixed enterprises between the TNCs and the public sector ("Chileanization")

a) The Government's objectives and the political conditions

The administration led by Eduardo Frei which took office in the second half of the 1960s sought to establish a new model of linkages with the transnational corporations (Kennecott and Anaconda) in the copper industry, by undertaking a policy of establishing mixed enterprises between the State and the transnational corporations, with explicit agreements and mutual obligations. This represented a big departure from the promotional systems of a general nature applied in Chile by previous governments, and represented an even greater difference from the principle of "no work, no protection" and the cancellation of foreign concessions in Peru (analysed above in part A of this study). Essential elements of this policy were majority ownership by the State, the strengthening of government control over the marketing of copper, and a programme of expansion of production

/capacity designed

capacity designed to increase output by 75% in the space of six years. It was also aimed to stimulate these investments by reducing rates of taxation and guaranteeing stability of treatment of foreign enterprises for a period of twenty years.

In the political context of the second half of the 1960s, "Chileanization" represented an alternative to the nationalization of the copper industry advocated by the political parties in opposition to the Government, both those of the left, which had been stimulated at this time by the Cuban Revolution, and those of the traditional right, which opposed the agrarian reform proposed by the Government in accordance with the postulates of U.S. President John Kennedy's Alliance for Progress. The right apparently supported nationalization as a means of protecting its own interests, which were threatened by the social reforms then in vogue. This internal political situation placed the United States Government on the same side as the Chilean Government, and both applied pressure to the transnational corporations to adapt to the new type of links with the State. Consequently, the Chilean Government's negotiating power was based on more advantageous external factors than in the case of Peru's negotiation of the Cuajone contract in 1968 and, even more so, compared with the subsequent nationalization of the large-scale copper industry in 1971.

b) The reaction of the transnational corporations and the results of the negotiations

The reaction of the transnational corporations to the policy of "Chileanization" of the copper industry was, by and large, flexible, in spite of differences in the tactics adopted by Kennecott (El Teniente) and Anaconda (Chuquicamata and Potrerillos), since they saw the expansion of the industry and the new forms of their participation in this activity as the only way of surviving the prevailing political situation and drawing maximum advantage from their investments before eventually having to abandon them in the face of the ever-present danger of nationalization.

In order to reduce the risk to their new investments, the transnational corporations, and especially Kennecott, tried --as in the case of the Southern Peru Copper Corporation-- to obtain guarantees both from the Government of the host country and from the United States Government. They also demanded that tax incentives be increased to the maximum and that they be assured of long-term

/stability. As

stability. As already noted, however, interesting differences were to be seen between the reactions and tactics of Kennecott and Anaconda.

i) The accord with Kennecott

Kennecott, conscious of the fact that its image in Chilean society had been adversely affected by its virtual failure to make any reinvestments in the country since the 1920s, took the initiative and put forward a proposal, even before the inauguration of the new Government, for an expansion plan which included the transfer of 51% of ownership of the El Teniente mine to the Chilean State. Exploiting the advantage given to it by the fact that it was meeting the Government's position with an initiative of its own, it negotiated for and finally obtained a series of unilateral benefits which excessively increased the cost of the "Chileanization" to the economy of the country. First of all, the sale of 51% of the stock of El Teniente to the Chilean Government was carried out after a revaluation of assets which brought the book value of US$ 66 million to a commercial or "real" value of US$ 160 million, i.e., an increase of 142%. Secondly, the transnational corporation secured a reduced rate of taxation for the new mixed company which amounted to 20% on profits, plus 30% on the dividends corresponding to its minority participation, with these rates guaranteed for a period of twenty years. This promotional level of taxation, together with the subsequent rise in copper prices, enabled it not only to maintain but even to substantially increase its profits compared with those obtained in the period before "Chileanization".

The financing of the new investments, as later in the case of the Cuajone project in Peru, required only a minimal net contribution by the transnational corporation, which shared out the risk of the investment among the other participants, especially the Governments of Chile and the United States. Of the US$ 230 million involved, 48% was financed by the United States EXIMBANK, 12% by the Chilean Government and only the remaining 40% by Kennecott. Moreover, the Chilean Government's payment for the 51% ownership of the former Kennecott property amounted to almost as much as the transnational corporation's own investment, so that finally the company's net contribution was barely US$ 11 million, while moreover it enjoyed the guarantees of the two interested governments.

/Finally, Kennecott

Finally, Kennecott maintained control of the new mixed company through a management contract which was one of the conditions for the EXIMBANK credit. Thus, a split took place, to the benefit of the TNC, between the State's majority ownerhip of the mixed enterprise on the one hand and the effective control exerted over it by the TNC on the other. The cost of the Kennecott accord to the Chilean economy may be illustrated by quoting the words of a Kennecott representative: "...The good thing about this agreement is that the Chileans are satisfied, while Kennecott gets a bigger slice of a bigger cake without bringing any appreciable amount of money from the United States".21/

ii) The Anaconda accord

Anaconda, for its part, also offered an expansion plan, but up to 1969 it remained reluctant to participate in a mixed company with the Chilean State. Of its total new investments, of the order of US$ 200 million, 75% were financed with the transnational corporation's own funds, while the remaining 25% were financed with an EXIMBANK credit endorsed by Anaconda and not, as in the case of Kennecott, by the Chilean Government. Anaconda, too, obtained a reduction in the tax rate on its profits, from 62% to 52%.

In 1969, Anaconda gave way to government pressure to transfer 51% of its ownership and at the same time asked to be gradually nationalized and suitably compensated. As a result, it was agreed that 51% of the property (according to the book value) would be transferred immediately, to be paid for over a period of 6 years, while the remaining 49% would be transferred over the period up to 1982 at market prices ("real" value). Thus, in financial terms, the result of the negotiations with Anaconda seemed to involve a smaller cost of "Chileanization" for the economy of the country than in the case of Kennecott.

c) The distribution of the benefits arising from the accords

The main benefit of the "Chileanization" was undoubtedly the considerable expansion of production capacity, and although the increase of 75% in copper production was not achieved within the agreed length of time (6 years), nevertheless the investment made enabled copper production to be almost doubled by the end of the 1970s in comparison with the beginning of the previous decade, thus halting the decline in Chile's share in world production (see table 5). Secondly, the establishment of mixed companies also marked a considerable advance in the national control and supervision of copper production and marketing. Chileans

/Table 5

Table 5

EVOLUTION AND DISTRIBUTION OF BENEFITS IN THE CHILEAN LARGE-SCALE COPPER MINING INDUSTRY

(Average annual values at constant 1979 prices)

Indicator	1945-1949	1960-1964	1965-1969	1971-1974	1975-1979
1. Production (thousands of tons)	399	501	520	616	843
As a percentage of world total	18.4	11.1	9.7	8.9	10.8
2. Sales prices (US cents per pound)	56.7	74.3	116.6	115.9	73.2
3. Gross profits (millions of US dollars)	262	330	731	582	492
4. Fiscal revenue (millions of US dollars)	164	225	511	553	492
As a percentage of profits	62.7	68.3	70.0	95.0	100.0
As a percentage of total fiscal income	20.1	15.6	21.0	18.9	15.2
5. Local expenditure As a percentage of total	58.4	67.3	74.9	...	...
6. Value retained in country a/ (millions of US dollars)	273	513	953	1 458	1 393
As a percentage of total exports	56	62	68	90b/	90b/

Source: Calculated on the basis of official data.

a/ Corresponds to total value of annual exports less expenditure abroad, depreciation (up to 1968), and net profits of the foreign enterprises.

b/ The remaining 10% corresponds to estimated import expenditure of the State enterprise.

entered the highest levels of the new companies, and the Copper Department, set up in 1955, began to exercise more efficient control over marketing, establishing as the reference price for all sales of Chilean copper the price prevailing on the London Metals Exchange and participating actively in the whole process of marketing through the evaluation and approval of the annual sales policies and other specific

/conditions of

conditions of sales contracts. The active participation of Chilean officials and professionals in the management of the enterprises and in the trade negotiations with clients considerably increased their level of training and experience for the tasks which they subsequently had to carry out after the nationalization of copper in 1971. It will readily be appreciated that this kind of gradual approach to the national ownership of Chilean copper differs very considerably from the beginnings of the trade supervision by MINPECO in Peru analysed earlier and from the "abrupt" nationalization of the Bolivian tin industry in 1952.

The Chilean economy benefited as a consequence of these agreements through a considerable increase in the revenue obtained in respect of exports and particularly through the increase in local purchases by the new mixed companies (see table 5).

At the same time, however, the dizzy rise in copper prices caused by the war in Southeast Asia (world copper prices practically doubled between the years 1965 and 1966) and the promotional treatment granted to the transnational corporations in taxation matters led, in relative terms, to a greater increase in the benefits for the transnational corporations than for the economy of the country. Thus, the cumulative increase in the "net" profits (i.e., after local taxes) of the transnational corporations during the period 1965-1969 was greater than the total value of the investments committed in the expansion plan, and in any case the latter were financed, particularly in the case of Kennecott, only partly by the transnational corporations themselves.

In view of the new situation created by the substantial increase in world copper prices, in 1969 the Government renegotiated the arrangements with the transnational corporations and imposed on them a supertax which progressively taxed the profits derived from copper prices over 40 cents per pound, i.e., the level corresponding approximately to the period before the price rise in 1965-1966.

/3. The

3. The nationalization of the large-scale copper-mining industry

a) The political and legal framework

The nationalization of the copper industry carried out by the Salvador Allende administration in 1971 represented the culmination of a long process of growing awareness of the importance of this natural resource for the Chilean economy and the cost of the continued dependence of this basic industry on the two great United States transnational corporations and on the oligopolic market of that country. Another important factor was the experience accumulated by successive governments (and by the professionals and technicians working for them) since the Second World War. Over the course of time, these governments --although with ups and downs reflecting their political and ideological orientation-- gradually entered the field of the production and marketing of copper in order to secure greater benefits for the national economy. Finally, the socialist ideology of the government in power when the copper industry was nationalized was backed up in this measure by a wide political consensus, perhaps unique in its broadness, which was shared by practically all the social forces and organizations. In international terms, the Chilean Government's position was based on the exercise of the "sovereign right of every State to dispose of its wealth and its natural resources" laid down in United Nations General Assembly resolution 1803(XVII) adopted on 14 December 1962. Against this political background it was only natural that the amendment to the Chilean constitution whereby the nationalization of the large-scale copper mining industry was officially effected should be adopted unanimously by the National Congress in July 1971.

The special feature of the Chilean nationalization which called for a constitutional amendment was its attitude to the compensation of the foreign enterprises nationalized, since in practice it introduced the idea of confiscation of the nationalized assets. In the first place, this approach lays down that the ceiling value of the nationalized assets should be determined on the basis of their book value and not their "real" or commercial value, as had happened when copper was "Chileanized". Secondly, it empowered the President of the Republic to deduct from the total compensation an amount equivalent to the "excess profits" obtained by the transnational corporation. In justification of this, it was argued that the

/previous agreements

previous agreements have not been able to foresee the profits resulting from the increase in copper prices, which had been far greater than expected. Finally, it was laid down that any litigation which might arise as a consequence of the compensation arrangements should be resolved within the jurisdiction of the country, so that no other State or foreign tribunal could intervene in any aspect deriving from the nationalization of the copper industry.

Specifically, the Controller-General of the Republic, on the basis of the book value, fixed compensation of about US$ 282 million and US$ 99 million for Anaconda and Kennecott, respectively. The President of the Republic, however, after adducing that the two transnational corporations had obtained a rate of profit in their Chilean activities almost six times the world average (12% per year as from 1955), laid down that the amount of the compensation originally established for the nationalized enterprises should be reduced by almost US$ 800 million in respect of excess profits, which meant that no compensation whatever would be paid to the foreign enterprises.

b) The reaction of the transnational corporations

As was to be expected in view of the importance of Chilean copper to the world economy in general and the power of the two transnational corporations in particular, their reaction to the measures taken by the Chilean Government was negative and vehement. Both of them demanded rapid and equitable compensation for the real value (not the book value) of the assets nationalized, and categorically rejected the deductions for "excess profits", arguing that this measure had a retroactive character which was contrary to the principles of international law and universally accepted ideas of justice. Without denying the validity of United Nations General Assembly resolution 1803(XVII), they asserted that the conditions established by the Chilean Government were incompatible with international jurisprudence and they reserved the right to seek the protection of other States --the United States and other industrialized buyers of Chilean copper-- and to submit the dispute to the jurisdiction of courts other than those of Chile.

The counter-attack of the transnational corporations took the form of various embargoes on shipments of Chilean copper, which caused temporary uncertainty among buyers and in the country itself, and the companies also secured the freezing of CODELCO's bank deposits in the State of New York. In practice, however, the legal

/battle between

battle between Chile and the United States companies had few direct effects on Chile's exports of copper. What was really being sought was rather some justification for intervention by the United States Government in the dispute, and this took place in October 1971 when the Secretary of State clearly expressed the official support of the United States Government for the transnational corporations affected in the following statement: "the United States Government is deeply disappointed and concerned at this serious break with accepted patterns of international law. Under the established principles of international law, expropriation must be accompanied by reasonable provision for the payment of fair compensation ... the unprecedented retroactive application of the concept of excess profits ... is particularly alarming ... and the United States hopes that the Chilean Government, in keeping with its obligations under international law, will carefully consider this problem".22/ In addition, the United States Government had already given instructions to EXIMBANK to hold up the granting of a loan which Chile had requested in order to acquire aircraft for the national airline "until the government of this country clarifies its economic policy with regard to foreign investments".23/ As the investigations carried out by the United States Senate later reveal, this action was part of a much broader campaign aimed at destabilizing the Chilean economy with the aim of neutralizing the potential threat posed to the long-term interests of the United States by the precedent of a doctrine advocating "nationalization without compensation", which in the opinion of the United States authorities constituted a threat to all United States investments in any country of the Americas or anywhere else in the world.

The break between Chile and the mining transnational corporations of the United States was overcome in May 1974 when an agreement was signed with the new Government whereby Anaconda and Kennecott were to be paid compensation totalling US$ 377 million over periods of between 5 and 16 years.

c) Transitory problems of the public enterprise

As a result of the nationalization, the new public enterprise responsible for the copper industry, CODELCO, found itself faced with serious internal difficulties. It became obvious, as also happened with the public enterprises of Bolivia and Peru, that the mere act of nationalizing natural resources is not sufficient in itself to bring about an abrupt change in the nature of the problems traditionally associated with the mining industry previously controlled by the

/transnational corporations,

transnational corporations, or to alter the attitude of the workers. In the initial period after nationalization, unit production costs rose substantially because of serious problems of absenteeism and labour conflicts which often culminated in the paralyzation of production activities. The mining trade unions, which had acquired an unusually well-developed capacity for negotiation through long years of struggles with the transnational corporations, naturally did not wish to lose the advantages won from the transnational corporations on the grounds that the local labour was significantly cheaper than in the industrialized centres. Thus, for example, there was a negative reaction when the Chilean Government, after the nationalization of the inudstry, stopped paying the salaries of supervisors in dollars. The supervisors consequently came into a direct confrontation with the new administration and received the support of the political sectors opposed to the process of change in general. The prevailing political struggle also gave rise to such abnormalities as sectarian political attitudes, the filling of technical and administrative posts on a political quota basis, and consequently less efficient performance of certain management functions.

Even so, however, looking back over the long term, the nationalization of the Chilean copper industry meant a substantial increase in the benefits for the economy of the country. During the 1970s copper production increased by 70% --partly because of the investments made during the period of "Chileanization"-- and the value retained in the country in respect of exports increased from 68% in the period 1965-1969 to 90% after nationalization (the remaining 10% corresponding to imported inputs and services). Consequently, the Chilean economy received a much larger contribution than before nationalization, in spite of the sharp drop in the real price of copper in the second half of the 1970s (see table 5).

4. The potential denationalization during the subsequent decade

The neoliberal economic policy followed by the government of Augusto Pinochet and the "non-discriminatory" treatment which it has extended to foreign investment since 1973 have prompted the re-entry of transnational corporations into copper mining, although CODELCO still maintains an almost exclusive position with respect to copper production and exports. In mid-1973, only 17% (US$ 59 million) of the accumulated value of total direct foreign investment in Chile was accounted for by mining of metallic ores, whereas 55% was invested in manufacturing.24/ During

/the 1974-1981

the 1974-1981 period (up until July) US$ 3.4 billion of foreign investment in mining was authorized, of which only US$ 404 million (i.e., less than 12% of the authorized sum) had actually been carried out by the end of 1980. On the other hand, mining accounted for 50% of total direct foreign investment in 1974-1979, which was nearly twice as much as was invested in the manufacturing sector (27% of total direct foreign investment) during the same period. A comparison of the transnational corporations' new position in mining vis-à-vis that of the public sector shows that these corporations' exports represented only 4% of the total in 1980, but that they had access to one-fifth of all national copper reserves. The public's sector virtual monopoly in copper production and marketing notwithstanding, it invested only US$ 412 million in 1978-1979, which was not even double the amount invested by transnational corporations during the same period (US$ 210 million).

The general data presented in the preceding paragraph permits nothing more than a very preliminary and tentative comparison of the neoliberal policies of 1974-1980 vis-à-vis the State's traditional role in mining in Chile (the Department of Copper in 1954, "Chileanization" in 1964 and nationalization in 1971). The well-known approaches relating to comparative advantage and openness to the exterior obviously placed the mining sector in a privileged position with respect to direct foreign investment, in view of the size and high metal content of the country's copper reserves and the relatively low cost of mining them (in international terms). The restructuring of foreign capital flows, to the detriment of the manufacturing industry, is clearly accounted for by the policy of opening the economy up to the exterior, which also caused many national industries to go bankrupt. Moreover, the large difference between the amount of direct foreign investment which was authorized and the amount which actually materialized during the preceding five-year period (the latter figure representing 12% of the former) appears to be due not only to the long investment cycle associated with mining, but also to the cautious attitude of the transnational corporations, which doubted the stability of the excessive unilateral advantages given them by the military government (e.g., a guarantee that tax incentives would be continued for periods of 20 to 30 years). In any event, the transnational corporations' control over 20% of national copper reserves as a result of the transfer of shares or the purchase of land or national rights constitutes a potential basis for denationalizing copper mining to a considerable extent. This hypothesis appears to be

/corroborated by

corroborated by the relatively low level of public-sector investment during the second half of the 1970s, when external credits were in ample supply 25/ and the public company, CODELCO, reported profits on the order of US$ 1 billion. Lastly, it must be noted that the above comments should by no means by interpreted as a negative assessment of the restitution of direct foreign investment in Chilean mining per se, but are instead merely an attempt to outline the change that has taken place in the balance of bargaining power between the State and the transnational mining corporations and its possible impact on the country's economy. (For example, it is obvious that in response to the 1984 crisis in the United States copper industry, the transnational corporations would have no need to turn to the administration of President Ronald Reagan to urge that protectionist measures should be established against Chilean exports; instead they could simply reduce or eliminate their subsidiaries' exports, if such companies controlled a major portion of the country's copper output.)

C. NEW TAX AND INTERNATIONAL CO-OPERATION POLICIES IN THE JAMAICAN BAUXITE INDUSTRY

1. The transnational corporations' control of the industry

Bauxite began to be produced on a large scale and refined into alumina in Jamaica during the first half of the 1950s, and output has increased substantially during the two succeeding decades. In the early 1970s, just before the renegotiation with the transnational corporations was carried out, Jamaica accounted for 20% and 8% of world bauxite and alumina production, respectively. In 1970, US$ 133 million worth of alumina and US$ 83 million worth of bauxite were exported (i.e., 62% and 38%, respectively of total industrial sales).26/

The whirlwind development of the bauxite industry was basically carried forward by four major transnational corporations in the world bauxite industry: ALCAN, ALCOA, Reynolds and Kaiser. In 1979, these companies controlled 53% and 41% of the world production capacity of alumina and aluminium, respectively (not including the socialist countries).27/ In addition to producing bauxite, Reynolds and Kaiser run the semi-public enterprise of ALPART together with Anaconda (the same Anaconda whose copper production was nationalized in Chile). Another copper company, Revere Copper & Brass Incorp., came into Jamaica in 1971, but halted its

/operations in

operations in 1975 due to technical problems at its alumina plant (see table 6). Up until 1974, the transnational corporations had invested some US$ 664 million in mining, refining and port facilities in the country.28/ Since the completion of the ALCOA refinery in 1973, there has been no further expansion. As in the cases of Peru and Chile analysed earlier in this study, the distribution of the benefits arising from the expansion of mining activities favoured the TCs unilaterally on the basis of traditional concessions. Prior to 1974 the Government of Jamaica derived revenue from the industry through income taxes and royalties, in accordance with legislation enacted in 1950 and 1957. The provisions of the agreements with the TNCs were as follows:29/

	Royalties per ton	Income tax per ton
1950 agreement:		
Bauxite exported	1 shilling	40% of an assumed profit of 60 cents
Bauxite processed locally	10 pence	40% of realized profit
1957 agreement:		
Bauxite exported	1st million tons: 4 shillings 2nd million tons: 3 shillings Over 2 million tons: 2 shillings	40% of an assumed profit of 3.85 dollars; of which 1.925 dollars was fixed, the other 1.925 varied with the price of aluminium
Bauxite processed locally	1st million: 2 shillings & 6 pence 2nd million: 2 shillings Over 2 million: 1 shilling & 6 pence	40% of realized profit

In the period 1952-1974, bauxite production increased dramatically from 381 to 15.166 thousand long dry tons. However, the revenues which accrued to the Government were relatively modest, increasing from 6.9 million in 1957 to 29.0 million dollars in 1973. In 1973, for example, the revenue yield per ton of bauxite amounted to only 2.30 dollars. Furthermore, the State had no influence whatever on the development of the industry and was not even provided with information to permit an analysis of the economic results obtained.

/Table 6

Table 6

JAMAICA: THE TRANSNATIONAL CORPORATIONS IN THE BAUXITE INDUSTRY

Company	Mine site	Alumina plant site and date operations started	Annual capacity ('000 metric tons)	
			Alumina	Bauxite
1. ALCAN	Russell Place	Kirkvine, (Mandeville, Manchester) 1952	562	2 687
	Schwallemburg	Ewarton, 1959	558	
2. ALCOA	Breadnut Valley	Halse Hall, (Clarendon) 1972	550	1 270
3. ALPART (ANACONDA 27%, REYNOLDS 36.5% AND KAISER 36.5%)	Essex Valley	Nain, (St. Elizabeth) 1970	1 130	3 117
4. KAISER BAUXITE	Water Valley	Port Rhodes, 1967	-	4 200
5. REYNOLDS	Lydford	-	-	3 100
6. REVERE COPPER & BRASS INCORP. a/	Magotty	Magotty, 1971	(200)	(500)
	Total 5 TNCs in Jamaica (excluding REVERE)		2 800	14 374

Source: Annual reports of companies at the end of 1970.

a/ Left Jamaica in 1975.

/2. The

2. The policies and bargaining power of the Government in 1974

As a result of the previous experience in the uneven distribution of bauxite industry benefits, the Administration of Prime Minister Michael Manley that emerged from the elections in 1972 established a special Bauxite Commission to study thoroughly the TNCs' operations and financial practices in Jamaica in order to prepare a new renegotiation with the foreign companies on more equitable terms.

The main objectives of the new mining policies announced in 1974 may be summed up as follows: a) to redistribute the bauxite industry benefits in favour of the country's economy, through the imposition of a bauxite production levy; b) to strengthen the sovereignty of Jamaica over its most important natural resource through the nationalization of lands owned by TNCs and the establishment of joint ventures between them and the public sector in order to permit the latter's participation in the ownership and income of the industry; c) to diminish the unilateral dependency on TNCs by diversifying the local industry linkages through the establishment of joint ventures with other countries of Latin America and co-operation and trade with "non-traditional" partners and markets.

The new governmental policies and renegotiation with TNCs, begun in 1974, had their base in several factors which should have led to their successful completion and greater benefits for Jamaica's economy. Not all of them proved justified and, furthermore, new and unforeseen problems arose in the late 1970s in the performance of government policies. These are analysed in section 7 below. In continuation, the main factors which might have influenced the government's position are reviewed.

To begin with, a feature of importance at that time was the fact that three of the four major TNCs operating in Jamaica (Alcoa, Alcan, Reynolds and Kaiser) depended heavily on her bauxite resources (11%, 55%, 57% and 58% respectively, see table 7). It was supposed that owing to special characteristics of bauxite of different origin, the home country processing facilities using Jamaican inputs would have to be overhauled (which is a time and cost consuming process), if diversifying to other resource origin.

/Table 7

Table 7

BAUXITE PRODUCTION BY TNCs AND PRODUCING COUNTRIES (1973)

	ALCAN	ALCOA	Kaiser	Reynolds
	a) Million tons			
Jamaica	3.1	1.35	6.90	4.43
Suriname	-	4.55	-	-
Dominican Republic	-	1.48	-	-
Guyana a/	-	-	-	1.33
Haiti	-	-	-	.70
Brazil	.22	.25	-	-
Australia	-	2.83	4.80	-
U.S.A.	-	.98	-	1.25
France	.50	-	-	-
Rest	1.80	.86	.24	.08
Total	5.60	12.30	11.90	7.80
	b) Percentage of TNCs production worldwide			
Jamaica	55.0	11.0	58.0	57.0
Suriname	-	37.0	-	-
Dominican Republic	-	12.0	-	-
Guyana a/	-	-	-	17.0
Haiti	-	-	-	9.0
Brazil	9.0	2.0	-	-
Australia	-	23.0	40.0	-
U.S.A.	-	8.0	-	16.0
France	4.0	-	-	-
Rest	32.0	7.0	2.0	1.0
Total	100	100	100	100

Source: Annual reports of the companies.

a/ Excludes nationalized production.

/Secondly, the

Secondly, the low share of bauxite and alumina in the final price of aluminium made it possible for the bauxite producing countries to obtain increased revenue through higher taxation, with only a slight impact on the global TNCs average costs. In the 1980s the share of mining and drying of bauxite in the total aluminium cost had been only some 7% and that added by alumina refining of 2% approximately.30/ These relatively low shares suggested that the cost of bauxite and alumina could be increased with little impact on demand for the final aluminium product.

A third aspect of the negotiating process which tended to favour the Jamaican government was the cost competitiveness of Jamaican bauxite production in the United States market. According to World Bank estimates for 1977, the bauxite from Guyana, Guinea, Brazil and Australia had an average higher cost of between 9.9 and 32.8 dollars per ton of alumina compared with Jamaican bauxite.31/ After the introduction of the new increased levy, the cost of alumina per ton in Jamaica would rise from 23 to about 33 dollars, which was almost equal to the cost in Guyana and much less than in Australia (55 dollars per ton), thus removing only part of the economic rents of the TNCs. (As will be seen below in section 7 especially, this factor did not prove justified because of the continued increase of imported energy costs, which strongly debilitated Jamaica's competitiveness.)

Fourth, the Jamaica Bauxite Commission was formed in 1972 in order to improve the information base of the government. This spent nearly two years examining operating and financial conditions within the industry and differences among the various TNCs. That period of pre-negotiation preparation greatly improved the bargaining capacity of the government.

A fifth important factor, evolving from the new international setting (the Third World position on the New International Economic Order, the establishment of UBEC in Central America and, especially, the OPEC countries' joint actions in 1973-1974) was the formation of the International Bauxite Association (IBA), in 1974, by Jamaica, Suriname, Guinea, Guyana, Australia, Sierra Leone and Yugoslavia, joined later by the Dominican Republic, Haiti, Ghana and Indonesia. In 1975, the IBA countries accounted for 73% of world bauxite production. One of the original purposes of this association was to present a united front of all bauxite exporting countries to the TNCs aiming at the redistribution of the

/industry benefits

industry benefits so that the foreign firms' diversification of bauxite sources would be neutralized. In the 1974-1975 period, such neutralization appeared to have been successful, particularly owing to the fact that the then government of an important alternative source country --Australia-- had adopted a pro-Third World attitude reflecting its concern about foreign control of its own natural resources.

Sixth, at the beginning of the 1970s Jamaica faced a more diversified world market for bauxite and alumina, characterized by the entry of several new U.S. firms and more rapidly increasing Japanese and European demand, even with occasional purchases by the Soviet Union. (In the period 1968-1971, the average annual increase in primary aluminium consumption was: Japan 16.2%, Canada 10.5%, Western Europe 7.4%, compared with only 4.3% for the U.S.A.).32/ In addition, the Jamaican government was supposed to enter into joint venture agreements with other bauxite producing and consuming countries of Latin America in order to diminish the dependence from TNCs and diversify the bauxite industry linkages.

Finally, the immediate consequences of the 1973 oil crises resulted for Jamaica in a serious balance-of-payments deficit which made it essential to increase tax revenue in order to carry on with the Government's development objectives.

The Jamaican policies pursued in the second half of the 1970s will be analysed in more depth later on.

3. The tax on bauxite production

a) Transfer prices and income tax

The principal cause of the modest revenue received by the Government from the bauxite industry prior to 1974 centred on the difficulty in determining a fair price for bauxite. As the marketing of bauxite and alumina is dominated by the big vertically integrated TNCs, the price of these commodities, as well as the profit realized through their processing, are set arbitrarily by the companies through the mechanism of transfer prices. This led to the first fiscal reform, in Jamaica's colonial period (1957, see section 1 above), which sought to link taxation on the industry to the price of the final product.

The innovation in 1957 was that half the value of the total payments of royalties and income tax would vary with the price of aluminium ingots on the United States market. Due to the unfavourable market trends at the end of the

/1950s, however,

1950s, however, the country did not derive much benefit from this reform involving the introduction of the "escalator clause". Taking a longer-term view, the level of income taxes or royalties had no relation either with the quality of the ore mined or with the grade of processing into alumina. In 1972, for example, 3.5 million tons of bauxite were converted into alumina but yielded in taxes only 1 million dollars. This value was only a fraction of the nearly 9 million dollars which the same bauxite, exported without being refined, would have generated for the State budget. This imbalance was due to the fact that the companies were able to show almost no profit on the new alumina plants, by fixing their transfer prices at artifically low levels. The Administration lacked the information and political will to negotiate or impose a more significant redistribution of the bauxite industry benefits in favour of the host country. This occurred only later, in 1974, when the taxation system was radically changed.

b) The Government's proposal and the immediate reaction of the TNCs

In 1974 the Government of Jamaica proposed a novel method of taxation --a production levy imposed on all bauxite produced (including that refined locally into alumina) and fixed as a percentage of the price of primary aluminium ingots in the U.S. market. The Government's original proposal, in January 1974, was to fix the levy at 8.5% for aluminium prices up to 35 cents per pound and then, to raise the percentage share for prices higher than that level. In this way, the new method of taxation sought to do away with the negative effects of the manipulation of transfer prices referred to above. The TNCs accepted the principle of the tax, but made a counter-offer involving a tax rate of only 3.5%. The negotiations broke down in May and the Government legislated the new fiscal terms, setting the production levy at 7.5% for the financial year 1974-1975.

To a large extent the original opposition of TNCs to accept the higher taxes required by the Government had been caused by the fact that in 1974 TNCs were faced with the sudden rise in the cost of energy, an important input for the industry, which introduced a considerable degree of uncertainty. Another aspect was the TNCs' natural fear of the demonstration effects of Jamaican action on other bauxite-producing countries. The combination of these factors led the TNCs to follow a relatively inflexible bargaining position, and they filed claims against the new tax legislation in the Jamaican courts and at the International Centre for Settling Investment Disputes (ICSID, at the World Bank).

/The TNCs

The TNCs have sought to rely upon the principle of the sanctity of contracts and have even challenged the constitutional right of the Government to impose the levy, claiming that it compulsorily deprived the companies of their proprietary rights.

The Supreme Court of Justice of Jamaica rejected these contentions on the grounds that the previous agreements could not give rise to rights which exempted the companies from new taxation essential for the general welfare of the community. The Court noted in that respect that the country had had very serious balance-of-payments problems as a result of the increases in the prices of imports, especially of energy products; that bauxite was a major foreign exchange earner; that the country earned less from bauxite in 1973 than in 1971, although the amount produced had increased over the period; that without the bauxite levy the balance of payments would have in 1974 a deficit of approximately US$ 295 million, and that, accordingly, the action taken in imposing the levy "was essential for the general welfare of the community".

The Court also rejected the contention that the bauxite levy was unconstitutional on the basis that it involved the compulsory acquisition of the plaintiff's proprietary rights, since no such rights were capable of being created in respect of taxation by virtue of the agreement; in any event, since the levy clearly satisfied the characteristics of a tax, it could not receive any protection from the constitutional guarantees in respect of property contained in Section 18 of the Jamaican Constitution.33/

c) The agreement and its effects

In the negotiations subsequent to the legislation on the new taxation the TNCs accepted the reduced rate of 7.5% of the average price of primary aluminium produced from Jamaican bauxite. After the tax had been established it was determined that on average 4.3 long tons of bauxite were needed to produce one short ton (2 000 pounds) of aluminium. The levy was therefore computed on the basis of the following formula:

$$\text{Levy} = \text{levy rate} \times \text{average realized price of aluminium} \times \frac{2\,000}{4.3 \times 100}.$$

On the assumption that the average realized price of aluminium was 50 U.S. cents, the levy per ton would be $\frac{7.5 \times 50¢ \times 2\,000}{4.3 \times 100} = 17.44$ dollars.

/It was

It was intended that the levy rate, which was originally set at 7.5%, should be increased in 1975 to 8% and in 1976 to 8.5% at the discretion of the Government. It was later decided, however, that the levy rate should be stabilized at 7.5%. In addition, the Government specified minimum production targets against which the levy of each company would be paid, except where unforeseen circumstances forced the companies to produce less than the specified amounts.

The royalty payable per ton of bauxite was raised to 50 Jamaican cents. On the other hand, the companies would cease to pay income tax separately: to all intents and purposes, this tax would be regarded as forming part of the levy. Furthermore, under this special fixed system the companies were exempt from transfer tax, stamp duties, registration fees, and other charges where transfers had to be done to give effect to the provisions of the agreements.

As a result of the imposition of the new levy, the Government received a significant increase in revenue. By comparison with the revenue yield of 29 million dollars in income from the bauxite industry in respect of royalties and taxes in 1973, the production levy yielded 185 million dollars in 1974, i.e., 6.4 times more than the year before. On the other hand, in the longer term the imposition of the levy led to a considerable decline in the output of Jamaican bauxite, since this became more expensive than bauxite from other producer countries. The TNCs also kept up unceasing pressure against the taxation which deprived them of the advantages they had enjoyed in the discretional use of transfer prices of basic commodities. The prices in the bauxite industry at the beginning of the 1980s accentuated the need for a new renegotiation (see section 7 below).

4. Public sector participation in the industry

a) The agreements reached with the TNCs in 1976-1978 and their objectives

After imposing the new Bauxite Levy in 1974, the Jamaican Government signed agreements with the four companies in the following order: with ALCOA on 6 October 1976, with Kaiser on 2 February 1977, with Reynolds on 31 March 1977 and with ALCAN on 25 September 1978. No agreement has yet been signed with ALPART. In the arduous negotiations leading up to the signing of the agreements, the two parties tried to reconcile their main respective demands, i.e.:

/On the

On the part of the Government

- the mining lands acquired by the TNCs should return to national ownership and the use of "reserve lands" for agricultural activities should be facilitated;

- the State should acquire the majority of the assets of all mining activities;

- the Government should also have the option to participate in bauxite processing;

- there should be guarantees of payment of the production levy and of the royalties laid down by Government legislation;

On the part of the TNCs

- the companies should be guaranteed control over all mining, refining and marketing operations;

- guarantees should be given as regards future cost stability and access to bauxite resources;

- the cost resulting from the bauxite production levy should be reduced.

b) The nationalization of mining lands and the new concessions

The agreements provided that the TNCs should sell the mining lands in their possession to the Government at written down book value (cost of acquisition in the case of ALCOA). The Government would pay for the lands so acquired over a ten-year period, with payment of interest at an annual rate of 7% on the balance, and in return it would guarantee the respective companies sufficient reserves to carry on their operations at levels corresponding to the installed capacity of their refineries in the United States (Kaiser and Reynolds) or in Jamaica (ALCOA and ALCAN) for a period of forty years. The companies would then be given a mining lease over the reserve areas so allocated to them (see lines 2 and 3 of table 8).

In the case of Reynolds and Kaiser, the TNCs would pay the Government a Dedication Fee of 7% per annum of the purchase price of the lands within the mining lease area accorded to them. In addition, the TNCs would also be required to pay royalties based on the extraction of ore within the reserve areas, and for these purposes the rate of royalty was fixed at 0.50 Jamaican dollars per long dry ton of bauxite mined.

/Table 8

The "agreed nationalization" of the mining lands belonging to the TNCs facilitated the acquisition by the Government, on relatively advantageous conditions of payment, of land which was only used to quite a small extent for mining operations and industrial installations and mostly represented "reserve lands" for possible future operations. Thus, substantial areas were made available which could have been used for agricultural production (indeed, some transnational corporations such as ALCOA also owned agricultural enterprises, as will be seen in section 5 below). The importance of the nationalization of mining lands can be seen from the fact that they were finally estimated to total 800 square kilometres, which corresponds to more than 7% of the total territory of the island. Naturally, the putting into practice of these clauses in the contracts would call for the strengthening of the State's capacity to obtain information and exert control over these mining and agricultural resources in the possession of the companies. As will be seen below (section 5. a)), these tasks were entrusted to the new Jamaica Bauxite Institute (JBI).

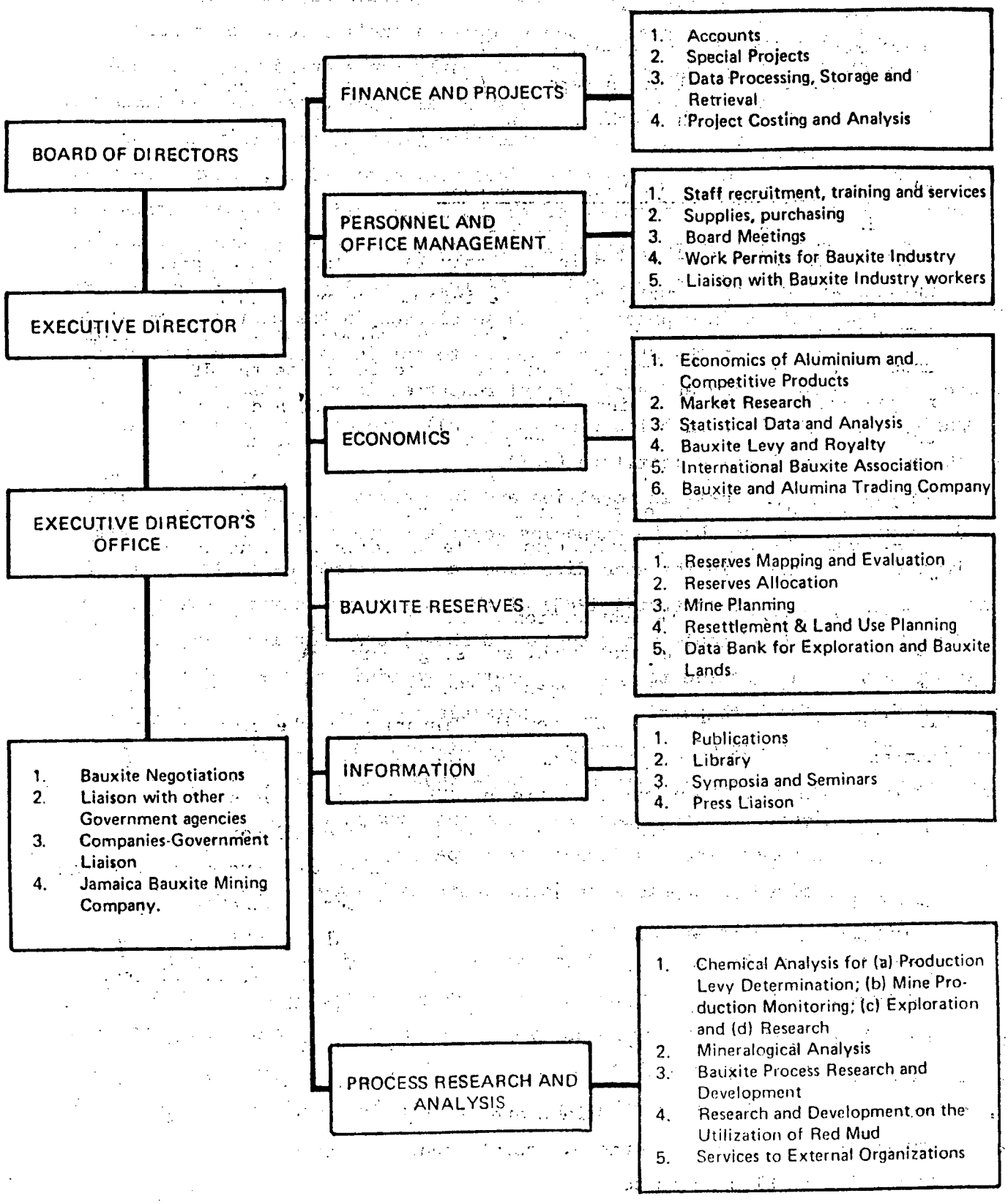
Finally, the increase in royalties and in charges for the rental of land used for mining purposes by the companies meant additional income for the State. An item which operated in the same direction was the guarantee to the State of the payment for eight years (until 1983) of the bauxite production levy at a rate of 7.5% (see line 4 of table 9 and section 3 above).34/ For its part, the discount explicitly granted to Kaiser, relating to minimum levels of production, pointed the way for both parties to the possible terms of future renegotiations on this critical aspect of Government-TNC relations. At all events, on the conclusion of the agreements with the TNCs in 1978, the Jamaican Government could have had sufficient funds to undertake the establishment of the public sector in the bauxite industry and its direct participation in the development of the latter, through mixed enterprises or joint ventures between the public enterprise and the transnational corporations.

The agreement also guaranteed the settlement of disputes preferably in the Courts of Jamaica or by special arbitration procedures applied through a tribunal of three persons: one to be nominated by each of the two partners and a neutral Chairman to be agreed upon by both parties. In the event of failure to agree on a Chairman of the Arbitration Tribunal, such a Chairman would be appointed by the

/Table 9

Table 9

JAMAICA BAUXITE INSTITUTE – ORGANIZATION CHART



/President of

President of the Law Society of England. The "international jurisdiction" rejected by the Government in the litigation regarding taxation (see section 3. b) above) was thus tacitly excluded.

c) Joint ventures between the public sector and the TNCs

The entry of the State into the production of bauxite and alumina and the partial marketing of the latter was carried out through joint ventures between the newly established public enterprise Jamaica Bauxite Mining Ltd. (JBM) and the four transnational corporations. Basically, two types of agreements can be distinguished: those negotiated with the Kaiser and Reynolds companies, which are limited to the exploitation of bauxite, and those negotiated with ALCOA and ALCAN, whose operations also include the refining of bauxite into alumina. In the former, 51% participation by the Jamaican Government in the assets of the joint mining enterprises is stipulated, while in the agreements with ALCOA and ALCAN the value of 51% of the mining assets of each of the companies is converted into the corresponding Government participation in the global capital of the companies, including their alumina refineries (see line 5.(a) of table 8). As a result, the following joint ventures arose: Kaiser Jamaica Bauxite Company (51% participation), Jamaica Reynolds Bauxite Partners (51%), Jamalco (6%) and Jamalcan (7%).

In order to become a partner of the transnational corporations with the above shares, the Jamaican Government undertook to buy the respective proportions of the total book value of the capital of the four subsidiaries. As laid down in the agreements, this operation represented a sum of some 30 million US dollars, payable in ten annual installments at an interest rate of 8.5% (see line 5.(a) of table 8).

Once the mixed company had been set up between the public enterprise JBM and the Jamaican subsidiary of Kaiser, the first-named company would acquire the right to receive for 15 years annual income corresponding to 14.68% on the paid-up capital and 10% of that capital after that period (see line 5. (b) of table 8). In the case of the mixed enterprise with Reynolds, the respective income was fixed at a single rate of 12% per year. As regards the joint venture agreements with ALCOA and ALCAN, the Jamaican Government acquired the right to receive each year an amount of alumina proportional to its share in the registered capital --33 000 tons in the case of ALCOA and approximately 77 000 tons under the agreement with ALCAN-- with unrestricted sales rights over this material.

/On the

On the other hand, the clauses of these agreements regarding the administration and possible expansion of the mixed companies reflect (as in the case of the Chileanization analysed in section B. 2 above) a clear divorce between the ownership and the effective control of the joint enterprises (see lines 5. (c) and 5. (d) of table 9). Although the agreements stipulate that, in the associations with Kaiser and Reynolds, four of the eight posts of directors of the mixed enterprise shall belong to JBM, and in the cases of ALCOA and ALCAN, two out of a total of seven, the respective agreements on management and technical services with the four companies give the transnational corporations practically as much control over production, technical, commercial and financial operations as they had before the mixed enterprises were set up. Furthermore, as regards the possible expansion of the latter, on the one hand the agreements with Kaiser and Reynolds guarantee the Government the right to promote such expansion, but they make it subject to financing by the Government with its own funds and the making of proportional payments of the TNCs for the use of their assets. Similarly, in the contracts with ALCOA and ALCAN, the possibility is envisaged for both partners of expanding the production of alumina (from 550 000 to 1 650 000 tons per year) but subject to the exclusive right of the TNCs to carry out the construction work and introduce their own technology.

At all events, even though the effective control of the joint enterprises may have remained in the hands of the transnational corporations, the position of the public sector and the Government is clearly different from that which existed in the first half of the 1970s in at least one sense: now, Jamaican technicians and managers are operating (even though subject to the limitations referred to above) inside the bauxite industry, thus providing possibilities of information-gathering, learning and experience which are clearly superior to those deriving from the Government's past efforts (important though they may have been) to carry out academic studies or exercise supervision.35/

However, the experience as regards joint ventures in the Jamaican bauxite industry cannot be properly appraised until they have been operating longer. The formal implementation of the joint ventures was undertaken only in late 1979 (Jamalcan and Jamalco) and in February 1980 (Kaiser Jamaica Bauxite Company

/and Jamaica

and Jamaica Reynolds Bauxite Partners). The public enterprise JBM (Jamaica Bauxite Mining) disposed at the end of 1980 of some 48 million Jamican dollars in investment funds (at cost) in joint ventures with TNCs and reached, in the same year, 72 million Jamaican dollars in total sales of alumina purchased under the agreements with ALCOA and ALCAN (we will return to the question of public sector marketing in section 6. b) below).

5. International Bauxite Association 36/

In the preparation, performance and monitoring of the above-analysed governmental policies a very important role pertained to the Jamaica Bauxite Institute (JBI), which is representative of the learning process referred to in the previous section. The origins of the Institute go back to 1972, when the Government set up a National Bauxite Commission of private and public sector specialists in a variety of fields --tax, law, business, finance, mining operations, international relations, etc. The Commission's task was to advise the Government on how best to increase the benefits of the industry to the country. It was quickly apparent that the data base for arriving at sound recommendations was inadequate. If the Government were to bargain with the aluminium companies with anything approaching comparable capacity it needed information of a kind and quantity it was never previously concerned with. And it needed that sort of information continuously.

The new policies started in 1974 needed to set up a permanent organization to take over and expand the groundwork laid by the National Bauxite Commission. It was felt that this organization needed far more flexibility than would be possible in the traditional civil service bureaucracy. Thus it was that the Jamaica Bauxite Institute began operation in early 1976 and was registered as a limited liability company in August of that year.

The work of the Institute is supervised by a Board appointed by the Government, while its day-to-day operations are run by an Executive Director, to whom six divisional heads report (see organizational chart in table 9). Some of the highlights and achievements of the JBI are indicated below.

/a) Mapping

a) Mapping and managing bauxite reserves and mining lands

In the past the TNCs were the only ones who knew how much bauxite there was in Jamaica and then only in the lands each controlled. When negotiations between the Government and the TNCs began in 1974, the information provided by the companies suggested total bauxite reserves of between 600 and 800 thousand tons. With control of some 200 000 acres of company lands passing to the State the JBI, by means of geological survey, mapping and laboratory analysis, had been able to establish Jamaica's measured reserves at 2 000 million tons.

Administration of the reserves by JBI involved complying with three essential objectives: i) the rational allocation of lands for mining; ii) the moving of human settlements and roads from ore-bearing land, and iii) the optimal use of land before, during and after mining activities.

Even before the agreed nationalization of mining lands the laws had required that agricultural use be made of "non-operational" lands. Most of the companies had carried on successful agricultural activities and ALCAN had a scheme for small farmers. The mining regulations had also obliged the companies to stack the top soil before mining began and use it to reclaim the mined-out pits afterwards. But land use in general and resettlement approaches in particular had varied according to the different companies and suffered in general from serious shortcomings.

Competitive private acquisition of reserves had often resulted in bauxite holdings being scattered, with single orebodies divided by property fences. To the disparity in the size of the various companies was added the fact that the latter could take advantage of their servitude rights as landowners in order to immobilize land use for periods of fourteen to a hundred years. Another serious problem was that the richest reserves were used up first and the less attractive were left aside. Furthermore, some reserves were tied up in small peasant holdings, hamlets and roads, one result of which was that valuable ore was frequently left behind after a mining area was closed.

With the Government adding the surface rights of property owners to its sovereignty over the minerals, it is now possible to allocate mineral reserves within each company's natural "area of influence" without regard to previous property boundaries. Mining plans are drawn up between the JBI and the companies five years in advance, resettlement of displaced small-holders can be tackled en bloc so as to preserve communities, and reserve lands can be put to suitable agricultural use before and after mining.

/The national

The national uniform management of reserve lands has economic advantages for both the companies and the Government. The human problems of resettling small-holders have not disappeared by any means, but many longstanding and acrimonious disputes have been resolved by means which are as mindful of social as of economic imperatives.

b) Process research

While the Jamaican workforce in the bauxite industry constituted something of a labour aristocracy inside the country, the levels of skills were still very low, and engineering research and management were largely the domain of expatriate staff. The result was that the Government had no independent source of information and advice when questions of technology were being negotiated with the TNCs. This lack the JBI laboratories set out to remove.

The immediate objective was to verify the amount of ore used in refining and the alumina recovery therefrom, since this was one of the bases for calculating the levy on bauxite production. Wet chemistry methods of analysis were soon complemented by differential thermal analysis, x-ray diffractometry and other instrumental methods. In addition to routine verification for the levy, the laboratory has carried out the essential sample analyses for a proper evaluation of reserves and is well into profounder work connected to the general processing characteristics of Jamaican bauxites and the handling of red mud effluent.

c) Economic research

One example of the work done in this area is the yearly forecast of aluminium ingot prices. The accuracy of the forecast has a direct bearing on Government revenue from the bauxite production levy. The levy is paid quarterly in advance, while the average price realized by the companies for aluminium ingot over a given year cannot be known for certain until the year is complete. At the end of the year, adjustments for underpayment or overpayment are made.

In general terms, JBI is elaborating economic and financial analysis and projections of the industry and TNCs behaviour, preparing negotiations with TNCs and governmental organizations of other producer and consumer countries, as well, etc.

d) Information

This is essential for the success of JBI's work and for Government supervision. The disposition and quality of the island's ore reserves, Jamaica's position in relation to other bauxite producers, the state of the industry --markets, technology and costs-- was previously a secret to Jamaicans, even at the highest level, but today it is not only known to the Government, so that the latter can negotiate with the TNCs on a well-informed basis, but is also entering general public awareness.

/This latter

This latter achievement was made possible by a strong programme of public education, organized through mass media, workers unions, schools, etc. Finally, JBI is in a position to offer consultant services to clients other than the Jamaican Government and, in fact has already earned fees from an overseas contract in bauxite reserves evaluation.

6. Regional co-operation and direct marketing policies

In order to reduce its dependence on the TNCs, the Jamaican Government has tried to set up joint ventures with other countries of the region --both producers and consumers of bauxite-- and to undertake the direct marketing of alumina through its own public enterprise.

a) Projects for regional joint ventures

The project for a joint venture between Trinidad and Tobago, Guyana and Jamaica, negotiated in 1974 between the governments of the three countries, was to be carried out in two stages: the first was the construction of a smelter with an annual capacity of 200 000 tons in Trinidad, using that country's reserves of natural gas, and the second was the construction of a smelter of similar capacity in Guyana, to use that country's hydroelectric power potential. The alumina was to be supplied by Jamaica and Guyana. The participants were to own equal shares in the Trinidad plant, which was to be built by the Kaiser Aluminum TNC, applying its own technology. In the case of the Guyana smelter the ownership was to be as follows: Guyana 52%, Trinidad 24% and Jamaica 24%.

This initiative which originated in the 1974 climate of the new bauxite production levy and the setting up of the International Bauxite Association, did not materialize in the seventies. After Jamaica announced in 1975 the proposal to construct the Jamaica-Mexico-Venezuela alumina-aluminium complex, the Government of Trinidad and Tobago expressed its displeasure and finally, in 1977, took the decision to undertake the project on its own, leaving open an option for Guyana and Jamaica to participate by supplying alumina.

In 1975, the Government of Jamaica and Mexico entered into negotiations on a joint project, whereby Jamaica would provide alumina for an aluminium smelter in Mexico with a capacity of some 160 000 tons of aluminium. The preliminary agreement provided for the establishment of two joint venture companies, one to produce alumina in Jamaica (Javemex) and the other to produce aluminium in Mexico (Jalumex). Jamaica had to participate with 29% in the ownership of the Mexican smelter Jalumex and Mexico with 51% with resting 20% reserved for other partners, including the Canadian TNC ALCAN, to construct the smelter. On the other hand, Mexico agreed to take a 29%

/interest in

interest in the Jamaican Alumina Refinery project (Javemex) being Jamaica's share 51%, Venezuela's 10%; and reserving for other parties the resting 10%. The last ones might have been a TNC or a third contractual purchaser of alumina, such as Algeria.

The Javemex alumina refinery in Jamaica was to be located at South Manchester and was expected to come into operation in the late 1970s. Construction was to have been contracted to one of the alumina TNCs operating in Jamaica, probably Kaiser.

In 1978, the Government of Mexico withdrew from the project for a joint venture with Jamaica because of the problems experienced by both countries in financing their shares in the proposed enterprise, and also in view of a negative report by ALCAN concerning the high costs of the smelter which was to have been built in that country.

Thus, the project for joint operations by Jamaica with the alumina-consuming countries of the region came to nothing, as also did the previous project with other Caribbean producer countries. In view of this negative outcome, the Jamaican Government directed its efforts towards the conclusion of long-term trade agreements with the public or mixed enterprises of Venezuela, Algeria, Hungary, the Soviet Union and Norway, in order to make use of the installed capacity for alumina production and, if possible, secure its expansion.

b) Trade agreements on direct sales

Negotiations between Jamaica and Venezuela were initiated in 1975, and at that time included the above-mentioned participation in the Javemex alumina refinery project. In August of 1977, a seven-year agreement was signed whereby Jamaica undertook to supply Venezuela with a total of one million tons of alumina, with annual delivery of 150 000 tons for the first six years and a final 100 000 tons in 1984. This sales agreement was renegotiated in 1979, to make its terms comparable with prices offered by Venezuela's international alumina suppliers --Metallgesellschaft, Billiton and Phillips Brothers-- acting as purchasing agents for the Venezuelan State company. In addition to this competitive pressure by the international marketing enterprises there was the unco-operative attitude of ALCAN regarding the "back-to-back" resale agreement with Venezuela, even though that TNC had ample production capacity to cover this.

After the failure of the projects for expanding alumina production through joint ventures with other countries of the region, the Jamaican Government has been exploring the possibilities of large-scale co-operation with and sales to the non-traditional markets of the Soviet Union, Hungary and Algeria. In 1979,

/a long-term

a long-term agreement was signed with the Soviet Union for the sale of 250 000 tons of alumina per year, and prior agreements with Hungary and Algeria for the sale of 150 000 tons per year to each of these countries were reconfirmed. In order to make these annual sales of 550 000 tons of alumina to non-traditional markets it was necessary to guarantee the construction of the new alumina refinery at South Manchester. With this objective, the Jamaican Government negotiated with the Government of Hungary regarding the possibility of using technology, machinery and equipment supplied by the Hungarian State enterprise ALUTERV, with a credit of 250 million dollars to be paid for through supplies of alumina to that country. This project, however, did not materialize because of the lack of additional financing (for a further 250 million dollars) and problems of prices and freight costs in respect of sales of alumina to the Soviet Union.

In addition to the trade agreements connected with the project for the new refinery, the Soviet Union and Hungary undertook to import 150 000 and 50 000 tons of alumina per year, respectively, for five years as from 1980. As in the case of the agreement with Venezuela, these exports were to have been made through resale agreements and the participation of the public enterprise Jamaica Bauxite Mining in the joint ventures with ALCOA and ALCAN (with the right to dispose freely of 100 000 tons of alumina per year; see section 4. c) above). In 1980, the Jamaican public sector made direct sales of 235 000 tons of alumina to the Soviet Union and Venezuela: i.e., 10% of the country's total exports in this line.

7. The situation at the beginning of the 1980s

In the early 1980s, the main goals of the Jamaican Government as regards the development of the bauxite industry have been accomplished only partially. The principal achievements have been: substantial increase of the Government's foreign exchange revenues from the Bauxite Levy and hence of the returned value to the economy; a greater degree of national sovereignty over the industry through the recovery of mining lands and the establishment of a public sector to strengthen the Government's administrative and negotiating capacity, and, finally, the joint ventures with the TNCs, whose functioning has made possible limited direct marketing of alumina and greater knowledge of the technical and economic problems

/of the

of the industry. On the other hand, the progressive delinking by the TNCs from the Jamaican industry in favour of diversification to areas of supply having resources of lower relative cost led to the reduction of bauxite and alumina production and also the reduction in their contribution to the country's economy.*/ The Government's bargaining power was also weakened by the failure of the alternative projects for joint investments with other countries of the region and, particularly, the negative effects of the world economic crisis. This set of adverse factors led to the flexibilization of the rate of the levy on the production of Jamaican bauxite, with the clear aim of increasing the latter's international competitiveness.

a) The increase in the returned value and the income of the TNCs

Thanks to the imposition of the bauxite production levy, the Government's revenues derived from the bauxite industry increased sevenfold between 1973 and 1974 and its share in the value of bauxite and alumina exports rose from 11% to 35% (see table 10). At the end of the 1970s, there was a decline in the Government's participation to 27%, obviously reflecting the effects of the beginning of the renegotiation and the resulting reduction of levy rates in 1979 (see section c) below). Taking into account other local payments by the TNCs (i.e., wages and salaries, local supplies, materials and services), it can be estimated that the share of total returned value in the bauxite and alumina export revenues amounted in 1980 to a total of about 63%, compared with 50% in 1973. At the same time, the importance of the industry for the current income of the Government almost trebled (from 8.7% in 1973 to 25.1% in 1980) (see table 11). Since during the 1970s there was also an increase in the dependence of the GDP and exports on mining activities (in view of the slack performance by the rest of the country's economy 40/), its structural rigidity became even more acute and the income from the bauxite industry became even more decisive for economic and social development.

On the other hand, the increase in the value returned by the bauxite industry to the Jamaican economy did not mean a reduction of the income received by the TNCs operating in the country. As may be seen from table 12, this income rose between the years 1974 and 1980 at approximately twice the rate of the taxation of the industry by the Government.

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*/ Another factor in this decrease was the lack of support and unity of the member countries of the International Bauxite Association (IBA) which prevented them from being regarded as a "cartel" (see notes 37-39).

/Table 10

Table 10

JAMAICA: ESTIMATION OF PRINCIPAL COMPONENTS OF THE RETURNED VALUE OF THE BAUXITE AND ALUMINA INDUSTRY a/

(Millions of Jamaican dollars)

	1973	1974	1977	1980	
					1973 = 100
1. Exports of bauxite and alumina	227.3	481.4	489.2	1 340.3	589.7
2. Returned value components					
a) Production levy	-	161.5	163.4	360.6	223.3 b/
b) Corporate tax c/	20.7	-	-	-	-
c) Royalty	3.4	7.0	5.4	5.8	170.6
Subtotal	24.1	167.5	168.8	366.4	1 520.3
d) Wages and salaries	48.9	49.1	65.7	108.2	221.3
e) Supplies, materials and services	41.8	46.0	116.3	319.0 d/	763.1
Subtotal	90.7	95.1	182.0	472.2	520.6
Total returned value	114.8	262.6	350.8	838.6	730.5
In % of bauxite and alumina exports	50.5	54.5	71.7	62.6	

Source: JBI; ECLAC, Economic Survey of Latin America, 1980 quoted above.

a/ Excluded financial flows.
b/ 1974 = 100.
c/ Since 1974 included in the production levy.
d/ Calculated with the same exports share as in 1977.

/Table 11

Table 11

JAMAICA: CONTRIBUTION OF THE BAUXITE AND ALUMINA INDUSTRY TO THE ECONOMY (1970-1980)

Year	Percentage share in total:		
	Gross domestic product a/	Exports of goods	Current fiscal revenues
1970	6.9	65.6	8.7 b/
1978	7.5	74.1	25.8
1980	8.5	75.9	25.1

Source: ECLAC, Economic Survey of Latin America, 1980 (E/CEPAL/G.1191), May 1982.

a/ Share of total mining sector in which bauxite and alumina industry participates with some 90%.

b/ 1973.

/Table 12

Table 12

ALCOA, ALCAN, KAISER AND REYNOLDS: TOTAL INCOME AND JAMAICAN TAX PAYMENTS (1974-1980)

(Millions of U.S. dollars)

	1974	1977	1980	
			Dollars	1974 = 100
1. Total income of the 4 TNCs	8 999	11 117	17 559	195
Net income	582	598	1 440	247
2. Jamaican tax and royalty payments	185	186	206	111
As a percentage of:				
Total income of 4 TNCs	2	2	1	...
Net income of 4 TNCs	32	31	14	...
3. Index of average effective price				
Aluminium ingots	100	144	218	...
Jamaican bauxite	100	187	295	...

Source: The IBJ Journal, Volume I, No. 2, July 1981, and other official data.

/A tentative

A tentative comparison between the increase in the income of the TNCs and of the Government of the host country of the direct foreign investment gives grounds for assuming that the transnational corporations transferred the extra costs resulting from the new taxation to the price of aluminium and associated products. Thus, what happened was not that there was a redistribution of benefits between the transnational corporations and the Government of the producer country, but simply that the final consumers were obliged to pay more for aluminium products (see table 12). The necessary condition for this type of redistribution of income of the Jamaican bauxite industry to take place, however, consisted of maintaining the industry's competitiveness vis-à-vis other alternative sources of bauxite and alumina, but this has not occurred, as will be seen in the following section.

b) The delinking of the TNCs from Jamaica

The decision to apply a levy on bauxite production which was adopted by Jamaica in 1974 was not followed by two of the main producer countries (Australia and Guinea), thus contributing to the weakening of the competitive position of the Jamaican bauxite and alumina industry and the diversification of sources of supply by the TNCs in favour of the two countries in question. As a result, Jamaican bauxite production went down from 15.2 to 11.6 million tons between 1974 and 1979, so that its share in the total output of the member countries of the International Bauxite Association (IBA) sank from 29% to 18% (see table 13). At the same time, production in Guinea and Australia increased considerably, in some cases as a result of the changeover from the use of Jamaican bauxite by the transnational corporations. The rates of operation of the bauxite industry in Jamaica fell to levels significantly below the installed capacity,41/ and in 1980 the exports of bauxite and alumina by the transnational corporations went down by 24% and 15% respectively, compared with the 1974 levels (according to data of the Jamaica Bauxite Institute). Obviously, in spite of its participation in joint ventures with the four transnational corporations, the Jamaican Government was not in a position to reverse this negative trend, because it did not exert effective control over their operations.

/Table 13

Table 13

PRODUCTION OF BAUXITE BY JAMAICA AND BY THE INTERNATIONAL BAUXITE ASSOCIATION (IBA) (1974-1979)

(Thousand metric tons)

IBA member countries	1974	1977	1979	Percentage share 1974	Percentage share 1979
Australia	20 065	26 674	27 583	35.4	41.8
Dominican Republic	1 477	722	521	2.6	0.8
Ghana	421	235	251	0.7	0.4
Guinea	5 010	10 871	12 199	8.8	18.5
Guyana	3 168	3 344	3 354	5.6	5.1
Haiti	641	588	560	1.1	0.8
Indonesia	1 290	1 301	1 093	2.3	1.7
Jamaica	15 166	11 433	11 574	26.8	17.6
Sierra Leone	672	745	680	1.2	1.0
Suriname	6 385	4 951	5 073	11.3	7.7
Yugoslavia	2 370	2 044	3 012	4.2	4.6
Total IBA	56 665	62 308	65 900	100.0	100.0

Source: IBA member countries; World Metal Statistics; Metallgesellschaft.

/Unfortunately, the

Unfortunately, the unilateral "delinking" of aluminium TNCs from Jamaica has not been outweighed, at least until the early eighties, by the originally projected joint ventures and co-operation with the governments of other developing nor socialist countries. In spite of prospective feasibility studies and many negotiations with the governments of Trinidad and Tobago, Guyana, Mexico, Venezuela and Hungary, the intended co-operation in alumina refining and aluminium smelting did not materialize and each of the individual countries, originally interested in "collective self-determination" development, followed its own way.

c) Factors of negotiating capacity

After reviewing these negative outcomes of some of the Jamaican initiatives of the middle of the 1970s, the question arises about the negotiating capacity factors which, at that time had not been taken in account, or underestimated, and resulted later in the known undesired outcomes. It is, of course, difficult to pinpoint all of them because of the short time-span dividing one from the analysed events and the proper limitation of the present study in the economic aspects of this case. Nevertheless, the previous evaluation and the ongoing discussion in Jamaica 42/ allow some preliminary and tentative conclusions.

First of all, the imposition of the bauxite production levy, the nationalization of the mining lands belonging to the TNCs and the governmental participation in the mining assets stemmed from the sovereign right of the Government to dispose of the country's natural resources in a way deemed most appropriate for the nation's welfare. In this sense the governmental measures were not negotiable with the TNCs and from the latter's point of view they constituted the "ability to create uncertainty, to unsettle an industry in which planning and predictability are the critical advantages derived from large-scale and integrated operations".43/ The base for the strong negotiating power of the Government, at that time, was the large aluminium TNCs investment tied up in Jamaica and their relatively high degree of dependence on her bauxite and alumina resources. Aware of this, the TNCs did not move out from Jamaica and limited themselves to minimize the costs of the Government's policies bargaining for the decrease of the levy rate, maximum compensation for the lands and assets purchased by the Government and exclusive managerial control of the new joint venture enterprises.

/The weakened

The weakened bargining capacity of the Government in the late seventies, reflected in the diminished share of Jamaica in the TNCs bauxite and alumina sourcing and practically no new investment since 1974, was obviously related with several events, some of them unpredictable and of a conjunctural nature (world economic recession, industrial unrest and production and technology problems in Jamaica, etc.). Nevertheless, the main factor influencing the TNCs strategies and behaviour seemed to be the decrease of the competitiveness of the Jamaican bauxite and alumina industry in terms of, both, the perceived political risk and production (energy) costs.

i) The perception of political risk by TNCs. The perception of the political risk incurred by aluminium TNCs in the Third World producer countries may be usefully illustrated by some opinions of an outstanding United States industrial consultant and advocate of TNCs strategies: "The need is for a more effective response by multinational corporations and their home governments to the Third World rhetoric ... By enacting the bauxite levy of 1974, Jamaica broke all of the tax and price agreements that had been so laboriously and profitably achieved during my 18 years of service to that Government. Jamaica also broke its obligations to the World Bank's International Centre for the Settlement of Investment Disputes. There was no case whatever against the behaviour of the bauxite companies... Finally, it is in the interest of these countries and the IBA that pricing and tax policies on bauxite, alumina and electric power are not aimed at the rapid maximizing of government revenues in the short term but rather at long term levels that cannot be rigidly formulated in advance but must gradually evolve as countries compete for new investments from the aluminium industry... The IBA recommendations are impractical and discriminatory in proposing up to 50% higher prices on bauxite for countries outside of North America. They conflict with actual market conditions in various countries, and in fact are not followed by important IBA members such as Guinea, Indonesia and Australia."44/

The above quoted judgements offer a clear justification of the aluminium TNCs preference to concentrate their subsidiaries expansion and new investment projects in countries with relatively less political risk and stable development in detriment of "turbulent" ones of the Caribbean.45/

/ii) Economic

ii) Economic competitiveness. The loss of Jamaican competitiveness in terms of production costs of bauxite and, especially alumina, was not due only to the Government's tax measures, but also to the substantial rise in energy costs. As Jamaica depends almost entirely on imported petroleum, the substantial and steady increase of fuel prices signified a heavy blow for the country's balance of payments and, especially, for the production costs of the bauxite-alumina industry. As may be seen in table 14, the share of mineral fuels in the total import bill of Jamaica increased from 6% in 1970 to 39% in 1980. In this last year, the bauxite and alumina industry consumed more than a half of the total fuel consumption of the country. Finally, the worsening of the terms of trade of the bauxite and alumina industry may be illustrated by the fact that in 1970 the unit bauxite price was 35% higher than a comparative oil price; ten years later, in 1980, this relation was completely reversed: the bauxite unit price corresponded to only 31% of the oil price (see again table 14, indicator 3). As a result the share of energy in total alumina production costs jumped to some 35-40%.46/ It is obvious, that bauxite producer countries with resources of cheap energy, like Australia and Brazil, have a decisive comparative advantage in comparison with Jamaica.47/

iii) Lack of finance resources. The decreased competitiveness of the Jamaican bauxite and alumina industry influenced undoubtedly also the outcome of the joint venture projects with other Latin American countries. On the other hand, their failure, at least temporary, seemed to have other reasons, too. The main one was obviously the lack of indigenous resources in the face of considerable requirements of technology and high investment costs, lack of capacity to analyse and implement projects, etc. This was aggravated by the negative effects of the world economic recession on the developing countries.

In the case of Jamaica, the Development Fund, originally created with the objective to use the considerable yields of the production levy for financing the local expansion of the bauxite and alumina industry, had to be used for the solution of heavy balance-of-payments deficits. Finally, there had been some indications that the TNCs, present in the countries participating in the project preparation, had some negative influence, too, submitting to the governments "pessimistic" reports on the projects viability. Obviously, the concurrence and broader participation of international finance institutions, such as the

/Table 14

Table 14

JAMAICA: FUEL CONSUMPTION IN THE BAUXITE AND ALUMINA SECTOR (1979-1980)

	1970	1978	1979	1980
1. Minerals fuel imports, total				
a) Millions Jamaican dollars	...	197	335	470
b) % of total imports of goods	6.4	22.8	33.4	39.3
2. Fuel consumption by bauxite and alumina sector				
a) Millions barrels	...	7.7	7.9	7.9
b) % of total fuel consumption	...	47.0	48.0	50.7
3. Bauxite price in % of oil price	134.7	45.0	37.1	30.6

Source: ECLAC, Economic Survey of Latin America, 1980 and JBI.

/World Bank

World Bank and Inter-American Development Bank, could in the future help to resolve these problems sponsoring also a climate of mutual confidence for the necessary participation of aluminium TNCs in the implementation of joint mining and metallurgy projects undertaken jointly by developing countries.

d) Renegotiation of the production levy

The world economic crisis in the first half of the 1980s and the fall in demand for aluminium and in world prices made the problems of the bauxite industry in Jamaica even more acute. The TNCs reduced their production in the country and even went to the extreme of considering closing down their least profitable operations. This was so in the case of Reynolds, which announced that it was closing down its mining operations in Jamaica by April 1984 and replacing them with cheaper raw material from Australia and Guinea.48/ However, it kept up its joint operations (with Arco Metals and Kaiser) at the Alpart alumina refinery.49/ This situation has obliged the Jamaican Government to renegotiate the terms of the bauxite production levy with the TNCs. The arduous renegotiations on the application of more flexible taxation rules began in 1979 and culminated in new agreements in April 1984.50/

The Government's objectives in renegotiating the levy were to halt the erosion of the market which the industry had been suffering from 1974 onwards, to increase the utilization of the existing capacity, to attract the investment needed to achieve medium- and long-term expansion and, finally, to keep the tax income of the Government up to a satisfactory level. Consequently, the new levy, with the rate reduced from 7.5% to 6% on average, differs from the original in that it is linked not only to the effective price of aluminium on the United States market but also to levels of production.

The way the new levy operates is as follows: its average cost per ton goes down only slightly from 16-17 dollars to 15-16 dollars. On the other hand, the incentives given to greater utilization of production capacity and a greater returned value in foreign exchange can reduce this average cost to 12-13 dollars. The "package" of the agreements includes additional advantages for the Government also: the conversion of the "long" measurement ton to the "metric ton" means an increase in income of 1.6%, while a similar effect is produced by the change in the payment of royalties from the previous 0.50 Jamaican dollars (equivalent to 0.13 US dollars) per long ton to 0.50 US dollars per metric ton.

/These measures

These measures should increase Jamaica's share in the United States market, which went down from approximately 60% in 1973 to 25% in 1983. The recent initiatives as regards the direct marketing of bauxite and alumina are aimed in the same direction and seek to balance the country's direct sales with purchases of foodstuffs and other essential goods.51/ In order to save foreign exchange, an agreement was reached with Yugoslavia to exchange 450 000 metric tons of alumina with a value of 75 million dollars for 1 500 units of low-cost housing. A similar agreement is being explored with that country in respect of motor vehicles and with Colombia as regards the purchase of coal. Finally, an agreement has been reached with the United States Government to exchange 400 000 metric tons of bauxite for milk products, and agreements for additional purchases of bauxite for that country's strategic reserves are being negotiated.

e) Final note

Obviously, it is necessary to wait until more time has passed in order to appraise the effects of the new more flexible and pragmatic policy of the Jamaican Government. Taking account of similar experiences by other countries in the region, however, the hypothesis may be put forward (it is further developed in part II of this study) that the momentary political will and bargaining power of the government in office is not sufficient to ensure greater benefits in the medium and longer term also unless the possible negative alternative effects on the behaviour of the external factors affecting negotiating capacity are taken into effect (such as the powerful capacity of the TNCs to change their strategies and the diversity of conditions and interests which exists among the peripheral countries vis-à-vis the choice between "horizontal" co-operation and continued dependence on the great capitalist centres 52/). On the other hand, the institution of the new system of taxation on bauxite production would in itself obviously be a positive factor as regards increasing government income even in the long term, provided it is adapted when appropriate to the changing conditions of the industry.

/D. MINING

D. MINING AND METALLURGICAL INTEGRATION IN THE BOLIVIAN PUBLIC SECTOR

1. Nationalization and the establishment of the public sector

Examination of the boom period of the large-scale tin mining industry in Bolivia during the first half of the century and its nationalization in the early 1950s reveals some important differences from what happened in the case of the Chilean copper industry.

The first special feature of the Bolivian case is that the large-scale mining industry did not owe its origin to the transnational corporations but to a Bolivian entrepreneur, Simón I. Patiño, who begun his spectacular career around 1910 and by his own efforts, after exploiting a tin deposit at Oruro, subsequently "Bolivianized" most of the mines belonging to Chilean and British capitalists to set up in 1924 the first mining transnational corporation which originated in Latin America. This was subsequently integrated and diversified to cover the mining, smelting, refining, marketing and transport of tin in almost all the world centres of production and consumption of this mineral, thus losing its original Bolivian character.53/

Another important feature of the Bolivian case is connected with the time at which the large-scale tin mining industry was nationalized, for in fact this was carried out by the Revolutionary Nationalist Movement Government in 1952, i.e., two decades before the nationalization of the Chilean mining industry and long before the joint action taken by the Third World at the international and national levels to secure a New International Economic Order.54/ The decisive domestic political consensus achieved by the majority political force of the time in favour of this nationalization was based, as it was 20 years later in Chile, on the importance of the main natural resource for the well-being of the country and the common political determination to free it from the domination of the "tin barons" (in addition to Patiño, there were Hochschild and Aramayo) and from the monopoly power of the United States market.55/

The historical moment at which the Bolivian nationalization of the tin industry took place --like that which took place in Indonesia, likewise at the beginning of the 1950s-- seems to point to the decisive importance of domestic factors in political actions of this nature, as well as indicating that they do not necessarily require a socialist government for their execution. This latter

/consideration seems

consideration seems to be confirmed not only by the universality of the phenomenon of nationalization of natural resources in the peripheral countries, but also by the persistence of such actions in subsequent political situations, some of them even opposed to the guiding role of the State in national development. The Bolivian case is clearly outstanding because of the number and variety of the political changes which have taken place in the last 30 years, while the Chilean case stands out by reason of the depth and scope of the changes which have taken place since 1973.

Returning to the special features of the Bolivian nationalization, it should be noted that, unlike the Chilean case, it was not preceded by any significant previous experience in State intervention or in supervision of the activities of the large-scale private mining industry, and unlike the Peruvian and Jamaican cases it covered practically the whole of the production and marketing of the large-scale mining sector. This, together with the relative economic and industrial backwardness of the country, must be borne in mind when appraising the serious administrative and economic problems encountered in Bolivia by the public sector tin industry.

As in the Chilean case, Patiño and the other two mining groups which had been nationalized tried and failed to secure a legal embargo in Bolivia's mining exports. At all events, however, the transnational corporations took advantage of the fact that almost all the tin concentrates had to be refined in the smelting plant of William Harvey & Co., in the United Kingdom, which was controlled by the Patiño group (in Chile, in contrast, practically all the copper at the beginning of the 1970s was exported as blister or in refined form) and imposed on the Bolivian Government a compulsory discount of 10% on the gross value of the mineral smelted, so that during the period 1953-1961 they "charged" some US$ 20 million in respect of compensation which was never fixed as a whole.

At the domestic level, the new public enterprise, COMIBOL, suffered in the period following nationalization from considerable drops in production (down one-third during the 1950s), in the productivity of labour, and in the profitability of its activities. These problems were partly due to the previous over-exploitation of the deposits; to the lack of geological prospecting and the consequent drop in the metal content of the mineral; to the downward trend prevailing in the world tin market in the 1950s, etc., but they were also, and

/perhaps mainly,

perhaps mainly, due to the fact that out of some 200 foreign engineers who ran the Bolivian mining industry, 170 left the country and the few Bolivian technicians who remained had to take over the centralized management of the 17 widely different plants which made up the three nationalized enterprises.

The consolidation of the industry and the recovery of the previous levels of production and profitability in the 1960s were facilitated by the so-called Triangular Plan introduced in 1961, whereby the Governments of the United States and the Federal Republic of Germany, in co-operation with the Inter-American Development Bank, joined with the Bolivian Government to assist COMIBOL throughout the decade with credits of some US$ 31 million in order to improve the efficiency of the organization's management and terminate the compensation payments for the nationalized enterprises. Thus, the greater understanding of the industrialized countries in this period helped Bolivia to make up, at least partially, for the costs arising from the fact of having been a pioneer in the nationalization of the tin industry.

The foregoing does not mean that since the 1960s the external dependence of the Bolivian mining sector has been replaced by equitable links with foreign companies. As already noted, the transnational interests of Patiño led him to consider Bolivia as one of the mineral-exporting links in the worldwide structure of his enterprise, because it was "cheaper to smelt and refine tin in the plant of William Harvey & Co. at Bootle, near Liverpool (which belonged to him) than in any other place, a determining factor being the long and unparalleled experience of William Harvey & Co. in the treatment of the complex Bolivian minerals in which they had specialized for over 25 years".56/ Bolivia lacked this "comparative advantage" of 25 years' experience, and for this reason had to continue depending on foreign smelting plants, thus exposing itself to all the vicissitudes of minerals marketing, with a consequent reduction in the proportion of the value of its exports retained in the country. Although COMIBOL managed to break the former monopoly of Patiño's W. Harvey smelting plant, whose share in the total sales of the public enterprise went down to 43% by the end of the 1970s, this was merely replaced by the oligopolic power of a few foreign smelting plants including, in addition to W. Harvey, another British smelting firm, Capper Pass (belonging to Rio Tinto Zinc Corporation), and the United States firm of Long Horn (Gulf Resources and Chemical Corp.), which acquired 15% and 27% respectively of COMIBOL's total sales of tin ore.

/For these

For these reasons, the construction and entry into operation in the 1970s of two tin smelting plants at Vinto (one with a capacity of 20 000 tons for high-metal-content ore and another of 10 000 tons for low-metal-content ore) which were built in co-operation with two independent firms (Gloeckner of the Federal Republic of Germany and Bergsoe of Denmark), represented a vital change in the national integration of the tin industry. As was to be expected, this measure led to a strong adverse reaction on the part of the transnational corporations, which were very reluctant to abandon the Bolivian market in favour of the new public enterprise, ENAF, and tried to take advantage of the complex problems accompanying mining and metallurgical integration in an underdeveloped country.

2. National integration of the mining and metallurgical sector

With the establishment of local tin smelting in Bolivia, the nation's bargaining power has been substantially strengthened and the necessary conditions have been created for increasing the proportion of the value of tin exports retained in the country. The public enterprise ENAF, which has sufficient capacity to produce some 30 000 tons of metallic tin in the 1980s, can absorb practically all the ore extracted from the tin deposits, including the production of medium-sized and small-scale mining enterprises, which is processed mainly in the smelting plant for low-metal-content ores. In the first place, this means an increase in the locally added value of 10% to 12%, representing the incidence of ore processing charges in the price of the metal. However, the potential benefit for the economy of the country is much greater, for various reasons.

On the one hand, as the world market for metallic tin does not display the same oligopolic characteristics as the ore market, ENAF can concentrate its marketing on regions, countries and enterprises which offer the most advantageous conditions, and in particular it can sell directly to consumers without resorting to transnational intermediaries. Thus, ENAF managed to diversify its sales in the course of the 1970s, its main clients in 1979 being the United States (45% of the total), the Soviet Union and other socialist countries (27%), the countries of Western Europe (16%), and the emerging but potentially very important market of Latin America (10%). With regard to this geographical diversification, direct sales to consumer enterprises amounted in this same year of 1979 to some two-thirds of the total, international intermediaries being used above all in the marketing centres of the capitalist world (such as the London Metals Exchange and the New York Market).

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On the other hand, the costs and benefits --both real and ficticious-- related with the marketing of minerals, such as premiums and discounts, the "manipulation" of shipments, financing, etc. (see part A.6 above), which were previously handled by the foreign smelting firms and the international intermediaries, are now handled by the public enterprise ENAF, thus enabling it to increase its profits and at the same time ensuring fairer treatment for the mining sector (both for COMIBOL and for the medium and small-scale mining enterprises).

Finally, mining and metallurgical integration within the public sector of the country constitutes a solid foundation for the eventual industrialization of Bolivia.

In contrast, national mining and metallurgical integration is a negative development for the interests of the transnational corporations in two respects: first of all because they lose the previous accustomed supply of ore concentrates to which in many cases, the technology and organization of their smelting plants were specially adapted. Secondly, they now have a new competitor on the world metals market: the public smelting enterprise which now markets all the metal produced in the country. It is therefore only natural that the transnational corporations should try to prevent or at least obstruct the process of mining and metallurgical integration, and in order to achieve this objective they can try to take advantage of the problems and possible conflicts which always accompany the emergence of new structures of production and the social changes related to the process.

In other words, the bargaining power of the country vis-à-vis the external agents now depends to a great extent on the harmony and co-operation between the mining and metallurgical sectors. As already noted, the public mining enterprise acquires a number of advantages by the mere fact of changing its previous foreign partner for the national public enterprise in the smelting of the metal. In

/addition, it

addition, it ceases to have to represent the country and defend its interests against the foreign enterprises because it gives up this position to the national metallurgical sector, which markets abroad the entire national production of metal (since domestic consumption continues to be marginal). The most important source of problems and friction, at least apparently, however, is usually to be found in the field of distribution of the benefits. As is only natural, the public mining enterprise and those responsible for running it are inclined to measure the behaviour and performance of their new exclusive national client according to the same lofty pattern set in their previous links with the foreign smelting plant, which had a number of advantages over its peripheral competitor in the areas of technology, management and power in world markets. Thus, in the short term and from the strictly entrepreneurial point of view, the national mining sector may interpret the change to greater national integration of the mining industry as being unfavourable for its interests, adducing in support of this the decline in its benefits in comparison with the previous period. It is indeed true that in its initial phase the national metallurgical sector suffers from a number of problems deriving from the putting into effect of new investments, its organization, management, financing, external marketing, etc. These internal problems adversely affect the co-ordination and joint programming with the public mining sector --which also suffers from the same problems, but has been suffering from them for much longer--, the bargaining power vis-à-vis external agents, and ultimately, the contribution of the mining and metallurgical sector to the economy of the country.

The distribution of benefits between the two public enterprises is carried out through the processing charges, which represent the discount from the price of the metal received by the smelting enterprise in return for its work of processing and marketing the metal. In the 1970s, the processing charge used in the transactions between COMIBOL and ENAF was fixed on the base of the charges paid by COMIBOL to foreign smelting plants. Thus, for example, in 1978 the processing charge made by ENAF, which was US$ 630 per net metric ton of dry ore was practically equivalent to the weighted mean of the charges agreed by COMIBOL with the foreign smelting firms of Capper Pass, Gulf Chemical and Metallgesellschaft, which took 40% of the total sales of COMIBOL in that year. Consequently, Bolivia's dependence on the transnational corporations in the production and marketing of tin was projected even into the relations between public enterprises of the mining and metallurgical industry within the country. The repercussions of the transnational corporations on the public sector assumed particular importance at the end of the 1970s, when the new smelting plant for low-metal-content ores came into operation and the Government set itself the goal of processing all tin ore within the country.

/3. Reaction

3. Reaction of the transnational corporations to the loss of the Bolivian market

In the face of the imminent danger of losing their supplies of Bolivian tin ore concentrates and also being faced with a new competitor on world metallic tin markets, the three largest foreign smelting plants which processed Bolivian tin in 1979 (Capper Pass, Gulf Chemical and Metallgesellschaft) reacted by resorting to a dumping campaign whereby they reduced their respective processing charges by 27%, 31% and 35% in comparison with the charge of US$ 630 per ton used for the transactions between ENAF and the COMIBOL.57/ Thus, COMIBOL could have temporarily achieved higher income from its mining production if it had continued and even expanded its links with the foreign smelting plants, to the detriment of the more expensive services of the public enterprise ENAF.

The sudden reduction of the processing charges by the foreign smelting plants had no precedent in the previous links of these enterprises with COMIBOL, for the processing charges of Capper Pass and Gulf Chemical almost doubled during the period 1974-1978, increasing by between 12% and 29% per year, especially because of the increase in the cost of the energy used, whose share in the total cost of processing the ore increased 2.5 times, for example, for the Capper Pass smelting plant over the period in question. It is obvious that this situation could hardly have changed at the end of the 1970s, so it may be concluded that the advantageous offers made by the foreign firms were designed to hinder the smelting of the entire production of tin ore by ENAF, taking advantage of the advanced stage of depreciation of the foreign smelting plants, which had an average of 40 to 50 years' service, and the low-cost recycling of secondary tin.

In addition, Gulf Chemical offered to set up a joint company with COMIBOL and ENAF to carry out activities which combined toll-type contracts (the leasing of smelting plants for the treatment of ore), marketing and financing and promised to establish a direct relation with consumers in the United States and to take advantage of the benefits deriving from the special situation enjoyed by Gulf Chemical as a United States domestic industry protected against the effects of sales from the United States strategic reserve. Both COMIBOL and ENAF rejected this offer by Gulf Chemical because they were convinced that if this move by the transnational corporations succeeded it would lead to the disappearance of the State-owned smelting plant, which would be unable to compete with the transnational

/corporations, after

corporations, after which the foreign smelting plants would return to their policy of raising their processing charges.

The events referred to also have a projection which goes beyond external interference in the domestic affairs of a peripheral country. They also reflect a struggle between two types of positions and procedures based on different approaches to Latin American development. According to the "neo-liberal" approach, the public enterprise COMIBOL should have been governed by the laws of the market and should have accepted the "advantageous" proposals of the foreign smelting plants in order to reduce the cost of its operations. The long-term consequences of such a course of action have been indicated above, however, and are confirmed by the experience of many Latin American countries which have seen their own industries displaced by those of the transnational corporations, not only in the mining sector.

In contrast, the "self-reliant development" approach suggests that the costs and benefits in the short term and at the enterprise level --above all in the case of a public enterprise-- should be considered within the broader context of the better utilization of national resources and the reduction of vulnerability and dependence with respect to external factors. If we bear in mind the already mentioned fact that the ore processing charges are equivalent to approximately one-tenth of the income derived from the sales of metallic tin, whereas the respective share of the State through royalties is about one-third, it is obvious that the government has sufficient room for manoeuvring to allow it to promote and encourage national mining and metallurgical integration.

4. The public-sector crisis of the early 1980s 58/

The world economic crisis and Bolivia's large external debt 59/ exacerbated the problems of the mining and metallurgical sector and made it even more necessary to reactivate the public companies of COMIBOL and ENAF and to make them more efficient. In 1983, COMIBOL's production of tin ore amounted to only 14 500 tons, and had been falling steadily (except for a short-term increase in 1981) from the 1977 level of 23 300 tons, i.e., it had dropped 38% over a period of six years. Since private-sector production (medium-sized and small-scale mining enterprises) was relatively stable, the public sector's share of national tin production decreased during the same period from 69% to 61%. ENAF's output of metallic tin in 1983 was only 14 100 tons, which represented a new low with

/respect to

respect to the amount of its production capacity which was actually used (47%). Inasmuch as mining and metallurgical products represent the major part of the country's total exports (including other metals such as gold, silver, antimony, wolfram, zinc and copper), the widespread decline in their production resulted in a considerable decrease in its trade balances and external payments. Since employment and previous borrowing levels remained high, the production slump in both public enterprises increased their already large deficits. The Bolivian mining and metallurgical industry's poor performance was clearly related to the effects of the world economic crisis, which --for example-- caused the consumption of metallic tin to fall from 233 500 tons to 205 400 tons, or 12%, during the 1979-1982 period. Moreover, as previously noted, the adverse conditions on the world market and the shortage of foreign exchange aggravated the structural problems of the public sector, which had been mounting up since the preceding decade. These problems may be summed up as follows:

a) The primary causes of the increase in mining costs are the steady decline in the ore's metal content and the increasing inaccessibility of the tin deposits. This situation is related to the time-lag involved in exploration, exploitation and concentration of the ore. The headlong exploitation of the richest deposits and veins continues; this practice, which is an inherent feature of transnational corporations, shortens the deposits' useful life (as in the Huanuni mine, for example) and does not provide for the husbanding of reserves for the medium and long term, particularly insofar as new investment projects are concerned (such as the new volatilization plant at La Palca). Administrative problems and the lack of appropriate technology and wage incentives lead to frequent and sudden changes in the mixes of ores of varying metal contents, which adversely affects the metallurgical phase of the work and also prevents the resource represented by ore tailings from being appropiately utilized. Finally, one common denominator in the inefficiency of mining reserve exploration and exploitation is the dispersion and lack of co-ordination of geological services (COMIBOL, GEOBOL and FNEM).

b) The maintenance and replacement of obsolete machinery and equipment (as well as new investments) are currently hindered by the limits which have been placed on imports in response to the country's large deficits in its external accounts. In addition, priorities have yet been set with respect to the most vital and most suitable import items, considerable delays have occurred in putting

/the installed

the installed production capacity into operation, and the assimilation of new mining and metallurgical technologies has been either slow or insufficient, etc.

c) Continuing difficulties in the area of human resources include: the problem of "supernumeraries"; the deteriorating relations between mine and surface workers and between permanent personnel and occasional contractors; the formal and inadequate incentive system; the extensive social functions of public companies (supplying provisions to employees on a preferential basis through neighbourhood grocery stores, education and health, etc.), which oftentimes have a deleterious effect on their production and economic performance; and, finally, the frequent changes of supervisors and technicians for other than professional reasons.

d) The companies' accumulated indebtedness and ongoing deficits lead their directors and the workers in general to adopt a fatalistic attitude which robs them of a sense of responsibility and the initiative to make partial but nevertheless real progress with respect to the development of the mining and metallurgical industry. As in other mineral-producing countries of the region, the successive governments tend to preempt the sector's surpluses by means of tax and budgetary devices, particularly during relative boom periods in world prices, in order to use them to meet pressing but short-term needs, thereby depriving the public enterprises of capital.

e) The situation discussed in section d) above is also reflected in the approach taken to the public enterprises' investment programme and the way in which it is prepared. This is nothing more than a list of required projects which need to be approved in their entirety by the Government and financed by international banks and/or companies. In the absence of investment programme options and priorities founded upon comparative cost-benefit studies of the various projects, these external agents would surely be the ones to decide the future orientation of the Bolivian mining and metallurgical sector (such as, for example, choosing between the options of utilizing and processing ore tailings, mining existing deposits and exploiting new ones, diversifying mining expansion into gold, silver, iron, antimony and other "non-traditional" minerals, etc.). The possibility of there being such external dependence in the future would also be heightened by the lack of clear-cut policies on foreign investments and transnational corporations.

/f) Lastly,

f) Lastly, the present imbalances in the State (government)/public enterprise model appear to be a common denominator among the problems discussed above. On the one hand, there is a great deal of centralized State control over personnel and financial policy (that is perhaps even more rigid than in the socialist countries), which clearly limits the stability, professional level and economic incentives of public enterprises and their supervisory staff, thereby depriving them of autonomy and of the responsibility for their own development, especially on the longer term. On the other hand, this centralization has virtually no counterpart in a public-sector system of operational planning, co-ordination and supervision. As a result, the "goals" set forth in government plans turn out to be nothing more than statements of good intentions.60/

The new constitutional Government of Bolivia is attempting to resolve the serious problems affecting the mining and metallurgical sector. A new board of directors was formed in COMIBOL in 1983, and four of its seven seats are held by the powerful mining union. In order to centralize tin marketing, reduce costs and increase Bolivia's bargaining power, COMIBOL assumed responsibility for selling the metallic tin produced by ENAF. The new five-year plan for 1983-1987 provides for greater State control over marketing and for an increased output of gold, silver, precious stones and "non-traditional" minerals, as well as for strengthening the country's reserve position with respect to lead, zinc, iron and tin. The investment programme, which involves some US$ 750 million, includes a zinc refinery and a tungsten conversion plant. The financing for these investments is to come from governments and international financial institutions.

E. FERTIMEX, A PUBLIC ENTERPRISE, AND PHOSPHATE PROCESSING

1. Mexico

The way in which the processing of phosphate rock has been developed in Mexico presents some special features which distinguish it from the other developing countries that produce this commodity.

a) Mexico began to produce chemical fertilizers from imported raw materials in the early 1950s. By the early 1970s, the production of phosphate fertilizers met virtually all of the domestic demand and allowed for some marginal exports (see table 15). At that time, the production of phosphate fertilizers was based almost entirely on imported phosphate rock, since domestic mining was only marginal (5% of domestic consumption).

/Table 15

Table 15

MEXICO: PRODUCTION, IMPORTS, EXPORTS AND APPARENT CONSUMPTION OF PHOSPHATE FERTILIZERS

(Tons P_2O_5)

Year	Production	Imports	Exports	Apparent consumption	Production / Consumption (%)
1. Total					
1950	2 286	_	_	2 286	100.0
1960	18 819	5 967	_	24 786	75.9
1970	173 028	5 976	67 981	111 023	155.9
1975	257 018	19 380	_	276 398	93.0
1980	200 952	102 291	14 291	288 952	69.6
1981	235 236	147 526	12 939	369 823	63.6
1950-1960 (1950=100.0)	823.2		...	1 084.3	
1960-1970 (1960=100.0)	919.4	100.2	...	447.9	
1970-1980 (1970=100.0)	116.1	1 711.7	21.0	260.3	
2. Single superphosphate					
1950	2 286	_	_	2 286	100.0
1960	18 819	_	_	18 819	100.0
1970	34 975	_	_	34 975	100.0
1975	56 434	4 013	_	60 447	93.4
1980	55 052	_	_	55 052	100.0
1981	73 299	_	_	73 299	100.0
1950-1960 (1950=100.0)	823.2	_	_	823.2	...
1960-1970 (1960=100.0)	185.8	_	_	185.8	...
1970-1980 (1970=100.0)	157.4	_	_	157.4	...
3. Triple superphosphate					
1950	_	_	_	_	_
1960	_	_	_	_	_
1970	87 986	_	65 443	22 543	390.3

/Table 15 (cont.)

Table 15 (concl.)

Year	Production	Imports	Exports	Apparent consumption	Production (%) / Consumption
1975	111 602	-	-	111 602	100.0
1980	52 667	-	2 530	50 137	105.1
1981	68 469	18 538	-	87 007	78.7
1950-1960 (1950=100.0)	...	...	...	...	...
1960-1970 (1960=100.0)	...	...	...	495.1	...
1970-1980 (1970=100.0)	59.9	...	3.9	78.0	...
4. Complex fertilizers (NPK)					
1950	-	-	-	-	-
1960	-	1 559	-	1 559	-
1970	15 709		1 463	14 246	110.3
1975	25 558	8 465	-	34 023	75.1
1980	41 933	5 998	-	47 931	87.5
1981	37 361	-	-	37 362	100.0
1950-1960 (1950=100.0)	...	...	...	...	...
1960-1970 (1960=100.0)	...	...	...	915.6	...
1970-1980 (1970=100.0)	266.9	...	...	336.5	...
5. Diammonium phosphate (DAP)					
1950	-	-	-	-	-
1960	-	4 408	-	4 408	-
1970	34 358	5 976	1 075	39 259	87.5
1975	63 424	6 902	-	70 326	90.2
1980	51 300	96 293	11 761	135 832	37.8
1981	56 106	128 988	12 939	172 155	32.6
1950-1960 (1950=100.0)	...	...	...	...	...
1960-1970 (1960=100.0)	...	135.6	...	890.6	...
1970-1980 (1970=100.0)	149.3	1 611.3	1 094.1	346.0	...

Source: FERTIMEX.

/During the

During the 1970s, the consumption of phosphate fertilizers, which was heavily promoted by the Government, increased by a factor of 2.6; this led to extensive exploration of the country's large phosphate rock reserves and the expansion of mining and domestic processing. Nevertheless, in the early 1980s, the country was still dependent on imports of phosphate rock and phosphate products, inasmuch as domestic production did not keep pace with the expansion of domestic demand. This situation may change in the late 1980s if large-scale projects at the Lázaro Cárdenas complex that are aimed at substantially increasing domestic phosphate production and processing are in fact carried out.

Finally, one prominent feature of the Mexican case is the public sector's direct involvement in the production and marketing of phosphate rock and processed products as well as in the development of this industry with a view to the expansion of domestic agricultural production under the Government's Mexican Food System programme, whose objective is to make the country self-sufficient in such basic crops as corn, maize, beans, etc. The almost 50% increase in agricultural output during the past decade is proof of this policy's success in increasing the consumption of basic foodstuffs and in substantially reducing agricultural imports.

2. The expansion of phosphate processing

a) Phosphate fertilizers

The production of phosphate fertilizers in Mexico currently includes single superphosphate, triple superphosphate, diammonium superphosphate (DAP) and complex fertilizers (NPK). The first two plants to produce single superphosphate were founded in 1947 and 1953 as part of the country's import substitution policy.

Large sums have been invested during the past two decades, especially in fertilizers having a high P_2O_5 content; this has made it possible to increase the total output of phosphate fertilizers from 19 000 tons to 235 000 tons, i.e., more than a twelvefold increase between 1960 and 1981 (see table 15). This sharp rise in production was not entirely absorbed by the domestic market, with the result that surpluses became available for export (e.g., 68 000 tons of P_2O_5 in 1970, particularly of triple superphosphate).

During the past decade (1970-1980), phosphate fertilizer production rose only 16%. This lower rate of growth was caused by the 40% decline in the production of triple superphosphate; meanwhile, the production of single superphosphate, complex

/fertilizers and

fertilizers and ammonium phosphate increased by 57%, 167% and 49%, respectively. The growing domestic demand for more concentrated and higher-quality fertilizers led to increased imports (18 500 tons of triple superphosphate and 129 000 tons of diammonium phosphate in 1981).

The growing dependence on imports was mainly due to the industry's relative inefficiency in the early 1980s. FERTIMEX data indicate that in 1980 very little of the available production capacity was actually used: 48% in the case of single superphosphate, 60% with respect to triple superphosphate, and 41% in the production of ammonium phosphate. This situation was due to problems encountered in rebuilding the Guadalajara plant, supply problems in San Luis, Potosí (single superphosphate), and management problems in other plants. In 1981, the amount of production capacity which was actually used increased substantially as a result of measures taken by the new management of FERTIMEX; phosphate fertilizer production is expected to increase substantially midway through this decade, with full use of the present production capacity and the creation of more capacity as part of the Lázaro Cárdenas investment project.

b) Phosphoric acid

Mexico began to produce small units of phosphoric acid, primarily for export, in the early 1960s. Early in the 1970s, the public enterprise FERTIMEX started up two large phosphoric acid plants; the first, in Pajaritos, Veracruz, started with a production capacity of 345 000 tons of fertilizers, while the output of the other, with a production capacity of 105 000 tons, went for other industrial uses, mainly detergents, foodstuffs, for use in the automobile industry, etc. By the beginning of the 1980s, FERTIMEX consequently had a total production capacity of 524 000 tons of phosphoric acid, more than 80% of which was used to produce phosphate fertilizers.

FERTIMEX also produces a small quantity of fluid grade phosphoric acid with a higher grade of concentration (58%-60% of P_2O_5, while the fertilizer grade has 52%-54% of P_2O_5). This polyphosphate fertilizer has been exported to the FERTIMEX subsidiary in the United States, USAMEX.

As a result of the investment made by FERTIMEX, the output of phosphoric acid for use in the production of fertilizers rose rapidly, reaching a volume of 336 000 tons in 1975, which made it possible to export over 40% of that amount (see table 16). In 1980, however, output dropped to only 234 000 tons, when supply and plant maintenance problems resulted in only 69% of the installed capacity being used.

/Table 16

Table 16

MEXICO: PRODUCTION, EXPORTS AND APPARENT CONSUMPTION OF PHOSPHORIC ACID

(Thousands of tons)

Year	Production	Exports	Apparent consumption
1962	6	...	...
1970	188	(1972) 100	...
1975	336	143	193
1980	234	46	188
1962-1970 (1962=100.0)	3 133.3	...	...
1970-1980 (1970=100.0)	124.5	...	...

Source: FERTIMEX.

c) Phosphate rock

The main raw material used in the production of phosphoric acid and phosphate fertilizers is phosphate rock, which is present in large reserves in several locations throughout the country. Nevertheless, until the first half of the 1970s, the fertilizer industry depended almost exclusively on phosphate rock imports from the United States (Florida) and Morocco. The development of domestic phosphate rock mining began in the early 1970s and made it possible to reduce the share of total supply represented by imports from 99% in 1970 to 82% in 1981 (see table 17).

In 1981, the public enterprise, ROFOMEX, located at San Juan de la Costa in southern Baja California (with a concentration capacity of 730 000 tons) and a private enterprise, Minerales Industriales, in Zimapan, Hidalgo, produced 274 000 tons of phosphate rock.

The quality of the phosphate rock mined in San Juan de la Costa is similar to that of the phosphate rock imported from the United States and Morocco. ROFOMEX is digging new phosphoric rock mines in San Juan de la Costa and Santo Domingo in southern Baja California; these have a lower P_2O_5 content, but there are large reserves which have yet to be fully explored. It is thought that these mines could contain some 800 million tons, which would allow annual phosphate rock

/Table 17

Table 17

MEXICO: PRODUCTION AND IMPORTS OF PHOSPHATE ROCK (1970-1981)

(Thousands of tons)

	1970	1975	1980	1981	1980 (1970=100)
Total supply	837.8	1 476.0	1 210.0	1 553.5	144.4
Production	12.3	251.0	200.0	274.0	1 626.0
Percentage of the total	1	17	16	18	...
Imports	825.0	1 225.0	1 010.0	1 279.5	122.4
Percentage of the total	99	83	84	82	...

Source: FERTIMEX.

production to be increased to approximately 5.4 million tons. This would make it possible not only to achieve self-sufficiency in the production of phosphate fertilizers, but also to export over 2 million tons annually. However, these investment projects in phosphate rock mining are still under discussion and review by the Government due to the difficult economic and financial situation of the country.

3. Marginal exports

Mexico is in a good position to export fertilizers. The country has large reserves of phosphate rock and other important production inputs such as sulphur and energy. The extent of the domestic market and the rapid growth and Government sponsorship of fertilizer consumption in agriculture make it possible to establish large-capacity plants at a relatively low cost. Other comparative advantages are the proximity of Mexican ports to the production centres (the ports of Pajaritos, Veracruz, on the Gulf of Mexico and of Lázaro Cárdenas on the Pacific) and the fact that most maritime transport is carried out by Mexican ships and tankers.61/

In spite of these favourable conditions, throughout the 1970s fertilizer exports have been rather marginal and have shown a downturn during the second half of that decade and the early 1980s. Table 18 indicates that, while net phosphate

/Table 18

Table 18

MEXICO: IMPORTS AND EXPORTS OF PHOSPHATE ROCK AND FERTILIZERS (1970-1981)

(Thousands of tons)

		1970	1975	1980	1981
1. Phosphate rock: Imports		825	1 225	1 010	1 279
2. Phosphate fertilizers (P_2O_5)					
a) Total volume:	Imports	6	19	102	148
	Exports	68	-	14	13
	Balance	+62	-19	-88	-135
b) Triple superphosphate:	Imports	-	-	-	19
	Exports	65	-	3	-
	Balance	+65	-	+3	-19
c) Diammonium phosphate:	Imports	6	7	96	129
	Exports	1	-	12	13
	Balance	-5	-7	-84	-116
d) Complex fertilizers:	Imports	-	8	6	-
	Exports	1	-	-	-
	Balance	+1	-8	-6	-
3. Phosphoric acid:	Imports	...	...	...	...
	Exports	100	143	46	...

Source: FERTIMEX.

/fertilizer exports

fertilizer exports in 1970 equalled 62 000 tons in terms of P_2O_5 content, there was a net deficit of 135 000 tons in 1981. In recent years, only occasional exports of triple superphosphate and ammonium phosphate surpluses have been carried out in order to maintain a Mexican presence in some traditional markets. Exports of phosphoric acid dropped from 100 000 tons in 1972 to 46 000 tons in 1980. Imports of phosphate rock, however, increased from 825 000 tons in 1970 to 1 279 000 tons in 1981, i.e., they rose 55% (see table 18).

The main markets for phosphoric acid exports in 1980 were Brazil and the United States, while the principal markets for ammonium phosphates were the Federal Republic of Germany and Italy, and the small amount of triple superphosphate exports went primarily to Colombia. Most of the phosphate rock (78%) was imported from Morocco, and the rest came from the state of Florida in the United States.

The fact that it owned tankers also allowed Mexico to re-export the phosphoric acid it acquired from the United States, France and Tunisia. A total of 182 000 tons of phosphoric acid, valued at US$ 86 million, was re-exported in 1980; this brought in additional foreign exchange income from payments for transport services and marketing.

Exports of phosphoric acid might well be increased, especially to Brazil, India and Japan, by taking advantage of the growing demand for this product. For example, in 1980 the United States exported 725 000 tons of phosphoric acid despite the fact that it has an export-oriented fertilizer industry. Nevertheless, Mexico's current policy is aimed at channelling all expansion in the fertilizer industry towards the domestic market and exporting only whatever is left over.

This policy of channelling growth towards the domestic market is also exemplified in the case of USAMEX Fertilizers Incorporated, a United States subsidiary of FERTIMEX which was located in Santa Rosa, Louisiana. The USAMEX plant was originally built with the idea of using the phosphoric acid produced by FERTIMEX to produce highly-concentrated liquid fertilizers (59%-60% of P_2O_5). The increase in domestic demand, however, led to a decrease in Mexican exports from 47 000 tons in 1974 to 11 000 tons in 1978 and to their total elimination from 1979 onwards. This eventually resulted in the termination of FERTIMEX's direct investment in the United States.

/4. Expansion

4. Expansion of the industry in the 1980s

Despite the substantial growth of fertilizer consumption and the related increase in agricultural production in the 1970s which was discussed above, the goals of the governmental Mexican Food System programme are still far from being achieved. This is illustrated by the fact that in 1980 the imports of five major food products --beans, maize, sorghum, milk and sugar-- amounted to an aggregate sum of US$ 1.9 billion and represented over 10% of total Mexican imports.62/

An indication of the importance of the fertilizer industry's development for the Mexican food programme is provided by the potential demand represented by increased fertilizer consumption; the average consumption of fertilizer nutrients in Mexico (per hectare of arable land and permanent crops) was only 51.7 kilogrammes in 1980, in comparison with 111.6 kilogrammes in the United States, 67.8 kilogrammes in Brazil and 64.2 kilogrammes in Venezuela.63/ Moreover, it is estimated that less than one half of the total cultivated area of 15.5 million hectares is now being fertilized; the use of fertilizers is concentrated in modern agriculture involving irrigated crops.

A new finished fertilizer production complex at Lázaro Cárdenas, which is a new industrial centre on the Pacific Coast, is being built in order to meet the needs of agricultural development in the 1980s. This project is designed to ensure that Mexico will have enough capacity to meet the expected increases in domestic phosphatic and nitrogenous fertilizer consumption during the 1980s and to help correct the current imbalance in the industry, which exports intermediate products such as ammoniac and phosphoric acid, while at the same time importing substantial quantities of finished fertilizers in order to meet domestic demand.

The US$ 500 million investment programme includes two plants for the production of phosphate products. The first will have an annual production capacity of 525 000 tons of phosphate fertilizer concentrates (275 000 tons annually of ammonium phosphate and 250 000 tons annually of complex fertilizers). The second will be flexible enough to produce triple superphosphate, ammonium phosphate and complex fertilizers and will have a production capacity of 435 000 tons per year. With a better utilization of present production capacities and new investments, total phosphate fertilizer output should increase from 200 000 tons to 680 000 tons (i.e., by a factor of 3.4) during the 1980-1990 period, thus outstripping the projected increase in nitrogenous fertilizer production (by a

/factor of

factor of 2.8 during the same period). The largest rise in production will be seen in high-quality superphosphate concentrates such as diammonium phosphate and triple superphosphate (increasing by factors of 5.7 and 4, respectively). The output of complex fertilizers and simple superphosphate should be 113% and 64% higher than 1980 production levels, respectively.

A large supply of phosphoric acid will be needed in order to bring about the projected expansion in fertilizer production. Two plants with an annual production capacity of 198 000 tons of P_2O_5 each are being constructed as part of the Lázaro Cárdenas complex. Their entry into operation was expected to raise phosphoric acid output from 234 000 tons to 775 000 tons. This level of output would meet phosphate fertilizer production needs, and leave a sufficient surplus so that exports might be continued.

The targeted expansion in the phosphate fertilizer industry continues to be aimed at the domestic agricultural market. Furthermore, the substantial increase which is projected in fertilizer consumption would also require large investments in agricultural production in the areas of irrigation, infrastructure, transport, distribution, storage, etc. To the extent that such investments take place at a slower pace than the expansion in fertilizer supply, surpluses of fertilizers should become available for export. Obviously, the public sector's external marketing policies would have to lay the groundwork for this option.

This ambitious investment programme was originally to be completed midway through the first half of the 1980s. However, as a result of the economic and financial crisis 64/ and of some difficulties in implementing the investment plans, only 65% of the first plant (designed to produce ammonium phosphate and complex fertilizers) and 52% of the second (for triple superphosphate, ammonium phosphate and complex fertilizers) had been completed by the end of 1982. FERTIMEX consequently had to move back the dates originally set for the start-up of this additional production capacity until the second half of the decade.

5. FERTIMEX, a public company: achievements and problems 65/

a) Origin and objectives of the public sector

The State's involvement in the development of the Mexican fertilizer industry goes back to 1943, when Guanos y Fertilizantes de México, S.A. (GUANOMEX), a semi-public enterprise, was founded for the purposes of promoting the use of organic fertilizers, exploiting guano deposits 66/ on the Pacific Coast and

/distributing guano

distributing guano products. In 1948, GUANOMEX's role was broadened to include the production and distribution of chemical fertilizers. In the late 1950s, private investment in the fertilizer industry was promoted as a way of complementing GUANOMEX activities; this led to the creation of three major nitrogenous and phosphate fertilizer companies: Fertilizantes de Monclova, Fertilizantes del Istmo and Fertilizantes de Vagio.

In the mid-1960s, the structure of the industry underwent a significant change. The government which was then in office launched a National Plan of Agricultural Development, and came to the conclusion that there were serious problems relating to fertilizer production and distribution which hampered attempts to achieve the necessary increase in yields and production: a lack of co-ordination among the companies involved in the sector, low productivity, inefficiency and speculation in the distribution of fertilizers. The logical solution was to merge the three major companies with GUANOMEX. In the late 1960s, the governmental policy of consolidating the supply of major agricultural inputs also led to the take-over by GUANOMEX of the national supply of insecticides, the acquisition of a majority interest in FERTICA S.A., which owned fertilizer plants in Central America, and the purchase of a minority interest (20%) in Azufrera Panamericana, the company engaged in mining Mexico's sulphur deposits. In addition, GUANOMEX was assigned sole responsibility for the domestic marketing and distribution of fertilizers.

Finally, in 1975 the Government nationalized the country's sole producer of phosphoric acid and triple superphosphate (TSP), Fertilizantes Fosfatados Mexicanos S.A. (FFM), whose majority stockholder was the Banco de México. This company was also the major exporter of phosphoric acid and had its own shipping facilities as well as capital in a phosphate deposit in the United States (Florida). In January 1978, FFM merged with GUANOMEX, establishing the consolidated enterprise of FERTIMEX.

Thus, 25 years after the establishment of GUANOMEX in 1943, a consolidated public enterprise which integrated all of Mexico's fertilizer production capacity had been established.67/ The Government also uses FERTIMEX as an executing agency to administer Mexico's fertilizer imports and, in co-operation with other government institutions, to provide for the promotion and expansion of fertilizer use, research and soil testing.

/By the

By the early 1980s, FERTIMEX had become the largest chemical company in the country, the most important company in the fertilizer industry in Latin America, and one of the largest in the world. It is the Government's primary means of promoting an increase in agricultural productivity and of accomplishing the goals of the National Plan of Agricultural Development and the Mexican Food System.

b) The structure of FERTIMEX

FERTIMEX is an autonomous public enterprise whose shares are held by NAFINSA, the Government Development Bank and financial agent for public-sector companies. It is legally bound by the Mexican Commercial Code and Rules, just as any private company, but it also plays an important social and economic role in relation to the Government's agricultural policies.

In view of the company's importance in this respect, the President of Mexico appoints the general manager of FERTIMEX and the members of its board of directors. The chairman of the board is the Minister of National Patrimony and Industrial Promotion; other members represent the Ministries of Agriculture, Industry and Trade, and Finance, and NAFINSA, Compañía Nacional de Subsistencias Populares (CONASUPO) and the Banco Nacional de Crédito Rural (BANRURAL). The company's management is completely responsible for its day-to-day operations, but policy and strategy decisions, especially those concerning the prices charged to farmers, capital investment and long-term borrowing, are taken by its board of directors with a view to serving the overall interests of government policy. As will be discussed below, these interests do not always necessarily coincide with the public company's own objectives insofar as its efficiency and profitability are concerned.

Since its founding in 1978, FERTIMEX has undergone several changes in relation to the problems involved in efficiently managing a huge vertically-integrated enterprise having many diversified activities (including social ones) and a large investment programme. Within this context, the role of the Planning and Development Department has been strengthened in an attempt to establish close co-ordination in the proper planning of production, supply and marketing (both external and domestic) and the respective divisions.

In order to improve the management, monitoring and supervision of daily operations and of new investments, FERTIMEX established the Centro de Informática, Sistemas e Investigación de Operaciones (CISIO). Its purpose is to provide for

/the computer

the computer processing of all the available data so that the appropriate information may be promptly provided to the company's management as it is needed. Several of the computers used by the information system also have the capability to perform system analyses, decision-model formulation, computer programmes to analyse and design new installation structures, etc. Regional information centres have been established in Torreón, Minatitlán, Querétaro and in the Federal District of Mexico.

FERTIMEX's major achievement and specific problems in the various areas covered by its operations are discussed below.

c) The labour force and training

The expansion of the fertilizer industry in Mexico has been accompanied by a considerable increase in employment. When the public company (then known as GUANOMEX) began its operation in 1944, its total staff numbered only 25 persons. Total employment then rose to 1 500 in 1960, to 3 655 in 1970 and to 9 873 in 1980, i.e., it increased by a factor of 2.5 in the 1960s and by 2.7 in the 1970s. It is important to note that all of the company's personnel are Mexican nationals (with the exception of some experts who are working on the construction and installation of equipment in the new plants at Lázaro Cárdenas). The professional level of FERTIMEX personnel may be gauged by looking at the educational level of its staff members; in 1980, 16% of all employees were university-educated technicians, 12% of the staff had gone to commercial schools, 10% had a high school education, and the remaining 62% had had a middle-level or elementary education.

No data are available on the trends in labour productivity, but the rapid expansion and diversification of work activities suggests that a problem of over-centralization may exist, along with subsequent problems related to excessive bureaucracy. One indication of this may be the fact that 28% of all personnel, or 2 800 people, were working in the head offices of FERTIMEX in Mexico City in 1980. This relatively large percentage would probably be still larger if only highly-qualified personnel were to be taken into consideration.

The qualifications of FERTIMEX personnel are being improved by means of systematic in-house training. In 1978, for example, 165 courses with 3 721 participants were held. In 1980, the Centre of Training and Personnel Development (CECADEP) was established, and this made it possible to triple the number of instruction hours which were offered.

/The company's

The company's labour relations are handled in close co-operation with labour associations and unions. An annual review of collective contracts is undertaken based on specific studies concerning wages and other types of income which take such factors into account as inflation, the labour market, social conditions among different labour groups and regions, etc.

d) Transport and supply

The rapid growth of the fertilizer industry has involved a corresponding increase in the port-to-plant and intra-plant movement of raw materials and inputs as well as in the transport of finished goods. Until the establishment of FERTIMEX in 1978, the company's transport operations were carried out by rail. The widening gap between its transport needs and the limited railway capacity which was available caused delays in the delivery of raw materials and slowed down or even paralysed production, which seriously hurt agricultural output.

In order to deal with this situation, FERTIMEX was forced to acquire a more autonomous transport capacity, and it therefore established its own subsidiary, Transportes Centrales, S.A.; in 1982, this company had 204 tractor trucks, 245 trailers, 154 tank cars and 91 other pieces of transport equipment. By using its own capacity, it was able to reduce the railways' share in the transport of raw materials and finished goods from 53% of the total in 1978 to 42% in 1980. Moreover, the new Division of Supply and Transport of FERTIMEX was successful in improving its planning and co-ordination with the Mexican State railways.

Another supply problem faced by the company was the unsuitable location of the storage facilities and yards which it used, and the higher production and marketing costs that this occasioned. At the time that it became virtually the only entity responsible for distributing fertilizers and other agricultural inputs, FERTIMEX had no storage facilities of its own. In order to fill this need, a National Supply Plan was prepared which set forth the goal of constructing 36 warehouses with a capacity of 480 000 tons during a first stage and another 11 warehouses with a capacity of 125 000 tons during a second stage.

e) The distribution of fertilizers

Prior to the founding of FERTIMEX, the distribution of fertilizers and other agricultural chemicals had primarily been performed by private intermediaries or commission agents; only 26% of such activity was accounted for by the direct sales of the public company (GUANOMEX), 15% was carried out by BANRURAL (National Bank

/of Agricultural

of Agricultural Credit) and 7% by the sugar cane sector, which has its own means of transport (see table 19). The commission agents not only acted as sales agents, but also provided storage and handling services, packed bulk shipments and extended lines of credit to farmers and their organizations.

The government felt that there were various shortcomings involved in this private system of fertilizer distribution, such as long delays in the processing of orders, the storage of fertilizers for as long as two years, discrimination against small-scale farmers with respect to supply, the charging of different prices for the same product, and other problems which were related to speculation (the sales commissions paid to private intermediaries were very low).

With the establishment of the State fertilizer and pesticide marketing monopoly, the volume of sales carried out through the public and semi-public sectors increased considerably, while the private agents' share dropped from 52% in 1970 to only 7% in 1980 (see table 19). Currently, most FERTIMEX products are sold through the State distributors and the regional FERTIMEX departments (37% in 1980), the regional offices of BANRURAL (28%), agricultural associations (16%) and other public and semi-public organizations.

Priorities were gradually set in relation to the distribution of fertilizers by FERTIMEX based on the specific objectives of the Government's food programme, and especially the targeted increase in the production of basic grains. In 1980, for example, total FERTIMEX sales rose by an average of 10%, but they were increased by 71% in the peninsular areas in order to boost the production of maize; similarly, they were raised 29% in major rice-producing regions.

Finally, one counterpart of the preferential distribution of fertilizers for the domestic agricultural market was the strict control of exports; in each case, joint authorization had to be obtained from the Ministries of Trade, of Agriculture and Water Resources. Furthermore, FERTIMEX conducted the exportation and importation of fertilizers through agents and brokers on the basis of international bidding, while the share of such business accounted for by its own commercial offices abroad was only minimal.

/Table 19

Table 19

MEXICO: FERTILIZER DISTRIBUTION CHANNELS
(As a percentage of total sales)

	1970	1977	1980
Direct FERTIMEX sales (includes other State agencies)	25.9	12.9	37.0
BANRURAL	14.8	31.3	28.2
Agricultural associations	-	11.7	16.0
Sugar cane sector	7.2	6.9	7.1
Other State organizations	-	4.1	4.3
Total direct sales	47.9	66.9	92.6
Private agents	52.1	33.1	7.4
GRAND TOTAL	100.0	100.0	100.0

Source: Benjamín G. Road, "Aspectos de la comercialización de fertilizantes en México", Boletín Oficial, ADIFAL, Vol. V, No. 11-12, November/December 1982; FERTIMEX, Yearly Report, 1980.

f) Marketing with direct support for producers

i) Technical assistance

Technical assistance for farmers is an integral part of the marketing activities carried out by FERTIMEX with the object of increasing the consumption of fertilizers and ensuring that they are used appropriately in accordance with the conditions in various regions, agricultural products, types of cropland, etc. To this end, FERTIMEX also engages in agricultural research, especially with respect to Mexican farmers' use of new inputs, such as complex and liquid fertilizers, etc. The research, technical assistance and training activities carried out under the Government's food programme focus on grains, soya and beans. FERTIMEX training courses are aimed at promoting the new profession of fertilizer technician (licenciado). It also organizes mass information and educational campaigns via the media, meetings with farmers, etc.

In order to increase the effectiveness of the technical assistance given to farmers, the corresponding FERTIMEX division, which was previously autonomous,

/has been

has been incorporated into the Sales Department; in addition, nine regional divisions have been established with a view to greater decentralization and flexibility in dealing with the specific conditions and needs faced by fertilizer users.

ii) Prices

In Mexico, the prices charged to farmers for fertilizers (including imported ones) are controlled by the Government. The main objective of the Government's pricing policy is to make fertilizers available to farmers at a low cost in order to promote their use and thereby increase crop yields. For example, in 1981 the domestic price charged to Mexican farmers for triple superphosphate was 7% lower than in the United States and 6% lower than in Guatemala. The incentive provided for the use of ammonium phosphate was much greater, since its price was 19% lower in Mexico than in the United States and 38% lower than in Guatemala.68/ In addition to subsidized prices, discounts are given via BANRURAL on official price levels as part of the Mexican Food System (e.g., a 30% discount on the inputs used by maize and bean producers).

g) Financing

Naturally, domestic fertilizer prices must be subsidized by the Government in order to balance the FERTIMEX budget. For example, the Government's compensatory payments in 1981 were estimated at some $Mex 10 billion, which amounts to approximately 3% of the Government's total public investment budget.

The financial operations involved in providing State support for agriculture posed problems with respect to the public company's liquidity and financial returns. The company was becoming more like a governmental department; it depended heavily on State compensation and was losing its identity as an autonomous commercial company being run as a profit-making concern. The State's compensatory financing of the public company also tended to disguise other factors which reduced its liquidity and placed it in a worse financial position. This situation was reflected, for example, in an excessive increase in its working capital (which was equivalent to 5.5 months of sales in 1978), an inability to service its debt out of its own income, etc. The company's financial situation was further aggravated by several devaluations of the Mexican peso, which increased the amount of its external debt service and the prices of imported raw materials and fertilizers.

/The possibility

The possibility of gradually increasing the factory prices of fertilizers and decreasing, albeit more slowly, the subsidies on the prices paid by farmers was considered as a way of making FERTIMEX profitable and financially self-sufficient.69/ The FERTIMEX Financial Department also introduced a planning and financial supervision system in the factories, sales outlets and warehouses which was based on the above-mentioned integrated and computerized information system.

h) Technology and investment projects

i) The industry's technological base

The Mexican fertilizer industry has become relatively self-sufficient with respect to technology and the implementation of investment projects. Although the technological processes used by FERTIMEX are mainly based on foreign licences from the United States and Europe, most of the necessary equipment, designs, engineering and construction are of Mexican origin. The intensive expansion of the oil, refining and petrochemicals industries which were carried out in the past have provided Mexican personnel with a great deal of expertise in project planning, the independent acquisition of machinery and equipment, and project execution. For example, the Mexican Petroleum Institute (IMP) developed into one of the largest engineering companies in the country and has an international reputation for its plant design and general programme co-ordination. There are also several private Mexican engineering firms which take part in construction activities within the domestic fertilizer industry in association with foreign partners.

Serious problems still exist, however, in relation to the management of technology and the creation of additional production capacity. Various technical problems were encountered, for example, in the new ammonium phosphate and triple superphosphate plants in Pajaritos, as well as in the mills and granulators. Foreign assistance had to be obtained in order to resolve these difficulties. Similarly, the construction and start-up of additional production capacity met with delays and cost overruns. This was partially due to a lack of prior experience with new technologies, but was also due to a lack of co-ordination and work scheduling as well as to delays in the delivery of domestic construction materials such as structural steel, pipes, etc.

ii) The Lázaro Cárdenas project: technology and engineering

As part of the project relating to the Lázaro Cárdenas industrial complex, FERTIMEX conducted a survey concerning the availability of the required

/technologies on

technologies on the world market. The final choice was made among the bids submitted by some 27 international companies based on pre-determined technical and commercial criteria. Several subsidiaries of the United States Gulf Corporation were selected for the production of phosphoric acid, ammonium phosphate, triple superphosphate and complex fertilizers. Gulf Corporation is responsible for the basic engineering that is involved, while the detailed engineering tasks are carried out by the Mexican firms of Servicios Profesionales de Ingeniería and Bufete Industrial. The foreign engineering firm is in charge of purchasing the necessary imported inputs, and the Mexican engineering firms provide local purchasing services. In co-operation with FERTIMEX, the Mexican Petroleum Institute is handling all support services, solids handling and conveyance, and port and ship loading facilities. These two organizations are also responsible for the overall co-ordination and supervision of the project.

For the most part, Mexican firms are also in charge of providing the necessary infrastructure for expanding the available electric power capacity, water supply, fuel supply and storage, other production inputs, an additional railway link with the port of Sicartsa, and the provision of a new port, warehouses and berths, etc.70/

Both foreign and national engineering contractors are also required to follow plant design and construction specifications which ensure that the entire complex meets the pollution limits laid down by Mexican law and the standards set by the United States Environmental Protection Agency. The project should also meet appropriate safety and noise pollution standards.

Finally, an indication of the degree of self-sufficiency and the involvement of domestic entities is provided by the fact that the domestic share in the total investment of some US$ 500 million has been estimated at US$ 275 million (55%). Furthermore, the domestic implementation of the investment project creates approximately 8 500 jobs.

Foreign engineering firms are also assisting FERTIMEX to recruit and train the additional Mexican personnel needed to operate the plants in order to ensure that, at a later stage, all the management, professional and administrative duties will be performed by Mexican nationals.

/iii) The

iii) The Lázaro Cárdenas project: financing

Mexico is providing 40% of the financing for the project, whose total cost is approximately US$ 500 million (32% is being supplied by the Government and 8% by FERTIMEX); another 26% is being funded by World Bank (IBRD) loans, 2% by EXIMBANK of the United States, and the remaining 32% by commercial loans from international banks.

The terms and conditions of the loans negotiated by FERTIMEX are relatively good; the annual interest rates range between 7%-8% (the World Bank and EXIMBANK) and 10% (commercial banks) over a term of 10-15 years, with four-year grace periods. Inasmuch as the Government assumed the primary responsibility for the loans, the current economic and financial crisis has forced it to postpone the implementation of various investment projects and to take steps to improve the fulfilment of investment plans. To this end, the FERTIMEX Planning Division has developed a system for codifying investment costs so that observance of the investment plan, in both a physical and financial sense, may be monitored effectively.

i) Regional co-operation

FERTIMEX takes an active part in the regional co-operation efforts of fertilizer companies through ADIFAL, as well as in the marketing of fertilizers through the Latin American enterprise, MULTIFERT.

A total of 23 fertilizer-producing and marketing companies in Latin America are grouped together in ADIFAL (Association for the Development of the Latin American Fertilizer Industry), which is based in Mexico City. Its main objective is to work towards striking the best possible balance between fertilizer production and consumption by co-ordinating the development of companies involved in this product line. In pursuance of that goal, the organization collects and disseminates information about fertilizer prices and other relevant factors, conducts international marketing studies, co-ordinates the supply schedules of participating firms, advises them on legal matters, analyses the situation with respect to the storage and transport of fertilizers, and promotes direct contacts among members of the Association. It also co-operates with international organizations such as FAO, UNIDO, etc., and organizes the yearly Latin American Fertilizer Congress.

/MULTIFERT is

MULTIFERT is a multinational Latin American fertilizer marketing enterprise which was founded in April 1980 under the aegis of the Latin American Economic System (SELA). FERTIMEX owns 11% of the company's capital stock (US$ 3.75 million). The member countries of MULTIFERT are: Bolivia, Costa Rica, Cuba, Guatemala, Mexico, Nicaragua, Panama, Peru and Venezuela. The company's main objective is to market fertilizers in such a way that the member countries may consolidate their supply and demand so that they can obtain the best possible terms in the market. In view of the size and growth of its fertilizer industry, Mexico is in a position to provide substantial support to this Latin American multinational marketing enterprise.

Notes

1/ This chapter is based on studies conducted by the Joint ECLAC/CTC Unit (transnational corporations) as part of the interregional project on strengthening the bargaining power of host governments in their dealings with commodity-exporting transnational corporations and on studies concerning the processing of commodities which were carried out in co-operation with UNCTAD (see the bibliography in annex 1).

2/ Except where a different source is indicated, the data and statistics used in this article have been obtained from official reports from the countries.

3/ See UNCTC, Transnational Corporations (TCNs) in the Bauxite-Aluminium Industry, 1982, p. 43.

4/ See UNCTC, Main Features and Trends in Petroleum and Mining Agreements, New York, 1983, and Samuel K.B. Asante, Reestructuración de los acuerdos mineros transnacionales, E/CEPAL/Sem.3/L.2, Santiago, 1982.

5/ See "El contrato de explotación de los yacimientos de Cuajone" in Fernando Sánchez Albavera, Minería, capital transnacional y poder en el Perú, DESCO, Lima, 1981, p. 305.

6/ Unfortunately, no data are available on the final distribution of the total investment, which amounted to approximately US$ 650 million midway through 1976 (see section b) below).

7/ See the fifth clause, 5-5 and 6 of the Cuajone contract.

8/ See the eighth clause, 8-6, ibid.

9/ This is equivalent to nearly double the amount originally estimated (US$ 355 million) in the Cuajone contract. However, the annual production capacity of blister copper increased from the originally-projected volume (in 1969) of 110 000 short tons to 170 000 short tons (1976).

10/ See the blister copper supply contract concluded by Southern Peru Copper Corp., MINERO-PERU and the Japanese group of financiers on 19 September 1974, in F. Sánchez Albavera, op. cit., in note 5, p. 337.

11/ See the sixth clause, 6-18 of the Cuajone contract.

12/ See tables 46 and 47 and the fifth clause of the Cuajone contract in F. Sánchez A., op. cit., in note 5.

13/ Blister copper has a net metal content of 99.2%, whereas refined copper is almost pure (99.5%). The amount of metal contained in concentrates is usually 25%-45%.

14/ See table 50, ibid.

15/ See note 10 above.

16/ See F. Sánchez Albavera, "La acción empresarial del estado en la comercialización del cobre", in Comercialización de productos básicos, Ediciones Cultura Hispánica, Madrid, 1984.

17/ In 1982, the latter absorbed over one-fifth of all exports of blister copper from Toquepala (Source: MINPECO, ibid.).

18/ In spite of the Government's efforts, there have been no new investments in the copper sector; this is apparently because of the world recession. In any event, too little time has passed to allow a more in-depth assessment to be made of these changes.

19/ This is much less than it was in the period of intensive exploitation during the Second World War and the years immediately thereafter, when Chile's share ranged between 18% and 21% (see table 5).

20/ Law 11.828 (1955) established the principle of State involvement in the marketing of copper by making it mandatory for transnational corporations to obtain the Department of Copper's approval for their sales and hiring policies and by making it responsible for the finalization and monitoring of business transactions. In 1964, this Department set the "Chilean producers price" at US$ 0.8680 (at 1979 prices), thereby establishing a practice which was continued until 1966, when the reference price became the prevailing price on the London Metals Exchange.

21/ See Business Week, New York, 7 December 1968.

22/ See El Mercurio, Santiago, Chile, 13 August 1971.

23/ Ibid.

24/ The data presented in this paragraph were obtained from official reports appearing in "Las empresas transnacionales en la economía de Chile, 1974-1980", Estudios e Informes de la CEPAL, No. 22, E/CEPAL/G.1235, February 1983, pp. 20-23 and 70-71.

25/ Chile's external debt rose from US$ 3.6 billion to US$ 10.7 billion between 1973 and 1980; in other words, it grew by US$ 7.1 billion (a threefold increase) (see Economic Survey of Latin America, 1981, E/CEPAL/G.1284, 1983).

26/ See UNCTAD, Processing and marketing of bauxite/alumina/aluminium: areas for international co-operation (TD/B/C.1/PSC/19), 1981.

27/ See UNCTC, Transnational corporations in the bauxite/aluminium industry (ST/CTC/20), New York, 1981.

28/ See N. Girvan, The Impact of Multinational Enterprises on Employment and Income in Jamaica, ILO, a World Employment Programme Study, working documents, April 1976.

29/ Source: Information Bulletin No. 46 of the Ministry of Mining and Natural Resources of Jamaica, October 1979, and additional information from the Jamaican Bauxite Institute.

30/ See Norman Girvan, The Caribbean Bauxite Industry, Institute for Social and Economic Research, Kingston, Jamaica, 1967.

31/ See IBRD, Market Structure of Bauxite/Alumina/Aluminium: and Prospects Developing Countries (sic), Commodity Paper No. 24 (March 1977).

32/ See OECD, Problems and Prospects of the Primary Aluminium Industry, 1973.

33/ See K.O. Rattray, Attorney General of Jamaica, in Proceedings of Bauxite Symposium, a special issue of The Journal of the Geological Society of Jamaica, No. 4, 23-26 June 1980, Kingston, December 1980.

34/ In order to allow the three United States companies (Kaiser, Reynolds and Alcoa) to claim the tax deduction for United States income tax liabilities on their operations in Jamaica (Western Hemisphere Trading Concessions), a nominal profit was set per dry long ton of bauxite transferred by the companies and not used in the production of alumina in Jamaica. This amount was set at a fixed sum of US$ 3 for both Kaiser and Reynolds, plus a variable amount which was initially fixed at US$ 1.92 and US$ 1, respectively, which was to be pegged to the base price for an ingot of aluminium. The corporate profits tax, which was payable to the Government of Jamaica in United States dollars and which was calculated on the basis of this nominal profit, was to be credited to the account for payment of the tax on production. The granting of this concession by the government to the United States transnational corporations obviously resulted in a comparative disadvantage for the Canadian company, Alcan.

35/ This was stressed to the author of the study by a public-sector director of a semi-public enterprise when he said, in referring to his position as a sleeping partner, "In the Board of Directors, I am definitely not sleeping, I am learning".

36/ See Hu Gentles, "The development of Jamaica Bauxite Institute", The JBI Journal, Vol. 1, No. 1, November 1980, and the author's surveys in same.

37/ For example, see M. Souare, Director of Economic Affairs and Statistics, Department of the IBA, "The IBA is not a cartel", IBA Review, Vol. 6, No. 3, January-March 1981.

38/ The IBA member countries are: Australia, the Dominican Republic, Ghana, Guinea, Guyana, Haiti, Indonesia, Jamaica, Sierra Leone, Suriname and Yugoslavia.

39/ See IBA, Annual Report, 1980.

40/ During the period between 1973 and 1980 the total gross domestic product decreased 18% and the per capita domestic product fell 25%; in 1980, the balance-of-payments deficit and total foreign borrowing equalled 10% and 77%, respectively, of the gross domestic product for that year (see ECLAC, Economic Survey of Latin America, 1980).

41/ According to data provided by the Jamaican Bauxite Institute, the rate of exploitation dropped to the following levels in 1980: Alcan,92%, Alcoa 88%, Alpart 80%, Kaiser 85% and Reynolds 81%.

42/ For example, see Carlton E. Davis, "Some problems in managing Jamaica's bauxite resource", JBI, 1981.

43/ See Joan A. Lipton, Bauxite in Jamaica: Ownership and Control in a Partially Nationalized Industry, Institute of Latin American Studies, University of Texas at Austin, Technical Papers Series No. 21, 1979.

44/ See Samuel Moment, Consultant, "Bauxite: toward stabilization in the turbulent 1980s", 1981 (mimeograph), Department of the IBA.

45/ Other countries in the region besides Jamaica also witnessed a drop in their bauxite and alumina output during the 1970s (see the cases of the Dominican Republic, Haiti and Suriname in table 12 above).

46/ See Latin America Commodities Report, CR-82-09, 7 May 1982.

47/ According to the same source, Jamaican Prime Minister E. Seaga suggested to the companies that they reduce the cost of the energy used to produce alumina in Jamaica by at least one-third by changing over to coal. Alcoa responded by stating that it would only be feasible to expand its refinery while using coal as a power source if existing operations were also converted, and that cost would have to be borne by the government.

48/ See Business Latin America, 21 March 1984.

49/ Alpart's decision appears to fit in with a more general reassessment of the strategy of vertically integrating mining operations with the production of alumina and aluminium. This type of reaction to the world economic crisis and the increase in energy costs was also mirrored in Alcoa's and Alcan's recent decisions to regard each phase in the production cycle as a separate business. In the immediate future, Alcoa wishes to concentrate its efforts on its more profitable alumina refining operations, while cutting back on its less efficient aluminium smelting operations; it would then buy the latter during periods of heavy demand. Alcan, which has access to an inexpensive source of hydropower in Quebec, Canada, also wants to have a swing capacity in its smelting operations which could be adapted to short-term conditions in the industry (see Mining Journal, 13 July 1984).

50/ See Mining Journal, 6 July 1984.

51/ See the source cited in footnote 48 above.

52/ Naturally, this also includes the geopolitical interests of the United States as reflected in the Caribbean initiative, which involves a programme of tariff preferences and an emergency aid package of US$ 350 million for the countries of this area.

53/ Although there is a vast amount of literature --some apologetic, some critical-- on the life and activities of S.J. Patiño, the performance of his company has yet to be assessed from the standpoint of the current problems and needs of the Bolivian mining industry.

54/ Between 1960 and 1976, the 71 governments of the peripheral countries (19 of which are in Latin America and the Caribbean) carried out 1 370 expropriations of foreign companies, particularly in the area of natural resources.

55/ Like the Chilean and Peruvian economies, the Bolivian economy was seriously hurt by the United States' successive freezes on the prices of "strategic materials" during the world wars and the Korean war, as well as by the adverse effects which that country's strategic government tin reserves had on tin prices.

56/ See the annual report of Patiño Mines and Enterprises Consolidated, Inc., London, 1938.

57/ See ENAF, the statement made by Major Eduardo Quiroga, General Manager, in Presencia, La Paz, Bolivia, 6 September 1980, p. 9

58/ This section is based on the consulting work done by the author for the Government of Bolivia in January 1983 and on official data.

59/ In 1983, Bolivia's external debt amounted to approximately US$ 3.7 billion, most of this sum being owed to the governments of the industrialized countries and international institutions (about three-fourths of the total debt). The government ceased to make payments on that debt in early 1983, and in May 1984 it temporarily stopped making interest payments.

60/ For example, the tin production target set by the government for COMIBOL for 1983 was 21 800 tons, i.e., a 32% increase over the preceding year. In fact, output dropped in 1983 to only 14 500 tons. When, in January 1983, the author tried to find out from COMIBOL what the technical justification had been for that year's production targets, he found that there was no such justification, just as there was no planning bureau.

61/ For example, FERTIMEX experts calculate that Mexico could export ammonium phosphate to Asian markets at a price US$ 35 below that charged by the United States due to its lower phosphate production costs (US$ 15), processing costs (US$ 5) and shipping freight rates (US$ 15).

62/ See ECLAC, Economic Survey of Latin America, 1982.

63/ See FAO, Fertilizer Yearbook, 1981.

64/ In 1982, Mexico's per capita gross domestic product dropped 2.8%, its terms of trade declined by 10.7%, the fiscal deficit increased to 40% of total government income, and the country found it necessary to renegotiate its external debt, which amounted to over US$ 81 billion by then (in comparison to US$ 30 billion in 1977), due to its growing balance-of-payments deficit and the decrease in its international foreign exchange reserves, which were drawn down by nearly US$ 3 billion in 1982. See ECLAC, Economic Survey of Latin America, 1982.

65/ This chapter is based on a number of FERTIMEX annual reports and on surveys conducted by the author in that company.

66/ Organic fertilizer obtained from bird droppings.

67/ With the exception of the production and exportation of ammonia, which is handled by PEMEX, the company responsible for the production and distribution of oil and basic petrochemicals. A small percentage of the production of ammonium sulphate also continues to be handled by private enterprise.

68/ See the study cited in table 19.

69/ For example, see the World Bank, Mexico: Second Fertilizer Project (Lázaro Cárdenas), Staff Appraisal Report, 29 March, 1979.

70/ The investment plan for the 1980s provides for the installation of an additional storage capacity of approximately 840 000 tons in 36 warehouses.

II. CONCLUSIONS FROM THE LATIN AMERICAN EXPERIENCE IN THE INTERNATIONAL SPHERE

The case of copper in Chile and Peru, and that of bauxite in Jamaica, tin in Bolivia and phosphates in Mexico, analysed in the earlier part of this study, reflect the profound changes that have occurred in the mining and metallurgical industry of Latin America during the postwar period, and particularly in the decade of the 1970s. Examining these experiences in the wider context of developments in other mining countries of the Third World, we can attempt to draw some preliminary conclusions on the different aspects of the process. An exercise of this type is necessarily tentative for at least two reasons: first, since the subject is mainly concerned with historical phenomena assessed practically at the time of their occurrence, we meet with serious deficiencies in our knowledge of the complex reality and with effects that it is difficult to predict; second, and more important, the theme of the study, which is of great controversial interest, essentially involves a certain ideological posture and specific attitudes on the part of the respective author (although he would possibly deny this in the conviction that his own interpretations are the only valid ones). Since it is beyond the scope of this paper to make a comparative analysis of the different viewpoints (neoliberal, structuralist, marxist and neomarxist, "nationalist", and those in favour of dependence and transnationalization, etc.), were merely wish to repeat here that the "ideological bias" consciously adopted in this study is that of the centre-periphery system, an approach developed in ECLAC by R. Prebisch, A. Pinto and others.1/ From this angle we hope to propound some ideas on the recent changes in the relations and linkages between the peripheral countries and those of the industrialized centre in the particular field of the mining and metallurgical industries.

1. Structural changes in the world mining and metallurgical industry

a) At the level of the centre-periphery system

In the first place, the experience of Latin America and other peripheral countries seems to indicate that the increased degree of national sovereignty over their mining resources, achieved through government policies and the establishment of their own mining and metallurgical enterprises, is associated

/with a

with a marked trend towards change in the traditional role of the periphery as producer of minerals to be processed and consumed exclusively in the countries of the industrialized centre. The analysed cases of the public enterprises in Chile, Peru, Bolivia, Jamaica and Mexico are characteristic of the efforts and advances made in the growth of mineral processing in order to raise their value-added and the retention in the country of export income, and to surmount the oligopolistic barriers of the world markets. This trend appears to be expressed in a relative redeployment of the processing of solid and non-ferrous minerals from the capitalist centre to the mining countries of the periphery and the socialist centre.

The phenomenon is illustrated in table 20, which presents, for six important non-ferrous minerals, the data on the change of status in the period 1970-1982 of the different groups of countries in the world context of mineral reserves and production, their metallurgical processing and the working (consumption) of metals. To begin with, it can be seen that during the 1970s, in respect of the six minerals reviewed, the capitalist centre reduced its relative position both in metallurgical production and in the working of metals. At the same time, and with the sole exception of lead, there was a strengthening of the role of the periphery, especially Latin America, in both fields. The outstanding example is that of metallic tin (analysed earlier within the Bolivian experience), where the share of the periphery rose in the period under review from an already high 60% to 70% of the world total (in Latin America, from 2 to 13%).

At all events, with this exception, the redeployment of mineral processing at the beginning of the 1980s was still in its early stages: whereas the peripheral countries reached between 20 and 45% of the world total in the mining phase, their role in the processing of the five minerals varied between 11 and 23% (the two figures refer respectively to lead and copper) and, in the working of metals, only between 5 and 14% (nickel and zinc). The respective limits for Latin America were 8 and 23% in the mining phase (nickel and copper), 5 and 13% in the metallurgical phase (nickel and copper) and 2 and 5% in the working of metals (nickel on the one side and copper, tin and zinc on the other).

/Table 20

LATIN AMERICA: CHANGES OF POSITION IN THE WORLD MINING AND METALLURGICAL INDUSTRY IN THE DECADE OF THE 1970s

(World in millions of metric tons and percentage of world total)

Mineral/Metal/Area	Reserves 1982	Production: Mining 1970	Production: Mining 1982	Production: Metallurgical 1970	Production: Metallurgical 1982	Metal-working 1970	Metal-working 1982
COPPER - World	691.2	6.4	8.2	7.6	9.5	7.3	9.1
Centre	43.0	42.5	29.6	61.6	50.1	74.5	63.9
Periphery	45.0	36.0	44.8	18.6	23.2	4.0	9.3
Latin America	30.0	15.5	22.7	7.6	12.6	2.5	5.0
SC	12	20.5	25.6	19.8	26.7	21.5	27.1
TIN - World	8.0	0.2	0.2	0.2	0.2	0.2	0.2
Centre	7.0	6.4	9.4	24.5	14.1	71.1	61.5
Periphery	68	78.3	75.2	60.5	69.9	8.0	11.0
Latin America	15	16.6	16.7	2.3	12.8	2.7	5.0
SC	25	15.3	15.4	15.0	16.0	20.9	27.5
BAUXITE/ALUMINIUM - World	16 740.0	59.5	78.2	10.3	14.0	10.0	14.3
Centre	24.0	28.5	37.0	72.8	61.9	73.2	65.5
Periphery	70	53.4	43.9	5.2	13.3	5.3	9.8
Latin America and the Caribbean	26	41.5	23.2	1.6	5.7	2.1	3.6
SC	6	18.1	19.1	22.0	24.8	21.5	24.7
LEAD - World	127.6	3.4	3.6	4.0	5.3	3.9	5.3
Centre	61	50.9	49.2	62.2	61.3	66.7	59.6
Periphery	18	20.1	19.7	11.7	10.9	6.9	10.2
Latin America	10	12.6	12.5	7.7	6.3	4.3	4.5
SC	21	29.0	31.1	26.1	27.8	26.4	30.2
ZINC - World	172.6	5.5	6.5	5.2	6.0	5.0	6.0
Centre	61	55.5	53.0	68.0	58.9	68.3	55.0
Periphery	26	18.7	21.1	6.3	12.1	7.7	14.1
Latin America	14	12.5	15.2	3.6	7.0	3.2	4.9
SC	13	25.8	25.9	25.7	29.0	24.0	30.9
NICKEL - World	183.7	0.7	0.6	0.6	0.6	0.6	0.6
Centre	24	52.1	34.0	69.2	50.9	76.6	63.7
Periphery	62	30.0	34.2	6.2	14.6	1.5	5.3
Latin America and the Caribbean	10	6.0	8.5	0.8	5.3	0.5	1.7
SC	14	17.9	31.8	24.6	34.5	21.9	31.0

Source: Calculated on the basis of ECLAC, La cooperación técnica y económica en el sector minerometalúrgico de América Latina (E/CEPAL/R.331), March 1984, p. 57.

Note: Centre: developed countries with market economy; periphery: developing countries; SC: countries with centrally planned economy; metal-working: consumption of metals.

/As indicated

As indicated above, the relative redeployment of metallurgical activities and the working of non-ferrous metals from the capitalist centre coincided also in the 1970s with the strengthening of the respective positions of the socialist countries. This occurred particularly in the working of metals in which they achieved greater increases than the peripheral countries put together. At the beginning of the 1980s, this group of countries attained more weight in the metallurgical phase and in the working and use of metals than in the mining phase of the respective products. This trend appears to reflect the importance attributed by the socialist countries to the rapid development of metallurgy and the capital goods industries, in their long-term strategies in the context of competition with the capitalist world. On the same plane it is interesting to note that in respect of the five minerals reviewed (that is, with the exception of tin), the position of the socialist centre in world mining production is substantially higher than in the respective mineral reserves, which would seem to indicate that these reserves are being exploited to the full with a possible disregard for the criterion of profitability associated with the metallic content of the minerals (this being an essential element in the allocation of capital in the market economies).

The structural changes in world mining and metallurgy, analysed here in the context of the centre-periphery system, lead us to the following hypothesis: both the sustained progress in mineral processing and working of metals in the centrally planned economies, and the relatively recent entry of the peripheral countries into these phases of industrialization, seem to indicate that to achieve the redeployment of these activities from the industrialized centres to the peripheral countries it is not enough to rely on the "automatic readjustment" of market forces; on the contrary, more importance comes to be attached to the strategies and plans of their governments and to the policies and institutional instruments capable of achieving the planned goals. Needless to say, these are not necessarily inseparable from centralized planning and State enterprises, as is clearly demonstrated by the well-known "Japanese model" of industrialization where the spectacular progress made was due to successful co-operation between the State and private enterprise. What is more, the big problem of the efficacy and social cost of the said process seems to be related to its degree of centralization and consequent bureaucratization. (We shall return to this dilemma further on.)

/Finally, developing

Finally, developing the foregoing consideration, it would be equally erroneous to assume that the redeployment analysed would take a course necessarily opposed to the interests of the capitalist centre and its transnational corporations, as is proved by the cases, by no means isolated, where the latter considered it advantageous and profitable to shift the metal-working activities to certain countries of the periphery (taking into account mainly the character of their market; see point b) below). It seems equally evident that the acceleration and expansion of the redeployment of mineral processing would require the more active participation of the State, of the centre and the international organizations to achieve greater equilibrium between the entrepreneurial interest in profit and the longer-term political objectives. The cases analysed, as for example the "Chileanization" of copper, indicate both the viability as well as the difficulties of this course.

b) On the level of the leading countries

The unequal geographical distribution of non-renewable (although to some extent substitutible) mining resources and the likewise unequal historial evolution of world economic development formed the basis not only for the vertical segmentation of the mining and metallurgical process, in which the changes at the aggregate level of the centre-periphery system were analysed in the previous section, but also for the concentration of the different phases of the productive cycle in a relatively limited number of countries. By way of illustration from Latin American history, it may be recalled that the Spanish and Portuguese colonizers acquired, in the eighteenth century, from five existing countries (Colombia, Peru, Brazil, Venezuela and Chile) an amount of gold which represented close on 80% of world production during that period. Equally important for the metropolis was the silver produced in Bolivian Potosí and Chilean Chañarcillo. The start of Independence and of the Industrial Revolution in England coincided with the interest of the central powers, not only in the hoarding of gold and silver as the equivalent and symbol of power, but now also in copper, tin, iron, zinc, lead (obtained mainly from Chile, Peru, Bolivia and Mexico) for the casting of cannons and bells, and also and increasingly for the nascent metal products and machinery industry of Europe and, at a later stage, of the United States,

/which gave

whice gave rise in its turn, from the end of the last century, to the direct investment of the transnational corporations in Latin American mining.2/ In this way, and stated in broad terms, the historical bases were laid for the current international division of labour between the centre and the periphery, which, despite the changes indicated in the preceding section, continue to be expressed in phases of the mining and metallurgical process and its concentration in a relatively small number of countries both of the centres and of the periphery.

The situation at the beginning of the decade of the 1980s characterized is table 21, which indicates, for the same minerals as in the preceding table (i.e., copper, tin, bauxite, lead, zinc and nickel), the percentage share of the leading countries involved in mining, metallurgical and metal products and machinery production in the respective world totals of each of the phases of the process. The countries, selected for their prime importance in the different phases, are grouped as in the previous analysis according to the centre-periphery system.

It can be seen, in the first place, that in 1982 only 38 countries accounted for 52% to 87% of the world mining-metallurgical process of the six minerals selected. Among the main mining countries ten were in Latin America, nine in other peripheral areas, six in the capitalist centre and five in the socialist centre, that is, 30 countries in all. On the other hand, in the metallurgical phase of the five minerals (excepting tin), the bulk of production was confined to 12 countries of the capitalist centre and three socialist countries (the Soviet Union, the People's Republic of China and Poland). The seven Latin American countries among the main metallurgical producers were fewer than those found in the mining phase. Among other peripheral countries only three were pre-eminent in the smelting of tin (55% of the world total in Malaysia, Indonesia and Thailand) and one in the refining of copper (6% in Zambia).

The degree of segmentation of the productive process and of concentration in a small number of countries was even more accentuated in the working and use of metals, where the United States, eight countries of West Europe and Japan dominated around half and the two socialist powers (the Soviet Union and China) around 20% of the world total.

/Table 21

Table 21

SEGMENTATION AND CONCENTRATION OF THE WORLD MINING AND METALLURGICAL INDUSTRY (1982)

(The 38 leading countries engaged in the different phases of the process as a percentage of the world total of the respective activity)

Mineral/metal	Leading countries a/	%
COPPER		
Mining production:	Chile, Peru and Mexico	22) 34
	Zambia and Zaire	12)
	Canada	7
	Soviet Union and Poland	19
	Total 8 countries	60
Refining:	Chile, Peru and Mexico	13) 19
	Zambia	6)
	United States and Canada	22) 31
	Belgium and Federal Germany	9)
	Soviet Union, Poland and the People's Republic of China	23
	Total 11 countries	73
Metal-working	Brazil and Mexico	4
	United States	18) 39
	Germany, France, United Kingdom and Italy	21)
	Soviet Union and the People's Republic of China	19
	Total 9 countries	62
TIN		
Mining production:	Bolivia	12) 62
	Malaysia, Indonesia and Thailand	50)
	Australia	5
	Soviet Union and the People's Republic of China	14
	Total 7 countries	81
Metallurgical production:	Bolivia and Brazil	12) 67
	Malaysia, Indonesia and Thailand	55)
	United Kingdom	6
	Soviet Union and the People's Republic of China	14
	Total 8 countries	87

/Table 21 (cont.)

Table 21 (cont.)

Mineral/metal	Leading countries a/	%
Metal-working:	Brazil	2
	United States and Japan	33
	Germany, United Kingdom and France	16
	Soviet Union and the People's Republic of China	18
	Total 8 countries	69
BAUXITE AND ALUMINIUM		
Mining production:	Jamaica, Brazil and Suriname	20) 39
	Guinea	15)
	Greece	4
	Australia	30
	Soviet Union and Yugoslavia	12
	Total 8 countries	81
Alumina production:	Jamaica, Suriname and Brazil	17
	Australia	22)
	United States and Canada	18) 53
	Federal Germany and France	9)
	Japan	4)
	Soviet Union and Yugoslavia	17
	Total 11 countries	87
Aluminium production:	Brazil	3
	United States and Canada	31)
	Germany, Norway, France and Spain	16) 53
	Australia and Japan	6)
	Soviet Union and the People's Republic of China	20
	Total 11 countries	76
Metal-working:	Brazil	2
	United States	26)
	Federal Germany, France	) 57
	Italy, United Kingdom, Belgium and Spain	20)
	Japan	11)
	Soviet Union and the People's Republic of China	17
	Total 11 countries	76
LEAD		
Mining production:	Peru and Mexico	11
	United States and Canada	24) 37
	Australia	13)
	The People's Republic of China	4
	Total 6 countries	52

/Table 21 (cont.)

Table 21 (cont.)

Mineral/metal	Leading countries a/	%
Refining:	Mexico, Peru and Brazil	6
	United States and Canada	25)
	Germany, United Kingdom and France	17)
	Japan	6) 53
	Australia	5)
	Soviet Union and the People's Republic of China	18
	Total 12 countries	77
Metal-working:	Mexico and Brazil	3
	United States	21)
	Germany, United Kingdom, Italy and France	20) 37
	Japan	7)
	Soviet Union, the People's Republic of China and Bulgaria	) 21
	Total 11 countries	72
ZINC		
Mining production:	Peru, Mexico and Brazil	13
	United States and Canada	23)
	Australia	10) 37
	Japan	4)
	Soviet Union and Poland	19
	Total 9 countries	69
Metallurgical production:	Peru, Mexico and Brazil	7
	United States and Canada	14)
	Federal Germany, France, Belgium, Holland and Spain	) 20) 50
	Japan	11)
	Australia	5)
	Soviet Union and the People's Republic of China	21
	Total 14 countries	78
Metal-working:	Brazil and Mexico	4
	United States	13)
	Federal Germany, France, Italy and United Kingdom	) 16) 41
	Japan	12)
	Soviet Union and the People's Republic of China	22
	Total 10 countries	67
NICKEL		
Mining production:	Cuba, Colombia, Dominican Republic and Brazil	9)
	Indonesia and Philippines	11) 20
	Canada	14)
	Australia and New Caledonia	24) 41
	South Africa	3)
	Soviet Union	17
	Total 11 countries	78

/Table 21 (cont.)

Table 21 (concl.)

Mineral/metal	Leading countries a/	%
Refining:	Cuba, Dominican Republic and Brazil	5
	United States and Canada	17)
	Norway and Finland	6) 49
	Japan	14)
	Australia and New Caledonia	12)
	Soviet Union	31
	Total 11 countries	85
Metal-working:	United States	15)
	Federal Germany, France, Italy and United Kingdom	22) 54
	Japan	17)
	Soviet Union	22
	Total 7 countries	76

Source: See table 20.

a/ Countries of each area grouped according to their importance in the mining and metallurgical production and working (consumption) of metals.

/Finally, among

Finally, among the metal-consuming peripheral countries the only important ones were Brazil and Mexico, relatively industrialized countries with large local markets. It is also a feature of these two countries that, although both possess appreciable mining resources in the six minerals analysed (and also in phosphates, as was seen in the case of Mexico in Part I.E. of this paper), they initiated a substitutive industrialization, importing minerals (as, for example, bauxite and tin in Brazil and phosphates in Mexico), and only a posteriori undertook the local exploration and exploitation of these minerals, to become eventually major exporters of metals and manufactured goods.

By way of conclusion it may be said that the concentration of the mining and metallurgical industries and of the working of metals in relatively few countries of the world, coupled with the characterized unequal distribution of the different phases of the productive process, condition also the relations of the centre and periphery in this specific field. In the first place, there is the prime importance of different fora of negotiation and specialized agreements between the governments of the respective countries producing and consuming the various minerals and metals; secondly, in the mineral field, where a group of peripheral countries dominated the decisive quota of reserves and mining production, as for example, in tin, bauxite, copper and phosphates, the associations of producer countries and common policies, such as the integrated programme of UNCTAD, can, at least potentially, reverse the disequilibrium of power and bargaining capacity which was traditionally on the side of the industrialized countries; thirdly, the concentration of production and the markets of minerals and metals coincide with the oligopoly of large transnational corporations based on the leading countries of the centre and, only at a recent stage, with the creation of public enterprises in the mining countries of the periphery. This last phenomenon will be discussed hereunder.

c) On the level of large enterprises

The available data on the importance of the larger enterprises in the industries of copper, bauxite, tin and zinc, collated in tables 22 to 28, lack the homogeneity of the earlier ones at regional level. Despite this limitation they clearly show that in most cases the traditional oligopoly of a few large transnational corporations, integrated vertically from the mining of the periphery to the processing and marketing in the markets of the centre, is being replaced

/by a

by a mixed structure that includes new entrants to the industry, among them the public enterprises of the peripheral mining countries. Thus in 1948, for example, seven large transnational corporations dominated around 70% of the world production of copper; in 1970, their share had fallen to 34%; in 1981, to only 23% (see table 22). In the case of the six largest transnational corporations in aluminium production the decline was greater, from 84% to 64% of the world total between 1955 and 1972 (see table 25).

On the other side, in 1975 the three public enterprises of the periphery, situated in Chile, Zambia and Zaire, had 28% of the world installed capacity for copper production, that is, the same amount as eight of the largest transnational corporations of the capitalist centre. The two socialist State enterprises of the centre, belonging to the Soviet Union and Poland, owned 13% of the world total (see table 23). Thus in 1975 13 large enterprises had approximately 70% of the world total, the same quota as seven transnational corporations in 1948, but with the important difference that the international concentration of the copper industry is now shared with three public enterprises of the periphery, which owns two-fifths of the quota of power formerly controlled exclusively by the seven transnational corporations.

/Table 22

Table 22

SHARE OF THE LEADING TRANSNATIONAL CORPORATIONS IN THE WORLD PRODUCTION OF COPPER (1948-1981)

(Thousands of metric tons)

Corporations	1948	1960	1970	1981
Kennecott (USA)	514	571	519	378
Asarco (USA)	-	-	72	327
Phelps Dodge (USA)	247	234	413	287
Newmont (USA)	-	-		228
Anglo American (South Africa)	118	392	153	185
Anaconda (USA)	362	476	242	135
Inco (Canada)	118	155	177	132
Roan-AMC Group (USA) a/	134	241	338	-
Union Miniere (Belgium) a/	171	331	-	-
Total	1 664	2 400	1 914	1 672
Share in world production	70%	60%	34%	23%

Source: Centre of Transnational Corporations, United Nations, Transnational Corporations in World Development, Third Survey, New York, 1983 (table U.5, p. 108).

a/ Roan-AMC was nationalized by the Government of Zambia in 1970 and Union Miniere by that of Zaire in 1967.

/Table 23

Table 23

ROLE OF THE PUBLIC SECTOR AND TRANSNATIONAL CORPORATIONS IN THE WORLD PRODUCTION OF COPPER (1975)

(Estimated in thousands of tons and in % of world installed capacity)

Type of enterprise			%	Installed capacity
Public enterprises of:	Chile		11	950
	Zambia		10	850
	Zaire		7	620
		Subtotal	28	2 430
State enterprises of:	Soviet Union		11	1 120
	Poland		2	200
		Subtotal	13	1 320
Eight major TNs a/			28	2 470
		Total	69	6 210

Source: R.B. Mekern, Transnational Corporations in the Copper Industry of Developing Countries, Centre of Transnational Corporations, United Nations, New York, 1983.

a/ Rio Tinto Zinc, Asarco, Kennecott, Newmont, Phelps Dodge, Anaconda, International Nickel and Noranda.

/Table 24

Table 24

SHARE OF THE TRANSNATIONAL CORPORATIONS IN THE WORLD PRODUCTION AND PROCESSING OF COPPER (1977)

(Percentages)

Corporation	Mining production	Smelting	Refining
Asarco	7.3	9.9	7.8
Kennecott	5.5	5.5	5.9
Río Tinto Zinc	5.5	2.8	2.6
Anaconda	2.9	3.5	2.6
Phelps Dodge	3.9	5.1	5.4
Newmont	2.7	2.7	-
Subtotal 6 corporations	27.8	29.5	24.3
Amax	-	2.5	2.8
Noranda	-	2.6	4.9
Nippon Mining	-	5.1	4.8
Mitsubishi	-	3.6	3.0
Norddeutsche Afinerie	-	2.5	3.0
Subtotal 5 corporations	-	16.3	18.5
Total 11 corporations	27.8	45.8	42.8

Source: UNIDO, Mineral Processing in Developing Countries, December 1979.

/Table 25

Table 25

SHARE OF THE SIX LEADING TRANSNATIONAL CORPORATIONS IN THE WORLD PRODUCTION OF PRIMARY ALUMINIUM

(As percentage of world total excluding the socialist countries)

Corporation	1955	1965	1970	1972
Alcoa	23.2	17.1	16.3	15.4
Alcan	24.5	15.6	16.3	15.3
Reynolds	13.5	13.2	12.8	11.0
Kaiser	13.3	11.5	9.4	8.8
Pechiney	6.1	8.4	9.3	8.1
Alusuisse	4.0	6.8	6.6	5.6
Total	84.5	72.3	70.7	64.2

Source: J.L. Mardones; E. Silva R. and C. Martínez Z., Las Industrias del Cobre y Aluminio: Una Revisión de Cambios Estructurales, Comisión Chilena del Cobre, 1984, mimeographed; on the basis of ABMS, Yearbook of Non-Ferrous Metal Data; Skinner's Mining International Yearbook, Moody's Industrial Manual, and annual reports of the corporations.

/Table 26

Table 26

ROLE OF THE PUBLIC SECTOR AND TRANSNATIONAL CORPORATIONS IN BAUXITE PRODUCTION AND PROCESSING CAPACITY (1982)

(As percentage of world total)

Type of corporation	Bauxite	Alumina	Aluminium
World total (thousands of MT)	111 940	39 875	17 883
1. Public enterprises of peripheral countries	19.3	6.3	5.0
2. State enterprises: a) socialist countries	33.9	17.6	20.9
b) capitalist countries	0.3	3.9	8.4
3. Six leading transnational corporations	46.3	50.4	44.5
4. Other private enterprises	20.4	21.7	21.2

Source: Centre of Transnational Corporations, United Nations, Transnational Corporations in World Development, Third Survey, New York, 1983.

/Table 27

Table 27

ROLE OF THE PUBLIC SECTOR AND TRANSNATIONAL CORPORATIONS IN THE WORLD METALLURGY OF TIN (1979)

(Estimated in thousands of tons and % of world installed capacity)

Type of corporation		%	Installed capacity
Public enterprises of:	Bolivia	9	30
	Indonesia	7	25
	Subtotal	16	55
State enterprises of:	Soviet Union	11	39
	The People's Republic of China	10	35
	Subtotal	22	74
Leading transnational corporations a/		54	198

Source: J. Kñakal, Vinculaciones de las empresas transnacionales con la industria del estaño en Bolivia, ECLAC/CTC Joint Unit (E/CEPAL/R.239), 1982.

a/ Patiño, N.V., Straits Trading Co. and Royal Dutch Shell (Billiton).

/Table 28

Table 28

SHARE OF TRANSNATIONAL CORPORATIONS IN ZINC PRODUCTION AND REFINING CAPACITY (1977)

(Percentages)

Corporation	Mining capacity	Refining capacity
Asarco	6.8	4.5
Noranda	6.1	3.6
Río Tinto Zinc	3.8	4.7
Amax	3.2	-
Societé Generale	3.0	12.2
St. Joe Minerals	2.8	4.3
Cyprus Mining	2.6	-
Mitsui	2.3	5.5
Metallgesellschaft	-	3.7
Total	30.6	38.5

Source: UNIDO, Mineral Processing in Developing Countries, December 1979.

/The establishment

The establishment of public enterprises in the peripheral countries also figures in the structure of the world bauxite and tin industry. In 1982 they had a 19% share in the world production capacity of the first-named mineral, while the six largest transnational corporations had 46%, other private enterprises 20% and the State enterprises of the socialist centre the remaining 14% (see table 26). In the world smelting of tin, the public enterprises of Bolivia and Indonesia had a quota of only 16% in 1979 compared with 54% corresponding to three transnational corporations and 22% to the State enterprises of the Soviet Union and the People's Republic of China (see table 27).

In the case of metallic tin we note the phenomenon previously observed (in point a) of this Chapter) in global terms of the centre-periphery system: despite the progress made by the peripheral countries and especially their public enterprises in mineral processing, the transnational corporations still maintain a marked supremacy in this field. In the copper industry this fact was related to the specialization of certain transnational corporations in the processing of the mineral: in 1977 six transnational corporations had similar shares in the world mining, smelting and refining of copper: 28%, 29% and 24% respectively. Another five large enterprises were engaged solely in the smelting and refining phases of the metal, representing 16% and 18% respectively of the world total (see table 24).

In the aluminium industry, in 1982, the six largest transnational corporations had a larger share in the world production of alumina (50%) than in that of bauxite (46%), but a smaller share in aluminium (44%, see table 26). On the other hand, the public enterprises of the developing countries had a much larger presence in the mining phase (19% of the world total) than in the processing of alumina and aluminium (6% and 5% respectively). A greater degree of diversification of the markets for bauxite that occurred in the peripheral countries represented the capacity for alumina and aluminium production found in the State enterprises of the socialist and capitalist countries (21% in alumina and 29% in aluminium of the world total), while the respective quota of these enterprises in the mining production was only 14%.

/As was

As was seen in the case of Jamaica (in Part I.C.6.), this marketing option strengthens the bargaining power of the peripheral countries. Finally, in the zinc industry, nine transnational corporations accounted in 1977 for only 31% of the mining capacity and 38% of the refining, the predominant enterprises in this activity being smaller independent firms.

d) Strengthening of national sovereignty over mining resource

The foregoing analysis of the main structural changes in the world mining and metallurgical industry, carried out at the level of the centre-periphery system and of the countries and enterprises with more weight in the different phases of the productive process, leads us to conclude that the mining countries of Latin America and other developing regions achieved a greater degree of sovereignty over their mining resources in the recent past as a result of the nationalization of local subsidiaries of transnational corporations and the establishment of public enterprises which today, in the case of some minerals, account for important quotas not only in the mining but also in the metallurgical phase (particularly in the case of tin and copper). On the other hand, this does not imply that public enterprises represent the only way to strengthen this sovereignty and to redeploy the processing of minerals to the relative advantage of the periphery. The Latin American experience, analysed in Part I of this study, indicates both the problems relating to the efficacy of the public sector and also other options for reinforcing national sovereignty and increasing the economic and social benefits deriving from a better utilization of mining resources. These aspects will be considered as a follow-up to these tentative conclusions.

2. Institutional role of the State and public enterprises

The analysis of the main structural changes in the world mining and metallurgical industry in the previous chapter showed that the relative redeployment of mineral processing from the industrialized centres to the Latin American countries was positively related to the growing role of the State and public enterprises in the development of the industry, reflecting in its turn a greater degree of national sovereignty over mineral resources. On the other hand, the experiences of some countries of Latin America, assessed in Part I of this paper, indicate that the process of radical social change was not free from vicissitudes and obstacles and

/did not

did not necessarily and invariably signify greater benefits for the national economies, in comparison with the former period of oligopolistic domination of mining wealth by the transnational corporations. Before we embark on the subject of the interaction between the public sector and the transnational corporations it will be useful to reflect on the institutional role of the public sector in industry, its administrative capacity vis-à-vis the transnational corporations, the links between the State and public enterprises together with some "domestic" problems of the latter.

a) General and specific background to the subject

The active role of the State in economic development and its entrepreneurial function has a long history in Latin America and a relatively wide extension. The origin of the incursion of the State into industrial activities is related to the substitutive industrialization in the region. For example, as indicated above, the Corporación de Fomento de la Producción (Productive Development Corporation) was established by the Chilean State in 1939 and its financial needs led to increased taxation of the transnational corporations engaged in the copper industry. According to a recent survey, there were some 1 700 public enterprises in Latin America in the second half of the decade of the 1970s, of which 21 were engaged in mining (including petroleum and refining) and a like number in the metallurgical industry.3/

Despite the regional and sectoral extension of public enterprises in the region, their character and the view taken of their role continue to be very heterogeneous, according to the different stages and styles of development, ideologies and government policies, etc. Clearly the essence of the various positions and interpretations of the phenomenon consists in the roles and advantages attributed to the "free play of market forces and their automatic readjustments" and to the active intervention of the State in the economy, taking as extreme models that of the centrally planned economy of the socialist countries (only Cuba in the region) and, on the other side, the neo-liberal model of the Chicago school of the United States (implanted, for example, in Chile in the 1970s). As we find in Latin America, both in historical and geographical terms, mixed economies with different degrees of participation of the public and private sectors, we

/shall concern

shall concern ourselves from now on with this general framework, bearing in mind the heterogeneity of the national situations.4/

The interesting aspect in relation to our conclusions is the particular character of the public sector in the mining and metallurgical industry, which obviously affects the development of its capacity and the benefits obtained. In the first place, the origin of the public sector in Latin American mining is largely connected with cases of major national consensus (also known as "nationalist") on the desirability of exercising sovereignty over the mining resources and increasing the economic and social benefits for the country via nationalization of the existing foreign enterprises. The State solution seems to be mainly a response to pragmatic reasons of absence of private capital concentrated in the great amounts required, and/or to a lack of interest in assuming the risks involved (the obvious exceptions to "pragmatism" being the Chilean nationalization in the context of the socialist ideology of the Government of Popular Unity, but supported by the opposition likewise, and, in the matter of national private capital, the "triple" mixed enterprises in Brazil). In the case of relatively industrialized countries with a large local market, such as Brazil and Mexico,5/ we may also recall the establishment of public enterprises to undertake specific projects involving heavy new investments in mining and processing ("filling the gaps", without the contribution of private capital, as occurred in the substitutive industrialization in general), while in Chile, Peru, Bolivia and Jamaica these were established, with or without the association of transnational corporations, on the basis of established foreign enterprises. Obviously this difference of origin can have implications, both positive and negative, for the subsequent development of the public enterprise.

Secondly, and in relation to the foregoing, there is the fact that public enterprise in the mining and metallurgical industry has in the main a strategic character for the development of the country, not only because of its local linkages (employment, productive inputs, technology, infrastructure, government budget, etc.), but chiefly because of its importance in the international insertion of the country as an instrument in the acquisition of foreign exchange, in the increase of the value retained in the country via processing and marketing and, finally, in negotiation, confrontation and/or co-operation with transnational

/corporations and

corporations and other foreign agents (including similar enterprises in other peripheral or socialist countries, international groupings, etc.). Once again, of course, this "external" projection may be less important in the public enterprises directed preferentially to the local market (see for example the analysed case of FERTIMEX). As we shall see further on the instrumental character of the mining public enterprise in State development "outwards" can also have important implications and obstacles for development.

Finally, the strategic character of the mining public enterprise seems to be expressed in its durability in unstable and adverse political and economic conditions. As regards the political aspect, we have already noted the survival of these enterprises in face of the "law of the pendulum", which is reflected, in many countries of the region, in rotation of governments (both elected and "self-appointed") with opposing ideologies and political programmes. This appears to be confirmed by all the cases examined in the first place of this study (with the exception, once again, of Mexico, where the dilemma did not arise owing to its well-known political continuity). This durability is also noticeable vis-à-vis the notorious instability of the external markets for primary products, which in extreme situations, such as the present world economic crisis, often leads to the bankruptcy of private enterprises which lack financial capacity and the needful diversification of activities (in contrast to the transnational corporations) for surviving it. Naturally this degree of social security, linked with the amplitude of the national political consensus, has an influence on the behaviour of the public enterprise.

We go on to deal with some specific aspects of the capacity of the mining public enterprises vis-à-vis transnational corporations, their links with the State and domestic problems.

b) Administrative capacity vis-à-vis transnational corporations

The cases analysed of negotiation with the transnational corporations seem to confirm the importance of information, knowledge and experience both in the separate and multiple aspects, specific or technical, of the subject and in the global, socioeconomic and political aspects. The experience undergone in this field in the 1970s may be characterized, in general terms, as one of trial and error. At the outset, the representatives of the State relied to a large extent

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on the political will of the government (that is, on the "nationalist rhetoric", according to the neo-liberal critics of the process) and on only meagre technical support, supplied largely by intellectuals and social scientists. In the 1980s the peripheral State has at its disposal divisions specialized in the various aspects and public enterprises within the industry. Naturally, this generalization covers experiences of different types, such as the scant capacity of the Peruvian State to supervise the complex aspects of the agreements with the Southern Peru Corporation on the Cuajone project, which contrasts with the competence and experience of Chilean State organizations and technicians acquired in the successive steps of State intervention in the industry.

In the different phases of activity and elements of the administrative capacity of the public sector in its interaction with the transnational corporations, that is to say, information, negotiation group, preparation of the agreement and its subsequent supervision, different organizational forms are observable according to the tradition of the country, its style of government, etc. (For example, negotiation at the highest government level, ad hoc groups, such as that which formed the basis for the establishment of the Bauxite Institute in Jamaica or, particularly at the "maturation" stage of the public sector, more hierarchical structures representing the respective government divisions and the public enterprise.) In contrast, the Peruvian and Jamaican experiences seem to suggest that, rather than forms of organization, the factor with the greatest impact is frequently the difficult equilibrium between the different sectoral and individual interests of the various nuclei of the public sector associated with the project (miners, metallurgists, treasury, external trade, etc.). This equilibrium can be achieved, at least potentially, by means of informed, flexible, but at the same time "authoritative" direction by the central agency of Economy and Planning.

Secondly, the professionally "normative" approach of the government analyses (concentrating arguments to justify the solutions proposed) should be complemented by forward-looking projections made under alternative conditioners including those unfavourable to the project and decisions proposed. For example, in the case of the Jamaican negotiations in the mid-1970s it was difficult, if not impossible, to calculate the effects of the world economic crisis of the early 1980s, but past experiences, not only of the country itself, could have led to a

/consideration of

consideration of the option of a rapid diversification of the sources of supply on the part of the transnational corporations. Similarly, the case of OPEC could have been taken into account not only as a factor and example of peripheral solidarity but also of the increased energy cost for the industry with the well-known consequences for its competitiveness.

Finally, it must be borne in mind that the mere institutional aspects of bargaining capacity, important in themselves, can be overreached by the substantial factors of power.

c) Linkages between the State and public enterprises

In the preceding sections the public sector in the mining and metallurgical industry was considered mainly as an integral entity of the respective organs and divisions of the State related to the industry, and of the public enterprises functioning in it. Nonetheless, the experience of Latin America shows that the roots of the problems detected, of the low productivity and profitability of the enterprise, lie in the divergences (and their forms of solution) between the entrepreneurial interest in profit and capital accumulation and the wider interests of the national society represented by the State, its institutional apparatus and the government of the day that directs it. Once again, the debate on this dilemma is of ancient date, skewed by ideological attitudes and including not only the peripheral countries but also the industrialized countries of the capitalist and socialist centres.6/ For the better understanding of the problem in the context of the mining and metallurgical industry we must try to elucidate the type of interests involved and their projection in the experiences analysed in this paper.

Considering the mining public enterprise as an instrument of State economic and social policy, three functions of this policy can in essence be distinguished: the optimum utilization of the mining resources in the context of the aims and goals of the programmes and plans of the government; the redistribution of revenue between the mining enterprise and other sectors of the economy and society; and, lastly, the distribution of revenue between the factors of capital and labour within the mining or metallurgical public enterprise itself.

The experiences studied of the public enterprises in Bolivia, Jamaica and Mexico appear to indicate that the exercise of the distributive functions of the State can run counter to the realization of the first function of optimum development

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of the industry, a function with which the public enterprise or at least its directing boards are fully identified. It is obvious that cases such as the sale of phosphatized fertilizers to farmers by FERTIMEX at prices below the cost of production; absorption of the bauxite development fund of the public sector in Jamaica in order to palliate the budgetary deficit of the government; or maintenance of disguised unemployment in the inefficient mines of COMIBOL in Bolivia, have an adverse effect on the profitability of the enterprise and consequently lead to its decapitalization and indebtedness, both local and external, thereby forcing the State to subsidize it with budgetary contributions and to guarantee its credits.

Clearly the redistributive functions of the State --regulator of the spontaneous market forces in a mixed and underdeveloped economy-- are indispensable for the attainment of the economic and social aims planned by the government and the satisfaction of the demands of the neglected social groups, particularly in a democratic régime. The obvious issue is how to reach the desired equilibrium between State control and the economic autonomy of the public enterprise. Leaving aside the two extremes of the neo-liberal and centrally planned models and recognizing that even in the mixed economies of the region there are still different styles of development, different degrees of intervention by the State and of the authority of its planning agencies vis-à-vis the socioeconomic agents,7/ the discussion can be confined to certain "technical" options. The authors quoted suggest, in general terms, the following alternatives: i) to determine and quantify the State subsidies for the public enterprise ex-ante, or at least establish priorities in the target populations that it is wished to help; ii) as regards pressure for employment, to give direct State aid to the sector of new proprietors instead of subsidizing unemployment, and iii) to fix a limit to the government finance that can be granted to a public enterprise.

Taking into account the specific character of the public enterprise in the mining and metallurgical industry, which clearly differentiates it not only from the traditional public enterprises in the services sector but also from those directed primarily to the domestic market, it would seem useful to explore the options of concrete application of the proposals mentioned. One possible orientation of this exercise, underlining the external interests of the mining and metallurgical public enterprise and its competitive-cum-co-operative existence alongside the transnational corporations, would be to redirect the role of the current instruments

/of State

of State control, administrative and legal, budgetary and fiscal, etc., towards contractual and commercial procedures and, where possible, to consider the institutional separation of the specifically economic functions from the social ones (e.g., provisioning and social welfare of the miners, distribution and marketing of fertilizers by the State, etc.). At the same time we should bear in mind, particularly in the matter of investments, the vicissitudes of the Brazilian experience (not analysed in this study), where apparently the dimensions of the power of accumulation of the public enterprise, particularly in conjunction with local and foreign private capital and, consequently, the professional and political power of the top management, enabled it to resist State control and define the sectoral policies to the detriment of societal interests.8/

d) Some management problems in the public enterprises

The cases analysed of the public enterprises of MINPECO, CODELCO, COMIBOL, ENAF and FERTIMEX are sufficiently heterogeneous in respect of goals achieved and problems encountered to make it difficult to draw confident and categorical conclusions. This relates, in the first place, to the "dualistic" option of regarding them as intrinsically positive or negative for the optimum development of the mining and metallurgical industry. Let us remember in this connection the high profitability attained by CODELCO, which produced for the Chilean State treasury during 1975-1983, a period of low copper prices, some US$ 6.6 billion;9/ the more remunerative prices, compared with the Southern Peru Corporation, achieved by MINPECO; the dizzy growth of FERTIMEX and the relatively high degree of its autonomy in technology and engineering, and, in general terms, the increase already mentioned in the value retained in the country of exports via mineral processing and marketing, coupled with a greater use of local inputs. On the negative side of the balance are the high and non-competitive costs of production, such as, for example, in the smelting plants of MINEROPERU and ENAF, or in the processing of phosphates in FERTIMEX; the general deficiencies in the exploration of mineral reserves, in the assimilation of new technologies and the setting up of productive capacities along with the maintenance of the existing ones, these problems being more serious in the critical situation of COMIBOL and ENAF. Taking into account the said diversity of the balance and indeed its limited representativeness, let us venture some conclusions of a general nature.

/First and

First and foremost, the national medium, reflecting the degree of socio-economic and technological development attained, coupled with the time element, seems to be a pre-eminent factor, though not a sine qua non, in the acquisition of experience and the overcoming of the "transitory" problems of large enterprises, established mainly in contraposition to the philosophy and type of administration of the former transnational proprietors. Obviously the possibility of technical and economic support, both direct and indirect, for the mining public enterprise from other segments of the society and economy does not occur in the same conditions in Brazil, Mexico or Chile, on the one hand, and in Bolivia or Jamaica on the other. (See, for example, the previously mentioned importance of the public enterprises in the petroleum and petrochemical industries for the technological and engineering progress of FERTIMEX.)

Secondly, the imposition of social functions by the State on the public enterprises and the excess of centralism in their control, which was discussed in the foregoing section of this chapter, have direct effects not only on the profitability and capital accumulation of the enterprise (palliated, to a greater or lesser extent, by State subsidies), but also, and perhaps more important, on the entrepreneurial climate, which is biased towards bureaucracy and lack of personal responsibility in the management of the enterprise. In this there is frequently a merging and confusion between the costs or subsidies programmed to comply with specific social functions and the costs resulting from errors in management and administration. A more precise delimitation between management and social functions (through contractual fiscal instruments and, possibly, organizational measures) might help to solve this type of problem.

Thirdly, the decapitalization and heavy indebtedness of the public enterprise, guaranteed by the State, leads to the aforesaid fatalism and lack of initiative on the part of the directing board, which can be aggravated by the absence of personal incentives and prospects in face of the promotion, designations and frequent changes of managers for political reasons irrespective of professional merit. Clearly a greater stability in the contracts of managers and directors and public control of the suggested changes in personnel might strengthen their loyalty to the enterprise and improve its economic results.

/Fourthly, the

Fourthly, the labour problems and conflicts that affect many public as well as private enterprises are usually connected with the defects of management described in the preceding sections and, in addition, with the long tradition of fighting for rights with the former foreign owners of the enterprise, which often gave rise in the mining enclaves to a kind of union "élite", relatively privileged within the labour force of the country. The changes of attitude towards the public enterprise naturally require more time and can be facilitated by adequate systems of training, promotion and incentives coupled with various degrees of participation by the workers in the management of the public enterprise (as recently took place in COMIBOL).

Finally, the style of planning and control of the public enterprise by the State should be reflected also in an adequate system of planning and information inside the enterprise. This should not only assist the State and public control of its activities but should also become an effective instrument of daily management and at the same time strengthen its development prospects, not only in relation to investment projects, but also to the main aspects of technological development and workers' training, marketing, finance, etc.

e) Concluding note on medium-scale and small miners

The case studies summarized in the first part of this paper concentrated on the roles played by the leading protagonists of mining and metallurgical development in the region, public enterprises and transnational corporations, and only marginally dealt with the linkages between the public sector and the medium-scale and small mining enterprises which constitute the national private sector in various mining countries of the region. This neglect on our part reflects, in a sense, 10/ the focus of the subject and Latin American government policies, which are mainly concerned with negotiations and agreements with the public enterprises connected with large projects and with their consolidation. Nevertheless, the experience of the last decade shows the continuing importance of this sector for mining development, particularly in the Andean countries. For example, as indicated in the case of Bolivia, the medium-scale and small miners represented an important stabilizing factor in the tin industry in face

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of the diminution of production and exports in the public enterprises (their share in the national production of the mineral increased from 31% to 39% during the period 1977-1983). At the same time, public sector support for the medium-scale and small miners in important aspects of technological development and modernization, marketing and finance has not been adequate and in several cases has not even been enough to replace the former ties with the transnational corporations and the trading intermediaries. Hence the subject calls for more detailed study and specific policies both on the part of the governments and of the international organizations.

3. Transnational corporations and the government of the mining country: interests, options, criteria and alternatives

a) Divergence of objectives and main alternatives of interaction

In the preceding chapter we analysed some divergences between the interests of profitability and capital accumulation of the public enterprise in the mining and metallurgical industry and the broader social interests of the State. In the case of the interaction and linkages between the public sector and the transnational corporation, it is obvious that the divergence of interests between them is totally different in character for a reason of a general nature: whereas the public enterprise forms part of the economy of the mining country and, in addition, is the property of the State, the DFI (direct foreign investment) and the respective foreign affiliate in this country form part of the much wider transnational patrimony, whose "nucleus" of administration and capital (headquarters) is in the industrialized country to which the transnational corporation belongs. In the particular case of the mining and metallurgical industry, the profit motive of the capital invested by the shareholders and backers of the DFI induces the transnational corporation to try to guarantee the supply of the mineral required in the respective mining country, at a minimum cost for its local extraction and always within the context of the maximum profitability of the world operations of the corporation as a whole.

In contrast, the overall objectives of the State and government of the mining country, consist in the optimum utilization of the local mineral resource for national development by way of foreign exchange and budgetary revenues and

/integration of

integration of the mining project through its linkages "backwards and forwards" (welfare, employment and local inputs, technological development and industrialization, etc.) and in generally obtaining more control (national sovereignty) over the mining and metallurgical industry.

The experience of Latin America and other developing regions shows that this divergence of overall interests between the transnational corporation and the mining State had implications of various types: first, in terms of the main political alternatives, it led to four "models" of interaction and linkages between the corporation and the public sector of the mining country, namely: i) the traditional concession of the mining resource to the corporation characterized by a pronounced imbalance in favour of the corporation and to the detriment of the mining country as regards the distribution of the revenues of the project and its linkages with the local economy, this being progressively replaced in the past decade by ii) the modern or "development-type" concession which seeks, in various aspects and different degrees, to improve on the earlier situations of a foreign enclave in the economy of the mining country (see, for example, the agreements of Toquepala and Cuajone in Peru, analysed in Part I.A.2 and 3 of this paper); iii) the total or partial nationalization of the branch of the transnational corporation by the government of the mining country (and/or the decision of the corporation itself to withdraw its investment and disassociate itself from the mining resource of the country) and the subsequent establishment of the public enterprise; iv) the mixed enterprise of the latter and the transnational corporation and/or various modalities of co-operation between the two enterprises.11/

Second, the cases analysed of selected minerals and countries of the region appear to confirm that the application and development of the alternatives indicated did not form a process of lineal succession but were superimposed or combined one with another (e.g., in contrast to the Bolivian case, the setting up of mixed companies between the public enterprise, CODELCO, and the transnational corporations in the "Chileanization" of copper preceded the total nationalization of the foreign subsidiaries in Chile; similarly, the partial nationalization in Jamaica coincided with the establishment of mixed enterprises and the concertation of agreements of co-operation, etc.).

/Third, the

Third, the very variety and application of the main political alternatives of interaction between the transnational corporation and the mining State appear to prove that the aforesaid divergence of global interests between the two parties is not necessarily irreconcilable (a situation which does occur, at least temporarily, in the cases of unilateral and forcible nationalization or disinvestment), but can be settled provided that both parties consider it advantageous to promote their main mutual interests, namely, on the one side, the exploitation and supply of the mineral, and on the other, the technological, financial and similar support that the corporation can offer the mining country.

Finally, the divergences of interest and alternative solutions discussed here in overall terms are reflected in many concrete and specific aspects of the DFI and other forms of foreign participation in the mining and metallurgical development of the peripheral country. In the following chart we have attempted to summarize and systematize the interests, options and criteria of the transnational corporation and of the government of the mining country together with the respective alternatives, institutional and instrumental, in terms of 11 major problems (financing and recompense of the DFI, ownership and control, taxation, employment, local training and inputs, marketing, processing and industrial and technological redeployment, expansion of the project, infrastructure and environment, State supervision and renegotiation and settlement of controversies). Of course the chart does not claim to be exhaustive or final in its proposals, but seeks to serve as a basis for the better understanding and discussion of the problems involved. These will now be considered with emphasis on the "progressive" trends observed in Latin America in the modern concession and the new forms of co-operation between the transnational corporations and the public sector.

b) Financing, ownership and control of the mining project (see points 2 and 3 of the chart)

In these fields, which are related and very important for the effects of transnational participation in the mining projects of the periphery, we can perceive more clearly the adaptability and flexibility of the transnational corporation in the realization of its profit objective through alternative proposals in response to the aims and requirements of the governments of the periphery. In the first place, the change from the traditional method of financing the DFI with its own resources and credits deriving from the world finance market

/Chart

TRANSNATIONAL CORPORATIONS (TCs) AND GOVERNMENTS OF PERIPHERAL MINING COUNTRIES: MAIN INTERESTS, OPTIONS, CRITERIA AND ALTERNATIVES OF INTERACTION

(Tentative summary chart derived from Latin American experience a/)

Subject	A. Transnational corporations	B. Governments of peripheral countries	C. Alternatives
1. Global objectives in the mining country	Guaranteed supply of the mineral for exploitation at minimum cost and with maximum return on capital invested by their shareholders and project backers, always considered as a link in their worldtransactions integrated vertically and horizontally.	Optimum utilization of the mineral resource to maximize: a) the GDP and foreign currency and budgetary revenues; b) national integration of the mining project in terms of: i) welfare, employment and local inputs; ii) technological development and industrialization; iii) capacity of control (national sovereignty) over mining and metallurgical development.	a) Traditional concession of the mining resource to the TC; b) Development-type (integrating) concession; c) Nationalization of the TC by the government and/or its unilateral disassociation from the project; d) Mixed enterprise and/or other type of co-operation.
2. Finance and return on direct foreign investment (DFI) or joint project	a) Reduction of own capital by involving banks and backers commercially related to the project, governments and international organizations to spread potential economic and political risks; b) guarantees of total, rapid and real return on the DFI (even in the case of nationalization).	a) Promotion of implementation of project via necessary guarantees and possibly sharing in investment; b) reduction of cost and credit terms, including greater contribution of international organizations; c) in the case of nationalization, repayment of "book" value of TC.	a) Financial agreements and plans; b) Agreements on reimbursement of investments and credits with the products of the investment; c) Credit programmes with the World Bank, IDB, etc.
3. Ownership and control of the enterprise	a) In traditional concession it belongs exclusively to the TC; b) in flexible reaction to "nationalist demands" and/or existing legislation, agreement to joint ownership with the public enterprise (PE) and/or local private sector, but safeguarding interests of its shareholders and project backers through its effective control ("efficient, profitable and with recognized loyalty"); c) replacement of ownership and direct control of project by profitable contract with the PE to furnish technology, know-how and required services.	a) Supervision of conditions of concession and its renegotiation; b) Attempt to find ways and means to achieve "effective and beneficial" sovereignty in accordance with the socioeconomic situation of the country; c) Particularly point B.5 below.	See alternatives a)-d) in point 1 above and as regards c) and d), particularly the agreements and contracts of: i) mixed enterprise with shared ownership; ii) services (control) of administration, exploration, technology and engineering, marketing, transport, etc.; iii) contract of sale of products of the project, machinery, equipment and inputs, "turnkey" plant, etc.; iv) combinations of i)-iii).
4. Taxation (redistribution of revenues and profits)	Minimization of cost of taxation in view of economic and political risk assumed by the TC through: a) low rates, exemptions, and long-term guaranteed incentives; b) rapid amortization and other advantages in the initial "difficult" period of exploitation; c) equal treatment (with the PE and local private miners), likewise avoiding "double taxation"; d) regulation of transfer prices in "intra-firm" trade.	Maximization of State revenues differentiating: a) between the periods of attraction, entry and amortization of the DFI and the later period of its maturation, and, in this; b) between the unilateral repatriation of excessive and "wind-fall" profits (progressive rates) and expansion and reinvestment (regressive rates and other incentives); c) in favour of greater expansion and integration of the project (see b) above); d) between sophisticated instruments and those of difficult administration.	a) Royalties on volume or value of production; b) Royalties or charges linked to price of sales; c) Charges linked to rate of profit; d) Other taxes on revenues/profits; e) Tariffs, duties and other payments; f) Dividends of mixed enterprises; g) Special incentive régimes, discounts, etc.

Subject	A. Transnational corporations	B. Governments of peripheral countries	C. Alternatives
5. Employment and local training	a) Criterion essentially "paternalist" towards underdevelopment through training, promotion and social costs so as to win loyalty towards the TC and its control (3.b) above); b) Training services for the PE.	Increase of local qualification and experience so as to diminish external dependence, limit it to new and necessary technology and knowledge and attain the capacity to export its own services.	a) Agreements and plans for training and promotion between the government and the TC; b) Contracts of administration, advice, training, etc. between PE and TC.
6. Local services and inputs	Preference conditioned by quality and internationally competitive prices (including non-tradeables).	"Backward" linkage within the national integration of the project.	Agreements and plans for local supply.
7. Marketing of the products of the enterprise	a) Free availability of goods produced with most profitable destination and terms of sale (incl. 4.d) above). b) Compensation (e.g. tax) for regulation of sales. c) Marketing services for the PE or mixed enterprise.	a) Supervision of transfer prices (via those of reference). b) Share in or monopoly of the marketing to increase the value retained in the country and diversify the markets (towards the "non-traditional").	a) Agreements (guarantees) between the TC and the Government (PE). b) Direct marketing agreements (short- and long-term) with governments and/or enterprises (incl. those of credit compensation).
8. Mineral processing and the redeployment of industry and technology	a) Preference for placing in metal-market countries to minimize costs (incl. protection barriers), flexible and profitable marketing ("toll", etc.) and avoidance of political risk (nationalization); b) With the same aims and maintaining "technological captivity", placement in peripheral countries, especially: i) relatively industrialized; ii) with comparative advantages of cost (energy, taxation, etc.); c) Sale of technology and services (plants, equipment, "toll",etc.)	a) National integration of mining project through redeployment of processing towards the peripheral country to increase value-added (industrialization) and returns (foreign exchange) and to diversify markets; b) With the same aims and according to the local situation and world market (in the medium term), selection of forms of co-operation with the TC and/or other enterprises (incl. the PEs and State enterprises of the socialist countries.	a) Incentives and administrative measures to induce the TC to greater processing. b) Agreements of the PE with the TCs or other enterprises (independent of them) according to A.8 c)-e). c) Including leasing of the processing capacity (toll) in the metal-marketing country.
9. Expansion of production and exports (from existing capacity and through modernization and new investment)	Consideration of profitability of current and predicted prices in world market so as to regulate the supply through the adequate use of installed capacity and new investment programming (possibly through a cartel with other enterprises).	a) In view of global aims (B.1), maximization of production and exports (entry of foreign exchange in crisis); b) Given the economic and political cartel conditions (e.g. OPEC), regulation of supply in conjunction with governments and enterprises of other mining production countries.	a) Tax incentives (B.4.c)) and agreement with the TC; b) Agreements according to the UNCTAD Integrated Programme (e.g. tin); c) Agreements in Producers' Associations.
10. Infrastructure and environment	Considered in modern concession in costs of investment.	To benefit full national integration in project (B.Ib)).	Agreements with the TC with possible local participation.
11. State supervision of the TC	a) Minimization and national treatment (as in small-scale mining); b) Rapid, flexible and concentrated administration; c) Possibility of illicit acts (double accounting, bribing of immoral officials, etc.).	a) Efficient supervision and fulfilment of legal norms and agreements with the TC; b) Combination of global approach and centralized management with specialized skill and responsibility.	a) Legislation, administrative norms, agreements with the TC. b) Organization of the supervisory machinery. c) Directors of the PE.
12. Renegotiation and settlement of controversies	a) Stability and long-term irrevocability of guarantees conceded; b) Jurisdiction of international organizations in the interest of TC shareholders and financial backers.	a) Guaranteed and sovereign right to renegotiate; b) National jurisdiction (Calvo doctrine) and/or representatives of both sides with independent presidency.	a) Legislation and agreements with the TC; b) Arbitration by organization of producer countries and independent experts.

a/ Taking into account also the very interesting exposition by Mr. M.Y. Thompson, Director General of Río Tinto Zinc Corporation in Diálogo sobre la inversión europea en el sector minero de América Latina, Meeting in Brussels, Belgium, 7-8 February 1984, IDB, 1984, Washington, U.S.A.

b/ Including the value of geological prospection work, preparation of the mine, etc.

to one of diversification of creditors with a preference for those with direct interests in the mining project and including the governments and international organizations (as for example in the Cuajone agreement in Peru; see Part I.A.3 of this paper), not only diminishes the individual financial undertaking and external risk assumed by the transnational corporation but also enables it to "internationalize" the DFI and its own interests by acting in representation of the group of backers as a whole. This is reflected above all in the guarantees exacted respecting the total and rapid repayment in real value of the DFI transacted (including compensation in the event of the nationalization or surrender to the government of the property).

The interests of the peripheral governments may coincide with those of the transnational corporation as to the guarantees required to achieve the total financing of the project, but naturally they try to improve the terms and reduce the cost of the credits (interests, commissions, payment periods, etc.), particularly through the great participation of international organizations (such as the World Bank or the Inter-American Development Bank), to pay the compensation of the corporation at its "book" value, supervise the returns of the DFI, etc. In the case of the establishment of an enterprise or operations in conjunction with the transnational body, the peripheral government is interested in facilitating its financial commitment by contributing its mining terrains, postponing the payment of its quota until the joint investment has produced revenues, etc. The participation in the financing of the mining project by enterprises interested in acquiring its future product enables agreements to be reached on credit repayment against future sales. This procedure can have particular interest for the public enterprise in enabling it to finance the investment and at the same time ensure the future market for exports (this often occurs in agreements with the State-owned enterprises of the socialist countries, but also with Japanese and other firms).

It is understood that the ownership and control of the enterprise administering the mining project is related to the type of investment credit that originated it. The economic and legal basis of the traditional concession, in which the operations were financed exclusively by the transnational corporation, consisted in its ownership and control, also exclusive, of the "mining enclave", over which the peripheral State exercised only a minimal supervision and only in the more marginal aspects. Faced with ejection and the rise of "economic

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nationalism" in the peripheral countries the corporations accepted the renegotiation and "modernization" of the traditional concessions (with more redistribution of income and national integration into the project), safeguarding themselves in their turn against greater economic and political risks by the above-mentioned internationalization of the DFI. Lastly, the frequent cases of nationalization of the transnational subsidiaries and the setting up of public enterprises led to the sharing of ownership between the two parties in a mixed enterprise (but with the transnational body still in control), and to multiple forms of co-operation between them (agreements on exploration services, technological transfer, engineering and training, administration of the enterprise and marketing of its products, etc.).

With reference to our statement in section a) above that the process outlined was not lineal or completed in every case, we must stress the aspect of the so-called effective control of the mixed enterprise and the public enterprise that contracts the services of the transnational corporation without the participation of the latter in ownership: first, in the case of the mixed enterprise shared by the transnational corporation and the public enterprise, its control by the former, assured by contracts of administration and other services, "right of veto" in the directing agencies of the enterprise, etc.12/ safeguards the fulfilment of the corporation's main objective of achieving the maximum profit on the DFI through the exploitation of the mining resource and efficient and profitable administration. Moreover, as has been seen in the case of Chile and Jamaica, the other financial backers of the international DFI, especially the banks, make their credit concessions conditional on management by an enterprise of internationally recognized repute.

Naturally the interest of the public enterprise of the mining country taking part in the production or the profits of the mixed enterprise coincides with that of the transnational insofar as its own administrative and technical capacity is insufficient to assume management responsibilities on an equal footing with its transnational partner. The administrative shortcomings of the peripheral public enterprise analysed in the foregoing chapter seem to justify this criterion in favour of the foreign management of the mixed enterprise. But the basic problem is different and of the same nature as the transition from the traditional to the "development-type" concession. Clearly the criterion of efficiency and

/profitability is

profitability is not applied by assessing and supervising the professional level of the directors of the mixed enterprises but rather the decisions on crucial aspects of development, such as expansion and investment, distribution of profits, local inputs, etc.; in other words, mainly problems relating to the aforementioned divergence of interests between the national integration of the mining project and the overall strategy of the transnational in its world business transactions (to some of which we shall return in the later sections of this discussion).

All in all, the experience of "Chileanization" and even of the mixed enterprises in Jamaica does not appear to confirm the opinion of some authors 13/ in the sense that the effective control of the mixed enterprise by the trasnational body creates a situation identical with the modern concession or even the traditional. First, the process of apprenticeship and acquisition of experience by the national directors in the mixed enterprise is much more effective than in the bureaucratic situation of supervision of the transnational corporation. This can be particularly important for the better understanding of the costs and benefits, entrepreneurial and social, actual and predictable, of the various projects of the enterprise. Second, the "right of veto" in the crucial decisions of the management of the mixed enterprise should, at least in theory, induce the partners to look for solutions of mutual benefit and their joint realization (as happened, up to nationalization, in the mixed enterprises of Chile through the joint programme of expansion of the industry). Lastly, in the opposite case of irreconcilable divergence of interest between the local and foreign partners, the mixed enterprise loses its raison d'être and must be replaced by another form of relationship (or non-relationship) between the associates.

Second, as regards the contractual linkages between the public enterprise and the transnational without any participation of the latter in the ownership of the mining project, this option may coincide with the interests of the transnational also, enabling it to "market" its assets, tangible and non-tangible, in technology and know-how, marketing channels, processing capacity, etc., without committing its own capital and running the respective risks. There are also agreements "combined" with the aforesaid option, where the transnational does not receive a fixed return but guarantees of a share in the results of its invested "service", as for example geological prospecting or administration and marketing with a share in the revenues or profits of the public company.

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From the point of view of the peripheral countries, it is evident that there is no option or form of linkage with the transnational corporation that could be considered exclusively beneficial for their national development. Success or failure in their selection and application would always depend on the set of specific conditions of each of the peripheral countries. Among these the most important is the political orientation and will of the government and the capacity to convert institutional or formal sovereignty over the mining resource into an "effective and beneficial" control. Obviously in this connection the contractual linkages of FERTIMEX (or of the public enterprises of Brazil) with the transnational have a different basis of support in the national technological and administrative capacity from those of the public sector of Jamaica or Bolivia. On the other hand, the acknowledged technological capacity and efficacy of CODELCO in Chile could not by itself alone prevent the turnaround towards the new transnationalization of mining, if the economic direction of the country were to promote the total privatization of the productive industries.

Finally, it seems clear also that even in the less developed countries the institutional control of the public sector over the mining and metallurgical industry offers more autonomy in the external linkages than the unilateral seizure of the traditional or modern concession. This is confirmed by the cases studied of Peru, Jamaica and Bolivia in relation to the commercial links with the non-traditional markets of the socialist countries and others of Latin America, technological links with the independent transnational firms, etc.

c) Taxation and redistribution of the revenues and profits of the transnational corporation (see point 4 of the chart)

As is logical, the profit motive of the transnational corporation induces it to try to minimize taxation by the peripheral State, taking particularly into account the economic and political risk of the DFI and the competitiveness of its global costs and the prices of its final products vis-à-vis other transnationals. This interest takes the form of a demand for low taxation rates, agreed exemptions and incentives and guarantees of the long-term stability of the taxation system, maximum deductions from the taxable amount by reason of the rapid amortization of the DFI in the initial period of its recovery, on the grounds of depletion of the mineral reserves and its "marginal" character, etc. The marketing of the mineral within the transnational network itself (intra-firm trade) enables it also

/to avoid

to avoid local taxation in the peripheral country, including the discounts for mineral processing ("maquila" charges), and thus to shift the receipt of profits from the peripheral country to its own country of origin (see the Toquepala and Cuajone concessions in Peru, analysed in Part I.A.2 and 3 earlier in this study). Lastly, the demand for equal or "national" treatment of the DFI implies the right to incorporate itself, according to the convenience of the transnational, into the legal tax régime in force in the host country and applied to the public enterprise and/or small and medium-scale miners, thus avoiding double taxation (local and in the country of origin).

In contrast, the general interest of the peripheral mining country consists in maximizing the value retained in the country of the transnational exports via taxation, particularly in countries where this represents a large portion of the government's budget. This general interest is combined with other specific interests which give rise to special agreements with the transnational in regard to determined incentives and tax advantages. Thus the concern to attract the DFI gives rise to the recognition of the need for tax advantages during the first and risky period of recovery of invested capital; similarly, the governments of the mining countries frequently acknowledge the desirability of sharing, by way of tax concessions, the increased cost to the transnational corporation of the greater national integration of the mining project and especially of its expansion through reinvestment and a greater degree of mineral processing, etc. In the same way, the governments share the concern of the transnational to avoid double taxation, as for example in the arrangement of the government of Jamaica with the transnationals of the United States on the form of payment of the charges on production (see Part I.C.4 above).

Contrary reactions are provoked by abuses in the handling of the transfer prices by the transnational and its "windfall profits" remitted unilaterally to its country of origin. These have resulted in new forms of taxation of the revenues and profits of the transnational corporation, as for example the production charge in Jamaica, tied to the price of the final product of aluminium quoted in the world markets, or the progressive tax on transnational profits over and above the "normal" established margin, introduced in Chile after the creation of the mixed enterprises and, later, in Indonesia and Papua New Guinea. With the establishment of mixed enterprises the government obtains an additional right to dividend revenue, naturally on the condition that the joint investment is profitable.

/Similarly, as

Similarly, as in the forms of linkage between the transnational corporation and the public sector of the mining country, it is difficult if not impossible to indicate which of the many forms of taxation and incentives is the most effective in increasing the budgetary revenue of the government and at the same time complying with its other interests and goals of development of the industry. On the one hand, it seems certain that in most cases (not only in Latin America) the new modes of taxation in the 1970s resulted in a considerable increase in government income compared with the meagre benefits of the traditional concession. This leads some critics of the institution of public enterprises (in which the benefits are evidently not confined to the accountable and conjunctural profitability) to propose the State solution as against the "more advantageous" alternative of the redistribution of the transnational income via taxation. On the other hand, the changes in production costs, especially of energy, and the lack of common action with other mining countries may impede, particularly in the crisis period, the transfer of the tax cost to the metal consumers and lead to the gradual disassociation of the transnational company from the less comparative mining country. This happened in the case, analysed above, of the production charge on bauxite in Jamaica, where, in the recent renegotiation with the transnationals, the Government did actually attempt to reverse its supervisory role by applying strong incentives to increase production.

d) Local factors: employment, inputs, infrastructure and environment (see points 5, 6 and 10 of the chart)

The cases studied indicate that in the modern concession the transnational corporations generally recognize and accept the requirements of greater national integration in the mining project through an increase in local employment, wages and social benefits, training and promotion of national directing boards, use of local inputs and services, establishment of the necessary infrastructure for the functioning of the mining project (including social) and protection of the environment according to the national or even international norms --including the respective disbursements in the costs of the DFI and overheads. The problems and divergencies that can arise are mainly connected with the control of the enterprise (discussed in section b) above) and with the competitiveness of local inputs and services.

/As regards

As regards control it is understandable that the transnational corporation undertakes the training and promotion of national technicians and administrators not only to increase their professional skill and efficacy but also with a "paternalistic" objective, that is, to ensure their unconditional loyalty to the interests of the firm. This problem of "double loyalty" or "transnationalization of the local boards" can become all the more acute with the creation of mixed enterprises where the public sector may be represented by political personages (counselled by technicians) but will also seek to occupy important professional posts in the mixed enterprise. Without underestimating moral and patriotic motivations, it must be recognized that the transnational body possesses powerful incentives for winning the loyalty of its local employees (relatively high salaries, additional and special benefits, the possibility of transfer abroad, etc.; there was the case, for example, of the strike of high-ranking personnel in CODELCO, in Chile, because of the abolition of payment in dollars, previously conceded by the transnationals of the United States). In the market economies the transnational firm has probably no option but to offer its high-level specialists material conditions on a par with those of the world labour market and in particular definite prospects of a professional career.

Respecting the criterion of price and quality of local inputs in internationally competitive conditions (expressed for example in the Cuajone concession in Peru in a maximum margin of 30% over the CIF price), it must be borne in mind that transnationals (and not only these) have an "import bias" which can be overcome by plans and agreements for local supplies, with possible technical assistance for the local firms by the foreign corporation. Naturally, arrangements of this kind are even more important in mixed enterprises.

e) Forward linkages of the mining project: "marketing, processing and technological transfer"

Both in the traditional concession and in the modern, the transnational corporation retains full control (free disposition) of the marketing of the products of the mining project. This enables it to supply its own mineral processing plants (situated mainly in its country of origin or other industrialized countries), or to sell more profitably to other customers. As stated in the previous section, the primary aim of supplying its own plants enables the transnational to control the transfer prices, especially in the marketing of minerals

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(including the discounts ("maquilas") for their processing) where there are no world market prices. The undervaluation of the mineral prices as calculated by the subsidiary (in conjunction with the overvaluation of the import prices of machinery, equipment, inputs and services), enable it to reduce the amount covered by local taxation. Lastly, within the new forms of co-operation with the mixed enterprise or independent public enterprise, the transnational is interested in providing, along with the services of administration as such, those of marketing also, making use of its wide experience, contacts with networks of intermediaries and related firms, position in the trade markets, etc. If the public enterprise has not yet managed to compete in the world markets by establishing a like capacity for trading it is evident that it remains dependent, in greater or lesser degree, on the transnational company.

For this reason the public sector of the mining country is deeply interested not only in supervising the transfer prices in the intra-firm trade, along with the prices and other conditions of sales contracts vis-à-vis the transnational customers (which has its limits and problems, as was seen in the case of MINPECO in Peru), but mainly in establishing its own marketing capacity. The experiences analysed of CODELCO, MINPECO, ENAF and the public sector in Jamaica showed, not only in the direct sales to consumer firms (both in the new Latin American and socialist markets and in the traditional) but also in the "traditional" marketing, that this is a long and difficult road, yet crucially important for the aforementioned "effective and beneficial sovereignty". Of course the initiatives taken by UNCTAD, in particular,14/ to establish joint marketing enterprises among the mining countries of the periphery might open new prospects in this field.

In the processing of minerals, the traditional interest of the transnational firm was to shift the plants in its own country to other metal-market countries so as to minimize the costs (including those deriving from tariffs and other protective measures); to market flexibly and profitably both the concentrated and processed minerals (taking advantage of procedures such as "tolls", "swaps", etc.) and finally to avoid the political risks in the developing countries. Undoubtedly these same motives also influence the transnational in the cases of redeployment of mineral processing towards the peripheral countries, which is reflected in their evident preference for the relatively industrialized countries with large metal markets and those which offer considerable comparative advantages in

/processing costs

processing costs (especially energy costs but also those of qualified personnel, tax advantages, etc.). The cases studied in this paper and the Latin American experience in general reflect these trends. They also show that in the mixed enterprises the transnational corporation wishes to maintain control over the transferred technologies, particularly at this stage of increased sophistication (note the conditions imposed on the possible expansion of the productive capacity of alumina in the mixed enterprises of Jamaica). At the same time, the relative diversification of the technology market in this sector, with many independent firms, conduces the transnational also to compete in this field and offers the public enterprise the sales and services referred to in the first section of this chapter.

It has also been demonstrated that, despite the progress made by the public enterprises in the redeployment of mineral processing towards the mining countries and the resulting advance in industrialization, increase in the value of exports retained in the country and improved marketing capacity, there still remain in many cases problems of costs and profitability (e.g., the State refinery of Ilo in Peru, ENAF in Bolivia, etc.). This postulates the alternative, particularly valid in the present economic crisis, of also utilizing the services offered by the transnational to the public enterprise in respect of the hiring of its processing capacity (toll).

f) Final note: effects of the present economic crisis and the prospect of a greater balance of interests between the transnationals and the Latin American countries

The world economic crisis and particularly the sharp decline in the demand and prices for primary export products and the unprecedented indebtedness of the Latin American countries have obvious negative effects on their bargaining capacity vis-à-vis the transnational enterprises. The governments of the region, in urgent need of new capital for the reactivation of their economies, seek to open up to foreign capital by unilaterally waiving the former rules of the game for the transnational enterprises and retreating from their original objectives in the context of the international code negotiated lengthily and assiduously in the Assembly of the United Nations. In their turn, the transnationals tend to mitigate the effects of the crisis by transferring their capital to the relatively more lucrative and less risky markets and sectors and restricting the benefits acquired by the peripheral countries in previous renegotiations. Obviously this

/situation could

situation could lead to a "war of incentives" between the mining countries of the region in the race to attract foreign capital. At the same time, the above-mentioned experience shows that unilateral and excessive advantages can be damaging not only to the mining countries but also, in the longer term, to the transnationals also. The fact that many mining countries of the region found themselves obliged to take up the challenges of mining and metallurgical development through their own public enterprises and mixed enterprises in conjunction with the transnationals, particularly in the present crisis, created at the same time bases for a more mature and balanced mutual relation. Among many other factors, this calls for a better mutual understanding of the various divergent interests and of methods of solution advantageous to both parties.

To this end, it would be useful to consider the creation of fora of information, study and discussion where representatives and technicians of both sides, with the support of international agencies, might try to devise the alternative solutions of divergencies in the mutual linkages between the public sector and the transnational corporations.

Notes

1/ See, for example, R. Prebisch, Capitalismo periférico, crisis y transformación, Fondo de Cultura Económica, Mexico, 1981; A. Pinto, Inflación, raíces estructurales, ensayos, Fondo de Cultura Económica, Mexico, 1973 and A. Pinto and J. Kñakal, América Latina y el cambio en la economía mundial, IEP, Lima, 1973.

2/ See A. Sutulov, Nuestra minería, Special report, Progress, November 1983.

3/ See R. Bajraj, R. Franco, E. Palma, A. León and J. Ahumada, "Estilos de planificación y sistemas de empresas públicas en América Latina", Estudios Sociales No. 38, Corporación de Promoción Universitaria, Santiago, 1983.

4/ The authors quoted above distinguish two styles in the mixed economies of the region: the "reformed market", through the implementation of projects and programmes, and the "directed market", with the deliberate and systematic intervention of the State in the economy and the society, but for obvious reasons they confine themselves to giving examples only of the various national policies.

5/ Also in other smaller countries such as Panama, with its new and ambitious Cerro Colorado copper project.

6/ Respecting the Latin American debate, see the study cited in note 3 and also, in the same issue of Estudios Sociales, articles by F. Resende on the case of Brazil, by E. Boeninger and E. Palma on that of Chile and by A. Solari and R. Franco on Uruguay. These writers also comment on the "Informe Nora" on transnationals in the industrialized countries. As regards the socialist countries there is a large literature on the economic reforms in Czechoslovakia (1968), Hungary and Poland.

7/ See again notes 3 and 4.

8/ See the study by F. Resende cited in note 6.

9/ See Minería y desarrollo, Vol. I, No. 2, CESCO, Santiago, Chile, September 1984. The same issue of this report comments on the decision of the new government economic team to invest in CODELCO, within the three-year plan for 1984-1986, some US$ 1.4 billion, which contrasts with the former neoliberal policy of giving almost exclusive preference to the investments of the transnationals.

10/ The study of this topic was not included in the cited interregional project of ECLAC on the transnationals in the primary export products.

11/ There is a large literature on the various technical and legal aspects of the types of linkage with the transnationals. See, for example, United Nations, Centre on Transnational Corporations, Main features and trends in petroleum and mining agreements, ST/CTC/29, New York, 1983; Samuel K.B. Asante S., Reestructuración de los acuerdos mineros transnacionales, ECLA, E/CEPAL/SEM.3/L.2, 1982; S. Zorn, Mining agreements: Service contracts and joint venture arrangements for State enterprises in developing countries; U.N. CTC, 1981; T. Walde, "Third world mineral development: Current issues", The Columbia Journal of World Business, Vol. XIX, No. 1, 1984 and various other studies by the same author published by the United Nations.

12/ See S. Asante, op. cit.

13/ Ibid.

14/ See, for example, UNCTAD, Regímenes jurídicos para la creación de empresas multinacionales entre países en desarrollo, TD/B/C.7/30, 1979, and Profile on the possibility of a multinational ore marketing enterprise: The case of Latin America, May 1983.

/Annex

Annex

ECLAC STUDIES ON TNCs IN THE MINING INDUSTRIES OF LATIN AMERICA */

1. The Development of the Copper Industry and Transnational Corporations: The Chilean Experience (E/CEPAL/R.239).

2. Policies and Negotiation with Transnational Corporations in the Copper Industry in Peru (E/CEPAL/R.270, 14 January 1982).

3. Links of the Transnational Corporations with the Tin Industry in Bolivia (E/CEPAL/R.249, 14 January 1982).

4. Policies and Negotiations with Transnational Corporations in the Bauxite Industry of Jamaica (E/CEPAL/R.236, 28 July 1982).

5. Governmental Policies Related with TNCs in the Tin Industry of Bolivia and Southeast Asia (summary for U.N. CTC, 1983).

6. Processing of Phosphates in Mexico: Case of Self-sustained Development, ECLA, 1983.

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*/ Project RLA/80/016 "Strengthening the Bargaining Power of Host Governments in their Dealings with Transnational Corporations Engaged in the Export of Primery Commodities" and the joint ECLAC/UNCTAD exercise on the processing of primary commodities. The papers had been prepared in the Joint ECLAC/CTC Unit on TNCs by the author of this study (Nos. 3, 4, 5 and 6) and the consultants Messrs. J.E. Herrera and C. Vignolo (the case of Chile) and F. Sanches Albavera (the case of Peru).