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TRANSNATIONAL CORPORATIONS IN THE BAUXITE INDUSTRY
OF CARIBBEAN COUNTRIES

This paper has been prepared by experts and consultants of the Joint CEPAL/CTC Unit for the Interregional Expert Group Meeting on Bargaining Capacity and Distribution of Gains in Primary Export Commodities (Bangkok, 8-13 October, 1979). The opinions expressed in it are those of the authors and do not necessarily reflect the views of CEPAL.

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Introductory note

This paper contains the results of the research work conducted by the Joint CEPAL/CTC Unit concerning the activities of transnational corporations (TNCs) in the bauxite industry of Caribbean countries. Parts I and II review selected aspects of the international bauxite industry and give profiles of the main TNCs operating in the Caribbean. Part III summarizes the evolution of the U.S. and Canadian aluminium industry from its beginnings until the 1970s. Finally, in Part IV the new bargaining situation and Caribbean government policies in the 1970s are analysed in terms of the region as a whole and, in more detail, with regard to the particular policy approaches to TNCs in Jamaica and Guyana.

In the last two parts of the paper, an attempt has been made to underline some important aspects of the common research framework of the Interregional CEPAL/ECA/ESCAP Project ^{1/}, such as inter-company competition and collusion, typical characteristics of the agreements signed under colonial administrations and, particularly, the policies as regards taxation and increasing national participation in the industry followed by independent governments in the 1970s and the corresponding TNCs' counter-strategies, with some of their short-term effects on Caribbean economies. For various reasons, however--particularly lack of more detailed information and shortage of resources in the Unit--it has not been possible to analyse the new aspects of the Caribbean countries' bargaining capacity and resulting distribution of gains in a more coherent

^{1/} See B. Widjono, Transnational Corporations in Export-oriented Primary Commodities: A Study of Relative Bargaining Positions and Gains, Joint CEPAL/CTC Unit, Working Paper N°6, August, 1977, and the new version prepared by the Joint ESCAP/CTC Unit in September 1978.

and systematic way, as would have been desirable according to the above-mentioned common research framework. An exercise seeking to make a synthetic evaluation of the experience of some Latin American countries with the TNCs in the bauxite, tin and banana industries is currently being undertaken.

Part I and II of this paper correspond to an earlier study by the Unit's consultants, Professors I.A. Litvak and C.J. Maule published by the Unit in 1977; Part III and chapters 3 and 4 of Part IV are based on the research work undertaken by a former staff member of the Unit, D. Hoelscher, and chapters 1 and 2 of Part IV correspond to a preliminary report by the Unit's consultant Prof. K. Levitt. Support in the form of valuable comments and new information has been kindly given by the CEPAL Divisions of Economic Development, Natural Resources and Industrial Development (particularly Messrs. A. Pinto, R. Devlin, R. Sanz-Guerrero, S. Moya and L. Willmore). Any errors and omissions in this paper, however, are the responsibility of the Regional Adviser of the Unit, J. Křákal, who was in charge of its editing.

Finally, while this paper was prepared solely for use by the Interregional Expert Group Meeting on Bargaining Capacity and Distribution of Gains in Export-Oriented Primary Commodities (Bangkok, 8-13 October 1979), critical comments and complementary information would be particularly welcomed from government officials, experts and academic circles of Caribbean and other Latin American countries in order to assist in the preparation of a definitive CEPAL study for the forthcoming Interregional Seminar of Government Representatives to be held next year in New York.

The first part of the document is a letter from the Secretary of the State to the Governor, dated the 10th day of the month of January, 1862. The letter is addressed to the Governor and is signed by the Secretary of the State. The letter contains the following text:

Dear Sir: I have the honor to acknowledge the receipt of your letter of the 8th inst. in relation to the application of the State of New York for the admission of the State of New York to the Union. I have the honor to inform you that the same has been forwarded to the proper authorities for their consideration. I am, Sir, very respectfully, your obedient servant.

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Part I

SELECTED ASPECTS OF THE INTERNATIONAL BAUXITE - ALUMINUM INDUSTRY

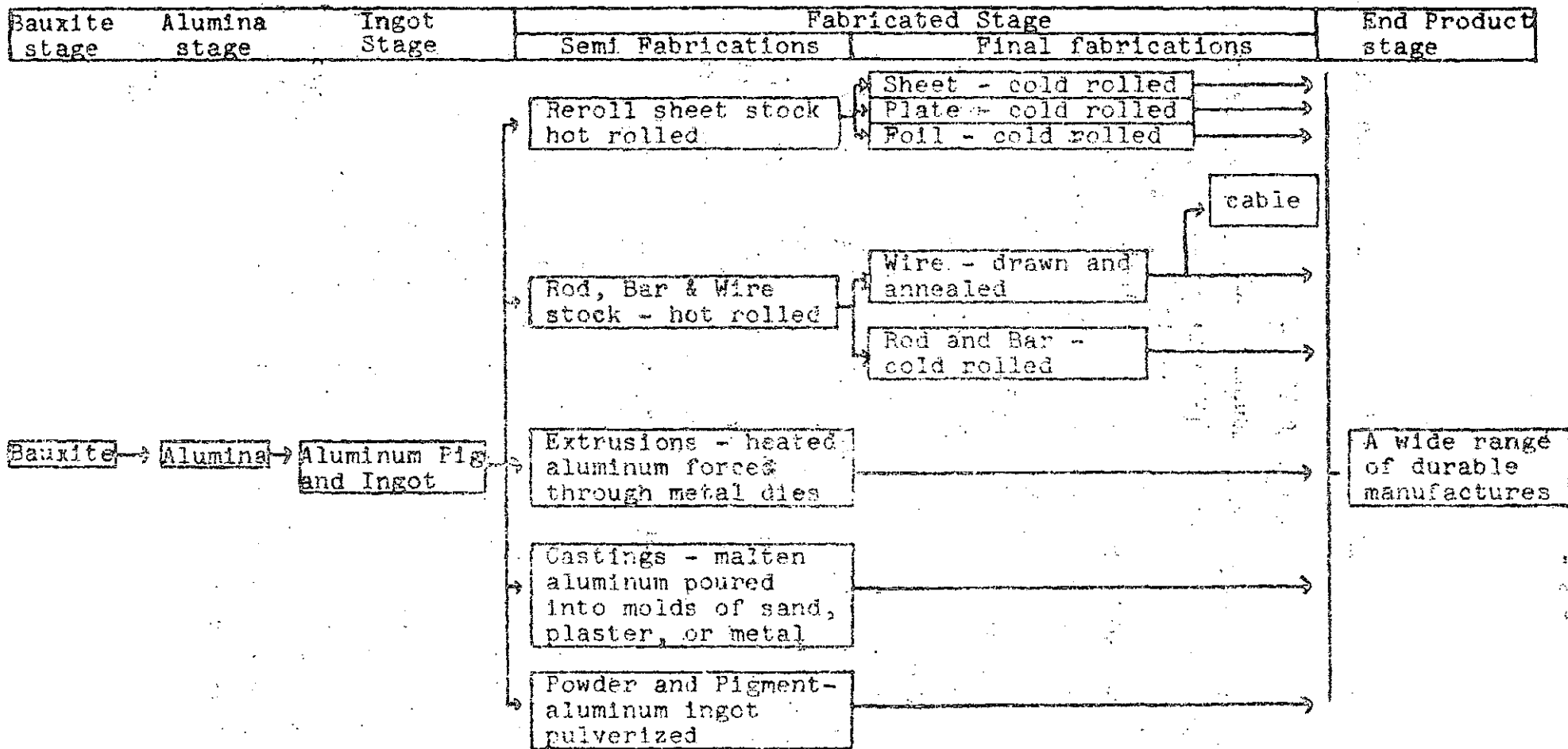
1. Production Process

The International Aluminum Industry (IAI) consists of five stages involving the production of bauxite, alumina, primary aluminum ingot, fabricated aluminum products (semi and final fabrications), and end products containing aluminum (see figure 1). It is with the first three stages that we are mainly concerned, since the history of the industry is one in which a small number of large companies have been vertically integrated and have controlled these three stages. Consequently, there is very little arms-length trading in bauxite and aluminum, and for all practical purposes there does not exist anything approaching a free market for either bauxite or alumina. The same companies have also been involved in the fourth stage, fabricated aluminum products, but in addition there have existed a number of independent fabricators and suppliers of scrap metal so that there does exist some market for primary aluminum ingot. However, independent fabricators often find themselves dependent on the large ingot producers for ingot, and in competition with the same large producers in selling fabricated products. The Flow chart - figure 2 - for the United States aluminum industry illustrates three important aspects of the industry. First, scrap metal is recycled as secondary aluminum from the production of new mill products and new final products as new scrap, and from old final products as old scrap. The ease of recycling varies with the type of scrap. In the case of new scrap, it is relatively easy as the scrap is concentrated in certain locations: in the case of old scrap, there tend to be much higher costs of collection involved. In general, however, as the price of the metal rises, the more old scrap will be collected.

/Figure 1

FIGURE 1

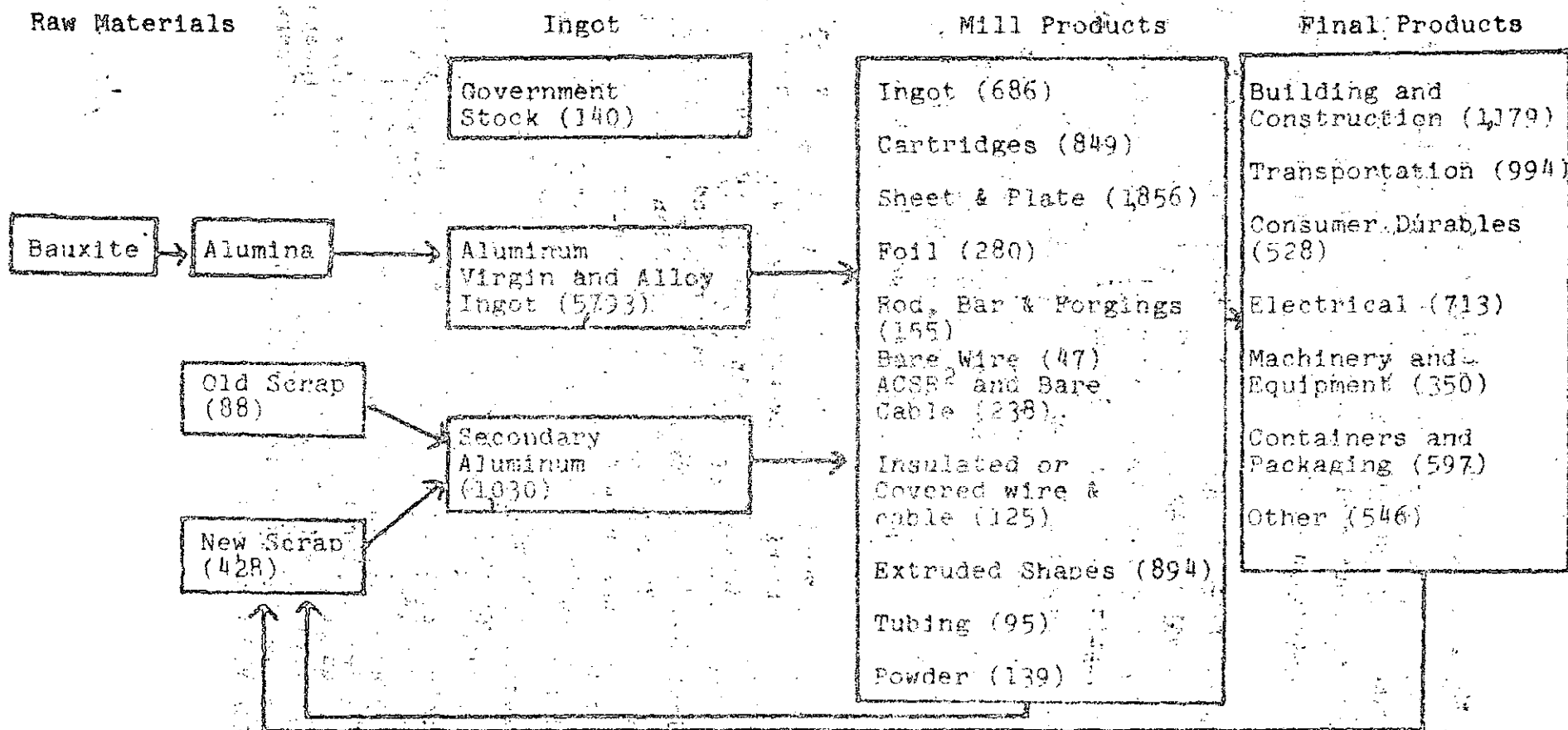
THE PRODUCTION PROCESSES IN THE ALUMINUM INDUSTRY



SOURCE: M. J. Peck, Competition in the Aluminum Industry, 1945-1958, (Cambridge, Harvard University Press, 1961), p. 6.

FIGURE 2

FLOW CHART OF THE ALUMINUM MARKET^{1/}



^{1/} Numbers in parentheses are U.S. value for 1969 in thousands of short tons.

^{2/} Aluminum Cable, steel reinforced.

SOURCE: The Aluminum Association, Aluminum Statistical Review 1969, New York, N.Y., 1969.

Second, in the case of the United States Government, stockpile of primary ingot is held which can be used in times of emergency for strategic or economic reasons. And third, the competition with aluminum from other materials will vary with the ease of substituting other materials in the final products in which aluminum is used.

There is an important exception to the foregoing. The bauxite referred to above is metal grade bauxite, which, as the name implies, is used for producing aluminum ingot. A second type of bauxite is known as calcined bauxite and is used largely for abrasives and for producing refractory bricks and linings. The technology used for processing calcined bauxite varies according to the end product required, and does not involve the processes controlled by the major aluminum ingot producing companies. In the remainder of the paper reference to 'bauxite' will mean 'metal grade bauxite', unless otherwise noted.

The production process at the first stage involves the mining, crushing, washing and calcining of the crude bauxite near the site of the deposits; the production of alumina, the second stage, involves a chemical process and further calcining and takes place both at the site of the deposits and at the location of the smelter where the third stage, the production of primary aluminum ingot is undertaken; smelting requires the extensive use of energy for the conversion of alumina into metal and is usually located near a source of cheap energy supplies (see figure 3).

"The technologies of the first three stages - bauxite mining, alumina manufacture, and aluminum reduction - are unique to the aluminum industry... In contrast, the technologies in fabrication are similar to those for other metals. The vertically integrated facilities of the primary producers account for three quarters of the fabricated output. Independent fabricators, who buy their ingot from the primary producers, account for the remainder.

"There are three further complications. First, sheet, rod, and bar require two distinct substages of production; hot rolling to produce reroll stock and cold rolling to produce the finished fabrication. Independent fabricators often buy semifabrications from the primary producers for final fabrication. Extrusions and castings have but one clearly defined stage in fabrication and consequently the independent fabricators buy aluminum ingot.

"Second, foil and aluminum cable are customarily classified as fabricated products, even though they require no further manufacturing before their final use. In contrast, the other fabrications are bought by a diverse group of manufacturers for incorporation into almost every type of durable product ... The primary aluminum producers manufacture end-products, but only 15 per cent of the primary aluminum output is so consumed.

"Third, secondary or scrap aluminum is produced by approximately fifty smelters who buy both new scrap (the clippings, chips, and borings generated in end-product manufacture and in fabrication) and old scrap (discarded aluminum aircraft components, pots and pans, and so forth) for smelting. In the postwar period, secondary aluminum output was approximately one-quarter of the aluminum output made from bauxite (that is, primary aluminum). Secondary aluminum is the near technical equivalent of primary aluminum for many applications, so that it is a close but inferior substitute for primary aluminum."^{1/}

One further stage of the production process which is not mentioned in most reports of the industry, and without which the industry could not survive, is the exploration and development which leads to the discovery of aluminum-bearing ores. Exploration and development raises two important issues, the availability of additional sources of aluminum ores, and the way in which the financing is undertaken.

On the first issue, it is repeatedly stated that aluminum is one of the most frequently occurring minerals in the earth's crust. While this is true, the commercial supply of aluminum is a relative term referring to those deposits of aluminum which are commercially attractive, given the prevailing price of the metal. Thus the deposits

^{1/} M.J. Peck, Competition in the Aluminum Industry (Cambridge, Harvard University Press, 1961), pp. 7-8.

of aluminum that are of commercial interest are those in which aluminum is highly concentrated and where the costs of extraction are feasible given the prevailing price.

The second issue, the financing of the exploration and development stage is crucial to understanding the conflict between foreign investors and host governments.^{1/} Mining operations typically go through three stages, (1) exploration and feasibility, (2) mine development and construction, and (3) operations. At the first two stages the firm is making heavy expenditures and receiving no revenue, while at the operations stage revenues will exceed expenditures. When positive profits do begin to be earned, they will be substantial and considered often exorbitant by the host country, but in fact profits are high to make up for the period of losses during the first two stages. The average rate of profit over the three stages, which is what the company is interested in, will be lower than the positive rate of profit shown at the third stage.

The companies, in fact, estimate an internal rate of return over the total life of the mining project. The internal rate of return is the rate of interest which, when used to discount the receipt stream of earnings and compound the expenditure stream of payments, yields the same present value for the two streams. In order to obtain a given internal rate of return for the total project, the accounting rate of profit (after-tax income as a per cent of net book value of assets) will have to be higher than the internal rate of return during the period in which positive profits are earned.

An understanding of conflicts between foreign investors and bauxite producing countries requires a realization that the rate of return concept used by each side may differ, thus accounting for the different perceptions of the profitability of both new and existing foreign investments in bauxite operations. At least, with

^{1/} See R.F. Mikesell, "Financial Considerations in Negotiating Mine Development Agreements", Mining Magazine, Vol. 130, No 4, April 1974.

respect to any new foreign investments, discussion can be undertaken and agreement reached on the appropriate rate of return concept to be used.

2. Geographic Distribution of Production

The distribution of bauxite, alumina and primary aluminum ingot production by country in the market economies is shown in table 1. The socialist countries are producers of the three products as well as the market economies, and while the interaction between the two has important implications which will be discussed below, the following discussion relates to the market economies only.

In bauxite production, developing countries play an important role, with four countries, Jamaica, Surinam, Guyana and Guinea providing 45 per cent of the bauxite produced. Amongst developed countries, Australia is by far the largest bauxite producer followed by France, Greece and the United States. The bauxite producing countries of the Caribbean area, Jamaica, Surinam, Guyana, Haiti and the Dominican Republic account for 44 per cent of the total.

In alumina capacity, the developed countries of the OECD account for approximately 74 per cent of the total, with Jamaica being the most important developing country. The developed countries of the OECD have 90 per cent of the primary aluminum capacity with the United States, Canada, Norway and Japan having 66 per cent of the total.

This distribution of the three stages of production shows that the developing countries are an important source of bauxite, while the later stages of production are concentrated in the developed countries where most of the aluminum is consumed.

Table 1

WORLD BAUXITE PRODUCTION,^{a/} ALUMINA CAPACITY
AND ALUMINUM CAPACITY, 1972

(Percentage)

	Bauxite Production	Alumina Capacity	Aluminum Capacity
Australia & New Zealand	25.04	14.59	3.12
Canada	-	5.20	10.09
Japan	-	9.89	10.50
South Africa	-	-	0.47
United States	3.19	29.08	39.55
Western Europe	10.47	15.30	27.38
<u>Developed Market Economies</u>	<u>38.65</u>	<u>74.06</u>	<u>91.01</u>
<u>Yugoslavia</u>	<u>3.81</u>	<u>1.40</u>	<u>1.00</u>
India	2.86	1.70	1.89
Indonesia	2.21	-	-
Malaysia	1.86	-	-
Other	-	0.31	2.01
<u>Developing Asia</u>	<u>6.93</u>	<u>2.01</u>	<u>3.90</u>
Cameroon	-	-	0.50
Ghana	0.62	-	1.35
Guinea	3.55	2.89	-
Sierra Leone	1.20	-	-
<u>Developing Africa</u>	<u>5.37</u>	<u>2.89</u>	<u>1.85</u>
Brazil	1.05	0.87	0.94
Dominican Republic	1.79	-	-
Guyana	5.80	1.44	-
Haiti	1.19	-	-
Jamaica	21.76	12.36	-
Mexico	-	-	0.36
Surinam	13.49	4.96	0.60
Venezuela	-	-	0.20
<u>Latin America & Caribbean</u>	<u>45.08</u>	<u>19.63</u>	<u>2.10</u>
<u>Total World 1/</u>	<u>99.84</u>	<u>99.99</u>	<u>99.86</u>

Source: Minerals Yearbook, 1972, United States Bureau of Mines.

^{a/} Excluding socialist countries but including Yugoslavia.

3. Transnational Corporations

In the Western countries, six large international companies with vertically integrated operations controlled 75.7 per cent of the total primary aluminum capacity in 1972 (table 2). These six producers, three American, one Canadian, one French and one Swiss, either wholly-owned or partly-owned primary aluminum capacity in 25 countries. In 15 of these countries only one of the six producers could be found, and in only four countries (United States, Norway, United Kingdom, and Australia) were three or more of the producers present.^{1/} There has thus been a tendency to avoid locating competing smelting facilities in individual countries. About 70 per cent of the countries in which these six producers had smelters were industrialized countries. The proportion of their total capacity in industrialized countries would be approximately 90 per cent. As noted above and will be shown in more detail below, these large firms have a heavy dependence on bauxite from developing countries.

The big six operate on their own but also frequently have equity partners in ventures (see table 3). It is interesting to note that a number of governments are partners with these firms, and that the firms have a number of partnerships with each other. These six firms are also associated in other ways which will be described below.

Those countries in the world (excluding socialist countries) which have primary aluminum and alumina capacity are shown in table 4. This table includes all producers in the world except socialist countries not just the big six. A total of 33 countries have primary aluminum smelters; 18 have alumina plants and 15 have both. Again there is a preponderance of industrialized countries, by number and by capacity in table 4. However, it is noticeable that in alumina production, there are a number of important producers among developing countries, namely, Jamaica, Guinea and Guyana. These are the only countries that have alumina plants and no smelter capacity.

^{1/} Problems and Prospects of the Primary Aluminum Industry, (Paris, OECD, 1973) Statistical Annex, pp. 27-29.

Table 2

1972 PRIMARY ALUMINUM INGOT CAPACITY OF SIX
LEADING PRODUCERS, '000 METRIC TONS

ALCAN	2 107
ALCOA	1 705
Reynolds	1 222
Kaiser	1 134
Pechiney	1 095
ALUSUISSE	679
<u>Total of six</u>	<u>7 942</u>
Western World Capacity	10 490
Six as % of Total	75.7%

Source: OECD, Problems and Prospects of the Primary Aluminum Industry,
Paris, 1973.

Table 3

SOME PARTNERS OF THE SIX LEADING PRODUCERS IN ALUMINA PRODUCTION
AND PRIMARY ALUMINUM PRODUCTION. (PARTNERS
USUALLY HAVE A LESSER SHAREHOLDING)

1. ALCAN

Norwegian government
Spanish government
Pechiney
Kaiser
Reynolds through BACO (United Kingdom)
Granges (Sweden)

2. ALCOA

Elkem (Norway)
Hanna Mining (United States)
A Brazilian bank
Mexican interests

3. Reynolds

Iranian government
Pakistan government
Kaiser
VAW (Vereinigte Aluminium Werke - German government)
Hamburg
Anaconda (United States)
Corporación Venezolana de Guyana (Government of Venezuela)

4. Kaiser

ALCAN
Pechiney
Reynolds
Rio Tinto Zinc (RTZ - United Kingdom)
Sumitomo (Japan)
Preussag (Germany)
British Insulated Callenders and Cables
Birla (India)

5. Pechiney

Greek government
Spanish government
ALCAN
Kaiser
Reynolds through BACO (United Kingdom)
ALUSUISSE
VAW (German government)
Comalco (associated with RTZ)
AMAX (United States)
Hunter-Douglas (United States)
ENDOSA (Spain)
Olin-Mathieson (United States)

Table 3 (concl.)

6. ALUSUISSE

Norwegian government

South African government

Pechiney

Reynolds through BACO (United Kingdom)

Olin-Mathieson (United States)

Phelps-Dodge (United States)

VAW (German government)

EFIM (Italian government)

Source: From a Transportation Study of Aluminum by United Kingdom Shipping Firm, Lambert Bros., London, 1973, Appendix H. Problems and Prospects of the Primary Aluminum Industry, (Paris, OECD, 1973) Statistical Annex, pp. 27-29.

Note: In 1976, a new smelter will start production in Argentina owned jointly by the Argentine government, ALCAN, Kaiser and Pechiney.

Table 4

COUNTRIES WHICH HAVE ALUMINA AND SMELTER CAPACITY, 1972

	Smelter	Alumina		Smelter	Alumina
<u>Europe</u>			<u>Africa</u>		
France	X	X	Cameroun	X	
Germany	X	X	Ghana	X	
Italy	X	X	Guinea		X
Netherlands	X		S. Africa	X	
United Kingdom	X	X	Egypt (1977)	X	
Greece	X	X			
Turkey	X	X	<u>Asia</u>		
Austria	X		Bahrain	X	
Iceland	X		India	X	X
Norway	X		Iran	X	
Sweden	X		Japan	X	X
Switzerland	X		S. Korea	X	
Spain	X				
Yugoslavia	X	X	<u>Australia</u>		
<u>North America</u>			Australia	X	X
Canada	X	X	N. Zealand	X	
United States	X	X			
				<u>33</u>	<u>18</u>
<u>Central & South America</u>					
Brazil	X	X			Both <u>15</u>
Guyana		X			
Jamaica		X			
Mexico	X				
Surinam	X	X			
Venezuela	X				
Argentina (1976)	X				

Source: From a Transportation Study of Aluminum by United Kingdom Shipping Firm, Lambert Bros., London, 1973, Appendix H.

/The capacity

The capacity of alumina plants ranges from 20,000 metric tons to 2,440,000 metric tons. Within Australia, there is an alumina plant 40 times the capacity of the smallest plant; in India, 8 times; and in Brazil, twice. The firms with large alumina plant capacity tend to consist of consortia of firms.^{1/}

Smelter capacity size ranges from 4,000 metric tons to 416,000 metric tons. Large and small smelters are found in the same country. For example, in France there is a smelter 30 times the capacity of the smallest smelter; in Italy, 25 times; in United Kingdom, 10 times; and in Switzerland, 5 times.^{2/}

A strategy of the large firms in the IAI has been to become vertically integrated from raw material through to fabrication. The six major firms have tended to provide almost all their alumina capacity and all their primary aluminum capacity (table 5). In 1968, there was an excess of alumina capacity relative to aluminum capacity for ALCAN, ALCOA, Kaiser and Reynolds. At that time, the estimate for 1973 was for excess alumina capacity for ALCAN, ALCOA, Kaiser and ALUSUISSE.

In periods when these companies have excess alumina capacity, they either have to operate at less than full capacity or they become sellers of alumina to other firms. Preference is shown for long term contracts in order to avoid such problems. The desire by the large companies for self-sufficiency in alumina production and their experience of periods of excess capacity do not make it easy for firms, which are independent of these companies, to enter the market with alumina production.

^{1/} From a Transportation Study of Aluminum by United Kingdom Shipping Firm, Lambert Bros., London, 1973, Appendix H.

^{2/} Ibid., Appendix H. The size differential is in part explained by differences in the type of smelter, i.e., those which use alumina and those which use scrap metal.

Table 5

SURPLUS (+) OR DEFICIT (-) OF ALUMINA CAPACITY RELATIVE TO ALUMINUM SMELTING CAPACITY 1968 AND 1973 FOR 6 MAJOR PRODUCERS

Company	1968	1973
ALCAN	+311	+121
ALCOA	+1 292	+1 574
Kaiser	+654	+380
Reynolds	+97	-164
Pechiney-Ugine	-86	-193
ALUSUISSE	-537	+58
Smaller private companies	-136	-1 304
Non-socialist government enterprises	-246	+226
<u>Total</u>	<u>+1 349</u>	<u>+698</u>

Source: L.A. Harvey, "World Aluminum Picture", in Integration in Aluminum (Metal Bulletin Ltd. 46 Wigmore Street, London, Winter 1969).

/Some companies

Some companies such as Pechiney-Ugine and ALUSUISSE have been purchasers of alumina, but they are expected to become self-sufficient. Ardal og Sunndal Verk, a Norwegian Company, at one time made a practice of relying on purchased alumina, but it did so by trading metal for alumina with ALCAN and ALCOA. However, it now has a joint venture with ALCAN which provides it with its alumina. The Austrian firm of Vereinigte Metallwerke Ranshofen traded metal for alumina with Giulini Brothers of West Germany and purchased some alumina from other firms, and the Government of Spain operated its smelters with alumina from ALCAN and Pechiney-Ugine. It is clear, that, while there has been and is a market in the world for alumina, this market is limited, and most of the alumina is traded internally by the large companies with smelter capacity. Any new firm intending to break into this market would be well advised to have a definite marketing strategy or commitments for long term sales before entering. The same is true for any independent firm intending to sell bauxite on the open market. Most of the bauxite traded is done on an intra-company basis or via swap agreements between the large firms and on the basis of long term contracts. An open market for bauxite and alumina is thus almost non-existent.

Two characteristics of the aluminum industry in North America are worth noting. First, the United States at present prices relies on imported bauxite and alumina for over 80 per cent of its requirements; with 59 per cent of total bauxite imports coming from Jamaica, 23 per cent from Surinam, 8 per cent from the Dominican Republic and most of the remainder from Venezuela and Guyana. Australia supplies 69 per cent of total alumina imports, and Surinam and Jamaica, 31 per cent.^{1/}

^{1/} Bureau of Mines, United States Department of the Interior, Minerals Yearbook, 1969 (Washington, United States Government Printing Office, 1971), Vols. I-II, pp. 199 and 205.

Canada relies entirely on imported bauxite, which in 1972 came from Guyana and Jamaica. Alumina was imported as well as produced locally.^{1/} Primary aluminum capacity in 1969 in Canada was 960,000 tons, and about 80 per cent of the output was exported, mainly to the United States and Western Europe. The main, but not sole, reason for the existence of a Canadian Aluminum industry is the existence of cheap hydro-electric power.

4. Role of Home Governments

In the United States and in many countries in Western Europe, aluminum is considered to be a strategic material necessary for the national civilian and military purposes. Consequently, governments in these countries have been concerned over and involved in the supply of aluminum.^{2/} This concern is reinforced because the substantial reserves of bauxite are located in developing countries, and because of the limited number of large integrated firms involved in the production of aluminum.

A recent study of the aluminum industry in Western Europe identifies a variety of special concerns which have prompted government action:

"For example, the governments of the Fifth Republic in France have, on balance, favoured the development of national champions, and more recently the protection of 'security of supplies' for raw materials. The balance-of-payments factor loomed large with the British Government since the late 1950s and especially the Labour Government of the latter half of the 1960s, which favoured the establishment in Britain of aluminum smelting capacity at least partly owned by national interests. Norway's major concern in its aluminum policy has been the protection of employment and wage income in depressed areas, in

^{1/} Imports by Commodities, Statistics Canada, Cat. 65-007, (Ottawa, Information Canada), December 1973, p. 60; and World Metal Statistics, World Bureau of Metal Statistics, May 1974, p. 16

^{2/} In the United States, aluminum has been one of the commodities stockpiled by the United States government. See Stockpile Report to the Congress, July-December 1973, General Services Administration, Washington.

preference to aggressively seeking growth in profits and markets. Other countries, notably Germany, the Netherlands, and Switzerland, have generally favoured an open-door competitive policy with relatively little governmental interference. Spain and Italy have been largely concerned with government-supported industrial and regional development".^{1/}

These objectives have been achieved in a variety of ways. The Norwegian government has used a state-owned enterprise to combine with foreign privately-owned companies. Norway provides the hydro-electric power and the smelting operation, while the foreign firms provide the bauxite-alumina and assist in marketing the output. The French government has promoted Pechiney as the major producer in France through direct involvement in deciding merger partners for Pechiney through financial assistance from government institutions, and through government purchasing policies and sale of energy from state-owned enterprises. Large subsidies have been provided by the United Kingdom government for the construction of three smelters. Germany has a state-owned producer, VAW, and the Italian government has used state enterprises to obtain an interest in a major aluminum producer, Montedison.

In Western Europe, the commitment of governments to the aluminum industry is clear and thus it is hard to envision a situation whereby the industry would be allowed to decline or suffer. In the United States, the industry also has considerable influence with the government because its output is recognized to be a strategic material, and because the few large producers have been successful lobbyists in obtaining support domestically and with respect to their overseas operations. ALCOA has had an exceptionally close relationship with the United States government because it was the sole United States producer during the first World War and at the start of the Second World War. Moreover it assisted the government in setting up new smelters during the Second World War, smelters which were later sold to Reynolds and Kaiser. The historic dependence of the United States government on the industry is clear.

^{1/} Z. Mikdashi, "Aluminum in West Europe: A Regional Analysis of Business-Government Relations", paper presented to the Conference on Business-Government Relations in Western Europe, Harvard University, January 1973, p. 9.

In Europe, the large United States firms (ALCOA, Kaiser and Reynolds) are heavily involved in production operations, as is ALCAN. The concern of the United States government is not only the current economic and strategic impact which the foreign operations of ALCOA, Kaiser and Reynolds may have on the United States, but also the flexibility and incentives which these companies have to undertake future investment outside the United States, which has implications for output and employment in the United States. Because Western European governments provide incentives and are also protectionist with respect to favouring local producers, e.g.: Pechiney in France, there are grounds to expect that governments communicate with each other concerning the control of this industry. The situation of an international oligopoly alongside local government policies aimed at promoting the industry locally provide almost ideal circumstances for the manipulation of market forces sanctioned by governments. Such actions have been taken.

"In their quest for profits and stability, aluminum enterprises have not only resorted to the strategy of mergers, joint ventures, consortia, partnerships, swaps, reciprocal trading, etc.; they have also resorted to other forms of co-operation with governments supporting or condoning such actions."^{1/}

The involvement of governments in the IAI is commented on in a recent OECD report, which was undertaken because of certain problems that had arisen in the industry in the early 1970s.

"In mid-1970 ... several factors combined to disturb this stability. New primary aluminum producers were beginning to make their appearance in both developing and industrialized countries and were selling the tonnage they had left over, after supplying subsidiaries or fulfilling supply contracts, on the open market. What is more, the stagnant demand since mid-1970 left most producers with substantial spare capacity. Some felt that increase in their unit costs of production caused by lower utilization of capacity might be offset to some extent by the prices obtained if less metal were available, and cut back production accordingly. Others possibly encountered various technical, economic and social obstacles preventing any prompt measures to adjust output, and yet others preferred to maintain production to a certain extent and build up the large stocks ...

^{1/} Mikdashi, op. cit., p. 29.

Lastly, some tonnages from the state-trading countries, where the aluminum industry is growing fast, are sold at much lower prices than those usually obtained."^{1/}

Adjustment to these problems were made by the companies, individually and collectively, and by governments, individually and collectively. The companies took measures individually to space out investment programmes; to postpone investment projects and close older plants; and to adjust utilization rates of production capacities. Collectively, the companies arranged to finance the holding of increased stocks of aluminum, through the agency of Alufinance and Trade Ltd.; to purchase aluminum held in government stockpiles; and to purchase aluminum sold in the West from Eastern Europe (see section on Gentleman's Agreement below). At the same time an international trade association was formed, the International Primary Aluminum Institute (IPAI), to assist the industry.

Individual action taken by governments is associated with the measures discussed in connexion with the approach taken to the IAI by countries in Western Europe and North America. Collective action is not explicit, but is implicit in governments' recognition of the Gentleman's Agreement. Further details of the company and government response will follow an outline of the previous cartel arrangements.

5. Prewar Cartels ^{2/}

The IAI developed in North America through the control and operation of patents by the Pittsburgh Reduction Co., which later became ALCOA, and the operations of its Canadian subsidiary, ALCAN which was split organizationally from ALCOA in 1928, and split in terms of ownership from ALCOA by a United States court decision in 1950. In Europe, the aluminum industry developed around the activities of four major firms, Aluminium Industrie A.G. in Switzerland (Swiss and German owned), Société Froges and Compagnie Alais in France, (the latter to

^{1/} "Problems and Prospects", op. cit., p. 34.

^{2/} This section is based on D.H. Wallace, Market Control in the Aluminum Industry, Cambridge, Harvard Un. Press, 1937, and G.W. Stocking and M.W. Watkins, Cartels in Action, (New York; 20th Century Fund, 1946).

/become Pechiney)

become Pechiney), and the British Aluminum Co., in the United Kingdom. In 1914, the world's total smelter capacity was located approximately 60 per cent in Europe and 40 per cent in North America, with all the latter owned by ALCOA.

Import competition from European aluminum producers in the United States, and from ALCOA and its Canadian subsidiary in Europe, together with alternating periods of boom and recession, propelled the major aluminum companies into cartel agreements, aimed at protecting their own markets and sharing third country markets in an orderly fashion. Seven cartel agreements of this nature were made between 1896 and 1926. Except for the first agreement of 1896, ALCOA did not belong to the agreements directly, but indirectly through the cartel membership of its Canadian subsidiary, the Northern Aluminum Co., (which later became ALCAN). This was due to ALCOA's fear of prosecution under the Sherman Act. In fact, it might be argued that there are two reasons for the existence of a Canadian aluminum industry, both of which are attributable to ALCOA. The first is ALCOA's need for cheap hydro-electric power, and the second is its need for a convenient vehicle for belonging to international cartel agreements.

In 1912, ALCOA signed a consent decree which, amongst other things, stated that ALCOA

"... is further enjoined from either directly or indirectly entering into, through said Northern Aluminum Co., or any other person or corporation, and from making or aiding in making any agreement containing provisions of the nature of those hereinbefore set out, insofar as they relate to the sale of aluminum in the United States, or its importation or exportation from the United States ... which would be to restrain the importation into the United States, from any part of the world, of aluminum, or alumina, or bauxite, or any other material from which aluminum can be manufactured, or to fix or illegally affect the prices of such aluminum, alumina, bauxite, or other material, when imported".1/

1/ D.H. Wallace, op. cit., p. 548; underlining added.

Five days after signing this decree, the Northern Aluminum Co., signed another cartel agreement with the major European producers. This cartel agreement did not contain provisions relating to control of the United States Market and this permitted membership by the Northern Aluminum Co., since,

"At the request of the Aluminum Co., the consent decree of 1912 was framed in such a way as to leave the Northern Aluminum Co. free to enter into agreements of that sort which contained no provisions for control of the United States market."^{1/}

In subsequent years, a more convenient arrangement for ALCOA's membership in international cartels was devised. In 1928, ALCOA incorporated in Canada a new company, "Aluminium Ltd., to which it transferred almost all its foreign properties, including its bauxite deposits in Guyana, but excluding its deposits in Surinam.

The creation of two legally separate companies, ALCOA and Aluminium Ltd., took place by the shares of Aluminium Ltd., being distributed pro rata to shareholders of ALCOA. The legal fiction of independence was supposed to imply commercial independence as well. However, there is evidence on the relationship between the two companies after 1928 to suggest that commercial independence did not exist.^{2/}

The final major pre-war cartel agreement took place as a result of the Foundation Agreement signed by Aluminium Ltd., and the European producers, which led to the incorporation of the Alliance Aluminium Compagnie in Switzerland. The proportion of shares in the Alliance held by each member determined its quota of total production in certain markets. The distribution of shares was as follows: Aluminium Ltd., 28.58 per cent, French 21.35 per cent, German 19.65 per cent, Swiss 15.42 per cent and British 15.00 per cent. Although ALCOA was not a direct partner in the Alliance, it has been suggested that it was a sleeping partner because the success of the Alliance depended

1/ Ibid., D.H. Wallace, op. cit., p. 126.

2/ Stocking and Watkins, op. cit., pp. 257-261.

on the European producers respecting ALCOA's United States market, and ALCOA respecting the Europeans' interests. It was not until 1950 that a United States court decision ordered the separation of ALCOA from Aluminium Ltd., by the eleven major shareholders in both companies divesting themselves of their shares in one or other company.^{1/}

The history of cartel arrangements provides evidence to show that the international aluminum companies have co-operated closely with each other in the past. Even with formal cartels no longer in existence, past relationships might reasonably be expected to make these companies close ranks in the face of a common threat, such as the nationalization of their bauxite properties in developing countries, or in the face of the commercial problems described in the OECD Report. In recent years, the following forms of "cartel-like" behaviour have evolved in the IAI.

6. Gentleman's Agreement

Since 1963, reference has been made to measures taken by the western producers to prevent the export of aluminum from the east, mainly the USSR, Hungary, East Germany and Rumania, which upset market conditions in the west. A "Gentleman's Agreement" is the term coined by the British magazine, Metal Bulletin,^{2/} to the arrangement made between eastern and western producers of aluminum. Usually the agreement has been associated with conditions of oversupply in the west, which has attempted to control aluminum imports from the east. However, it has also been noted that at times the United States has exported aluminum to the USSR under especially favourable terms, which suggests that the agreement involves more than just the control of supply from the east.^{3/}

^{1/} United States v. Aluminium Co. of America, 91F Supp. 333 (S.D.N.Y., 1950).

^{2/} Metal Bulletin, London, August 2, 1963, p. 14; January 4, 1966, p. 17; March 18, 1966, p. 17; July 15, 1966, p. 9; July 11, 1967, p. 26; August 18, 1967, p. 23; February 16, 1968, p. 24; February 14, 1969, p. 19; June 6, 1969, p. 21; January 12, 1971, p. 15; March 12, 1971, p. 20; March 30, 1971, p. 12; and April 2, 1971, p. 17.

^{3/} Ibid., June 6, 1969, p. 21.

The "Gentleman's Agreement" appears to consist of an arrangement whereby the western producers agree to absorb a quantity of metal each year originating from the east. The quantity is renegotiated from time to time. A British firm, Brandeis Goldschmidt (a subsidiary of the merchant bankers S.G. Warburg), has acted as agent in handling these sales. Problems with the agreement have been experienced, one being that for a while Rumania was not a party to the agreement and its action tended to upset the marketing arrangement.^{1/}

It is interesting to note that the British Government is clearly aware of the "Gentleman's Agreement" and by their silence have shown that they condone it. The same is probably true for the governments of other western countries. In the pre-war period, the IAI would not have involved governments in their attempts to stabilize the market. This has now changed in that governments are used to apply anti-dumping duties (as well as tariffs) and to support cartel-like agreements which tend to promote stabilization.^{2/} This approach is consistent with the earlier discussion of government policies aimed at promoting local aluminum industries.

The "Gentleman's Agreement" has been reinforced in Western Europe through the establishment in June 1971 of Alufinance and Trade Ltd., by ALUSUISSE, Pechiney, VAW, British Aluminum, Montedison, Ranshofen Berndorf, Holland Aluminum and Guilini. ALUFINANCE, organized with the assistance of S.G. Warburg, the parent of Brandeis Goldschmidt, finances the stockpiling of metal on behalf of the participating producers. The object of this procedure is to hold metal outside the market, when a surplus exists, in order to prevent the depression of prices. Buyers are supposed either not to know about the size of the stockpile at any time, or to treat the stockpile as being insulated from the market. Secrecy is attempted by the stockpile not being reported in the balance sheets of the individual companies. It should be noted that only one United States producer is associated with this arrangement, namely Reynolds through British Aluminum Co.

1/ Ibid., March 12, 1971, p. 20.

2/ Ibid., August 2, 1963, p. 13.

Similar co-operative arrangements were made between seven of the largest aluminum producers in the United States and Canada in 1965, when, "under a long term contract, (they) undertook to purchase all excess (United States) government stocks at list price". At this time, the United States government, with stocks of 1.7 mmt, declared 1.3 mmt surplus to government requirements.^{1/}

A further measure of co-operative action on the part of aluminum producers has been the formation in 1971 of the European Producers Aluminum Association (EPAA) representing all the West European producers.

"Its objective is to exchange information on subjects of mutual concern, notably plant capacity, and balance between production and consumption on a world basis."^{2/}

In addition, the Aluminum Association exists as an industry-wide trade organization representing over 70 companies including primary producers of aluminum in the United States, leading manufacturers of semi-fabricated aluminum products and principal foundries and smelters.

Failure to achieve results through agreements between the major firms still leaves the firms the option of persuading their governments to impose anti-dumping duties. As noted by an ALUSUISSE executive, "... leave it to the Europeans to defend their market, after all, there are such things as anti-dumping actions".^{3/}

Similar moves have been made on an international as opposed to a regional scale through the formation of the International Primary Aluminum Institute.

The Memorandum of Association states that the objectives of the Institute include the following:

- (a) To promote and assist the development of new uses of primary aluminum and the expansion of existing applications and the usefulness of the primary aluminum industry to the general public.
- (b) To provide a forum for the exchange of information and the discussion of problems relating to the production of primary aluminum.

^{1/} "Problems and Prospects", op. cit., p. 27.

^{2/} Mikdashi, op. cit., p. 39.

^{3/} Metal Bulletin, August 24, 1971, p. 15.

- (c) To undertake, sponsor or in any other matter assist research in and the study of or matters concerning the production of primary aluminum including without limitation matters in the fields of science, technology, ecology, economics and statistics.
- (d) To publish or procure the publication of information relating to primary aluminum.
- (e) To represent the interests of the primary aluminum industry in dealings with any government, trade organization or association of any kind whatsoever.

A proviso is also written in:

"PROVIDED THAT the activities of the Institute shall not be such as will result in any agreement, understanding, combination or any other form of concerted action to limit production, fix prices, suppress competition or in any other manner restrain trade or commerce or to monopolize or attempt to monopolize trade or commerce."

To date, published information circulated by the Institute has indicated the monthly figures on production and semi-annual figures of capacity, re: primary ingot, with estimates of capacity for the following two years. These data relate to the 44 members of the Institute which include almost all the producers outside the socialist countries.

Co-operative action by governments is implicit in the approval for publication of the OECD report which comments favourably on the agreements on investment decisions by the large companies.

"A consequence of this situation has been that markets and prices in the aluminum industry have remained stable, a necessary condition for consumption to expand and for the increasingly heavy investment to develop on a continuous basis. A certain centralization of investment decisions, together with the world-strategy on which they were based, has helped to prevent prolonged imbalance and its dangers for long-term stability."^{1/}

The same report points to the undesirable degree of competition resulting from the investment decisions made by a number of new producers, which were operating by the beginning of the 1970s. It suggests that investment controls should be engaged in collectively by all producers, large and small, old and new, and possibly with the assistance of governments.^{2/}

^{1/} "Problems and Prospects", op. cit., p. 42.

^{2/} Ibid., pp. 71 and 74.

Another form of government co-operation are the meetings arranged between the bauxite producing countries. The March 1974 meeting held in Conakry, Guinea involved as participants, Guinea, Jamaica, Guyana, Surinam, Sierra Leone and Yugoslavia, and as observers, Algeria, Cameroon, Ghana and Mali. The interest of these countries, is to explore ways in which greater economic advantages can be obtained from their bauxite deposits. It is interesting to note the range of operating firm interests in each of these countries: in Surinam, one company is 100 per cent owned by ALCOA and the other 100 per cent owned by Shell; in Guyana, production is divided between Guybau, a state-owned corporation (since 1971) which has about 80 per cent of the production, and Reynolds which has the remainder (nationalized as of January 1st, 1975); in Jamaica, all the North American companies are represented and the government obtained partial equity interests in 1974-1975; in Guinea, a consortia of Olin Mathieson, Pechiney, BACO, ALUSUISSE and VAW operate the deposits; and in Australia, almost all the major producers are represented plus some Japanese and Dutch interests, but no direct government interest.

7. Bauxite and Aluminum Pricing

The integrated nature of the IAI results in there being no open market for bauxite and alumina. Only the price of aluminum ingot is widely quoted due to the number of arms-length transactions. From time-to-time, some bauxite and alumina is sold on an arms-length basis but these markets are too thin for there to exist a regularly quoted price. In addition some of the arms-length transactions are of a long term contractual nature which further mitigates against frequently quoted prices. The large transnational corporations do trade with each other and while these are arms-length transactions they are often barter type transactions, not involving explicit prices. For example, bauxite and alumina may be traded between two transnational corporations in order to minimize transportation costs or to adjust to some mutually beneficial seasonal requirements. A similar practice prevails at the fabricated aluminum product stage where one company will 'tell' metal /for another

for another company. For example, ALCAN discouraged Reynolds from establishing an aluminum cable plant in Canada by agreeing to 'toll' Reynolds' aluminum ingot into cable for sale to Reynolds' customers in Canada. A further practice is for the transnational corporations to allocate particular markets to each other through the transfer of information. For example, ALCAN may make a sale in France and Pechiney a sale in Canada; ALCAN will fill Pechiney's order in Canada and Pechiney will fill ALCAN's order in France, thus saving on transportation costs and assisting the companies in maintaining geographical spheres of sales influence.

Quoted prices for aluminum ingot are available from a number of sources. Since these prices are important in an absolute sense, and because some host-country tax policies have been tied to the level of the price ingot, e.g.: Jamaica, it is critical that an appreciation is made of the significance of quoted ingot prices. In particular, it should be noted that quoted prices need not and often are not the same as transaction prices for ingot.

There are several quoted prices for primary aluminum ingot. Seven of these prices are discussed below.

(a) The United States list price is the price published by the three major United States producers of primary ingot: ALCOA, Kaiser and Reynolds. The list price is set by a price leader - usually ALCOA, but Kaiser has also attempted to act as price leader on occasion. It is customary for the other two firms to follow after a very brief period. Changes in the list price occur infrequently - seldom more than twice a year and sometimes a given price may remain in effect for two years or more. The trend of the United States list price from 1961-1974 is shown on Chart 1.

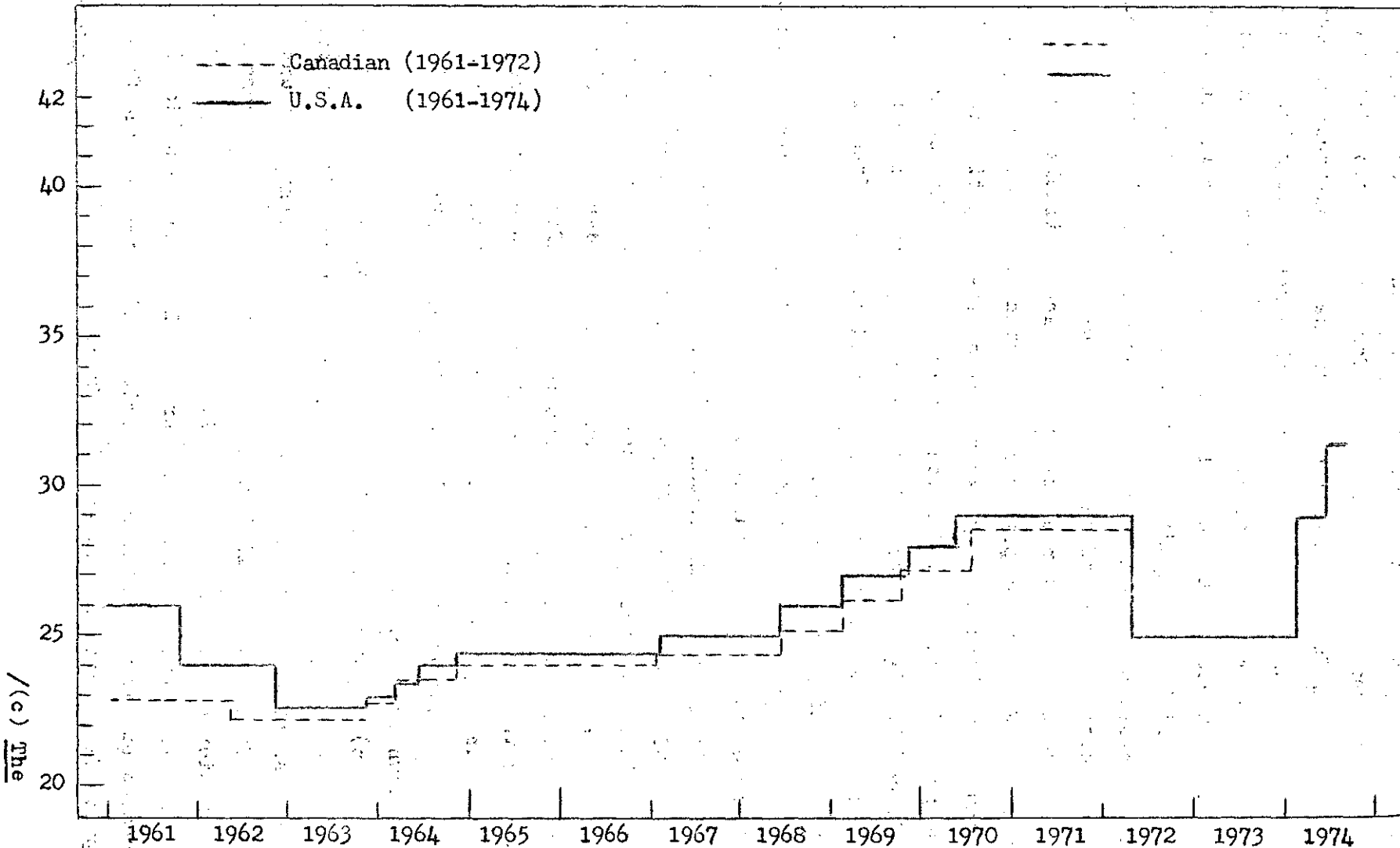
(b) The Canadian list price is the domestic price of aluminum ingot quoted by ALCAN for Canadian fabricators. It is quoted in Canadian currency and has usually been at a slight discount relative to the United States list price. In May 1972, Kaiser announced a reduction of the United States list price from 29¢/lb. to 25¢/lb. and, rather than follow this behaviour (as ALCOA and Reynolds did), ALCAN ceased quoting a Canadian list price. The trend of the Canadian list price from 1961-1972 is shown on Chart 1.

/Chart 1

Chart 1

CANADIAN AND U.S. LIST PRICE OF PRIMARY ALUMINUM INGOT 1961-1974

U.S. \$11b



Source: The Canadian Mineral Industry, Mineral Bulletin - Annual, Department of Energy, Mines and Resources, and Metals Week

(c) The Canadian export price is the delivered price of ingot at European markets quoted by ALCAN. It is the ALCAN price for ingot not sold in Canada, United States, or any country where price is government controlled.

(d) The London Metal Exchange published price is equal to the Canadian export price. The trend of this price is shown in Chart 2 for 1966-1974.

The above prices are the list prices of aluminum ingot sold by the major primary producers to non-integrated fabricators. For United States producers, this applies to approximately 1/3 of primary ingot production. The remaining 2/3 is used internally in the fabricating operations of ALCOA, Kaiser and Reynolds. These list prices are not the prices which apply to actual transactions to non-integrated fabricating. In periods of surplus, it is common for the primary producers to offer discounts to fabricators. Discounts of 10 per cent have been customary in the 1960s but in the 1970-1972 period of oversupply and excess capacity the discounts ran as high as 28 per cent off the United States list price of 29¢, as metal was actually selling in substantial volume at 21¢/lb. in the United States market.

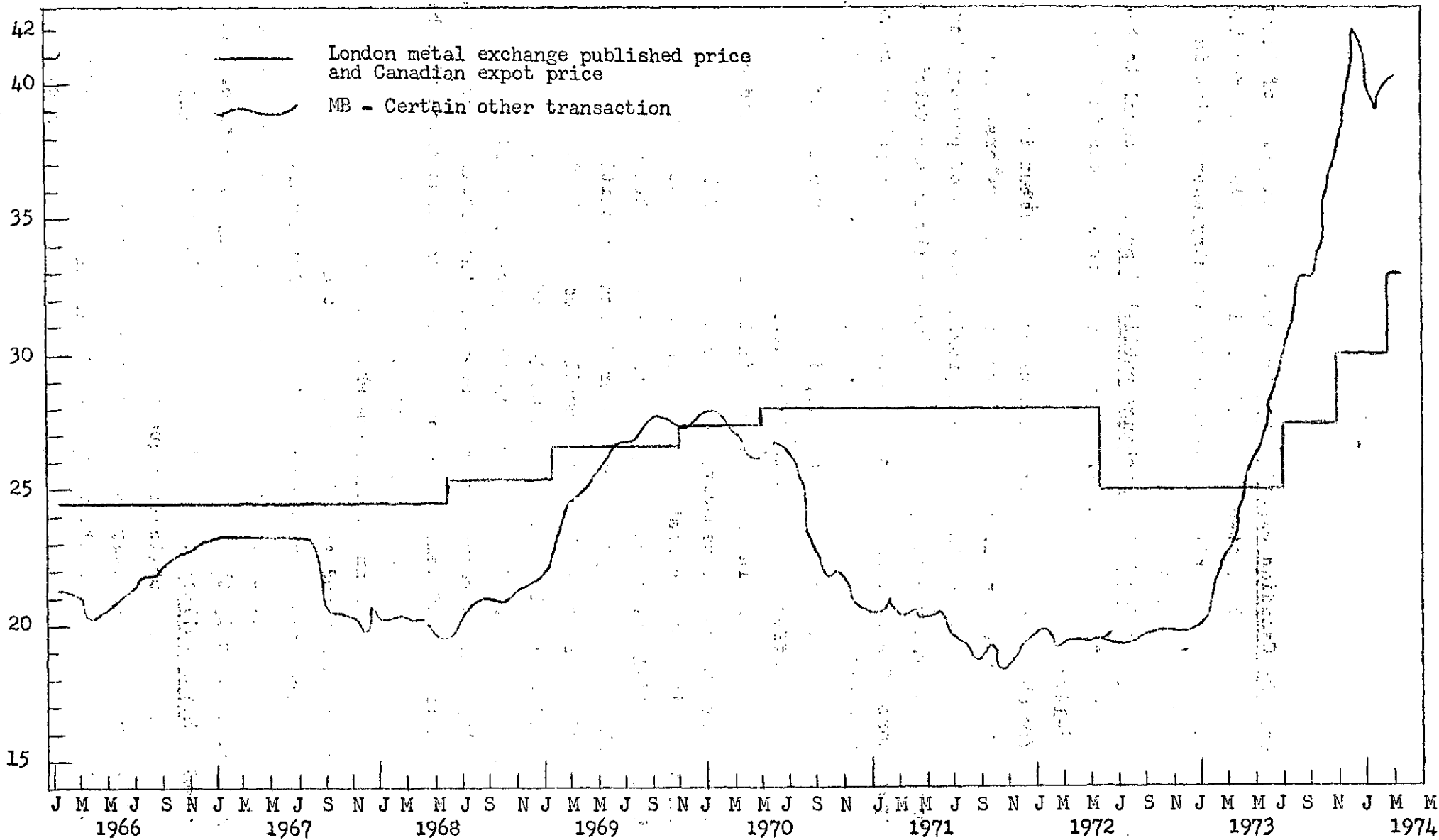
Therefore it appears that under "normal" conditions the actual transactions price has been at a small discount relative to the major producers' quoted list price. In periods of surplus, the discount has increased to almost 30 per cent. In the opposite situation, as the market tightens, discounting is reduced and the actual price approaches the list price. If demand continues strong, the list price will be increased to allow the actual transactions price to increase. The market then reaches an equilibrium when the actual transactions price clears the market and the list price is set about 5-15 per cent higher so that discounting continues at a "manageable" level.

It is clear, therefore, that the list prices quoted above do not reflect adequately the state of the market at any given time. As a result, Metal Bulletin, an English trade publication and Metals Week, an American trade publication quote prices which they believe approximate more closely the actual transactions price in the London and United States markets respectively. Metal Bulletin states:

Chart 2

LONDON METAL EXCHANGE LIST PRICE AND M.B. CERTAIN OTHER TRANSACTIONS PRICE OF PRIMARY ALUMINUM INGOT, 1966-1974

U.S. \$/lb



Source: Metal bulletin

"When the price which forms the frame of reference for the actual value of so overwhelming a proportion of aluminum is so unsatisfactory, it is little wonder that its analysts - both inside and outside the industry are groping around for some other means of measurement."^{1/}

(e) Metal Bulletin - Certain Other Transactions price is the price which is the so-called "free" market price of aluminum in Europe. It applies to "contracts involving metal which typically formed the base for that market - that is to say metal from non-integrated producers including those in the socialist countries".^{2/} The price is heavily dependent on special exigencies, for example, whether or not the socialist countries sell aluminum. It has been suggested that the actual transactions price in contracts between the major European primary producers and fabricators lies between the London Metal Exchange published price and the Metal Bulletin "certain other transactions" price "but cannot be ascertained precisely for lack of data".^{3/} The "certain other transactions" price for 1966-1974 is shown on Chart 2.

(f) Metals Week United States market price is similar to the Metal Bulletin price but refers to the United States aluminum market. This price is not published by any of the major primary producers, but is based on current information on the actual selling price of aluminum and seems to reflect the degree of discounting which primary producers are offering to fabricators. Although there is no evidence that all aluminum is selling at the Metals Week United States market price, this publication takes the position that it is the price at which aluminum is selling "in substantial volume" in the United States.^{4/}

The 'certain other transactions' price of Metal Bulletin and the United States market price according to Metals Week are quite similar and seem to reflect the free international market price of primary ingot. Both these prices exceeded the quoted list prices in early 1973.

^{1/} Metal Bulletin, April 13, 1973, p. 15.

^{2/} Ibid., p. 1.

^{3/} Metal Statistics 1960-1970, Metallgesellschaft Aktiengesellschaft, p. V.

^{4/} Metals Week, May 8, 1972, p. 1.

This coincided with the Cost of Living Council's price controls in the United States which controlled the price of ingot in United States domestic transactions while ingot sales in foreign markets were made at higher prices reflecting underlying market conditions. In fact, because of shortages, some foreign metal was sold back to the United States market at the higher prices thus undermining the controls.

(g) Price of Secondary ingot is the price of ingot made from recycled aluminum scrap. The major primary producers also have secondary smelters which are in competition with numerous independent secondary smelters. As a result, the price of secondary ingot is much more flexible than the list price of primary ingot.

The price of No. 380 secondary aluminum ingot in the United States lies between the LME published price and the 'certain other transactions' price for the period 1966-1971. Since secondary ingot is a very close substitute for primary ingot, one might expect the price of secondary to be a good proxy for the actual transactions price of primary ingot.

The implications of bauxite and alumina pricing are as follows:

(i) Arms-length world prices for bauxite and alumina are not published on a regular basis so that the comparison of transfer prices to market prices for bauxite and alumina cannot be made in order to assess the fairness of transfer prices.

(ii) Some arms-length transactions of bauxite and alumina are made on an infrequent basis, but often involve the transnational corporations which do not publish the prices, or which engage in barter transactions not requiring prices. Other arms-length transactions are made for long-term contracts.

(iii) Quoted (list) prices of aluminum ingot differ from transaction (market) prices, which have usually been at a discount from quoted prices, with the size of the discount varying with market conditions. When price controls were applied in the United States, the quoted prices were at a discount to the transaction prices. Any policy that links taxation to quoted prices as a proxy for the profitability of ingot producers penalizes the producers more heavily when transaction prices are less than quoted prices, and penalizes the government (tax-collectors) when transaction prices exceed quoted prices.

Part II

PROFILES OF TRANSNATIONAL CORPORATIONS OPERATING IN THE CARIBBEAN

INTRODUCTION: CARIBBEAN BAUXITE-ALUMINA INDUSTRY

This section sets out the relationship of the Caribbean Bauxite-Alumina Industry to the same industry in the Western world. On the basis of bauxite and alumina production in 1972, the Caribbean's share of world output was 44.0 per cent for bauxite and 18.5 per cent for alumina. See tables 6 and 7. Its share of bauxite production has declined from 57.3 per cent in 1960, and its share of alumina production has risen from 17.4 per cent in 1970 to 18.5 per cent in 1972. Within the Caribbean area, Jamaica and Surinam are the largest producers both in terms of bauxite and alumina.

The foreign firms operating in each of the countries are shown in table 8, together with their production of bauxite and alumina. ALCOA operates in three of the four countries. It should also be noted that ALCAN operated in Guyana up to 1971 and that Reynolds' Guyana was nationalized as of January 1st, 1975.

Table 6

CARIBBEAN BAUXITE PRODUCTION
(000 long dry tons)

Country	1960	1965	1970	1973	1974
Dominican Republic	678	927	1 050	1 127	1 186
Haiti	268	377	621	690	N.A.
Jamaica	5 745	8 541	11 820	13 385	15 086
Guyana	2 471	2 873	4 347	3 224	3 556
Surinam	3 400	4 281	5 927	6 580	N.A.
<u>Total Caribbean</u>	<u>12 562</u>	<u>16 999</u>	<u>23 765</u>	<u>25 006</u>	
<u>Total World a/</u>	<u>21 923</u>	<u>30 335</u>	<u>49 894</u>	<u>60 904</u>	
Caribbean as % of world a/	57.3	56.0	47.6	41.5	

Source: Minerals Yearbook, U.S. Bureau of Mines

a/ Excluding Socialist countries.

/Table 7

Table 7

CARIBBEAN ALUMINA PRODUCTION

(000 long tons)

Country	1960	1965	1970	1971	1972	1973	1974
Jamaica	665	721	1 689	1 783	2 102	2 378	2 761
Guyana	-	275	312	305	244	234	311
Surinam	-	59	893	1 169	1 270	N.A.	N.A.
<u>Total Caribbean</u>	665	1 055	2 894	3 257	3 616		
<u>Total World a/</u>	N.A.	N.A.	16 675	19 269	19 567		
Caribbean as % of world a/			17.4	16.9	18.5		

Source: Minerals Yearbook, U.S. Bureau of Mines

a/ Excluding Socialist countries.

Table 8

FOREIGN FIRMS IN CARIBBEAN BAUXITE-ALUMINA INDUSTRY

Country	Firm	Owner
Dominican Republic	-ALCOA Exploration	ALCOA
Haiti	-Reynolds Haitian Mines	Reynolds
Jamaica	-ALCAN Jamaica Ltd.	ALCAN
	-Kaiser Bauxite Co.	Kaiser
	-Reynolds Jamaica Mines	Reynolds
	-Alumina Partners of Jamaica	Reynolds, Kaiser ANACONDA
	-Revere Jamaica Alumina Ltd.	Revere
	-ALCOA Minerals of Jamaica	ALCOA
Surinam	-Surinam Aluminum Co.	ALCOA
	-Billiton	Royal Dutch Shell

Source: Company reports.

1. The Aluminum Company of America

The Aluminum Company of America (ALCOA) is the world's largest producer of aluminum measured in terms of total sales, aluminum sales or total assets (see table 9). ALCOA and its subsidiaries constitute an integrated producer and fabricator of aluminum. Principal operations include mining and processing of bauxite in seven countries; transportation of bauxite and alumina to the United States and in connexion therewith, operation of a general shipping business; production of alumina in five countries; production of aluminum fluoride and synthetic cryolite, primarily for use in smelting of aluminum; smelting of aluminum from alumina in six countries and, in connexion therewith, generation of electric energy and production of carbon electrodes; and making of aluminum and aluminum alloys into semi-finished and finished products in ten countries.

Table 9

MEASURES OF SIZE OF LEADING ALUMINUM COMPANIES

Company	Total sales	Aluminum sales (\$ million)	Total assets	Primary aluminum capacity 000 S. Tons.
ALCOA	2 727	2 183	3 198	1 815
ALCAN	2 427	1 947	2 958	1 691
Reynolds	1 993	1 789	2 044	1 400
Kaiser	1 768	1 151	2 057	1 167

Source: Securities and Exchange Commission, Form 10-K reports for ALCOA, ALCAN, Reynolds, Kaiser, for the period ending December 31, 1974.

/The company,

The company, its subsidiaries and affiliates operate 62 plants around the world, 29 of which are located in 17 foreign countries. ALCOA products are sold in the United States through sales offices in 60 cities in 33 states, plus the District of Columbia and through 43 subsidiary and affiliate offices in 19 other countries. Products are also sold through 31 independent mill products distributors in 87 cities in the United States.^{1/}

At the end of 1974, total net assets of the parent company and all wholly-owned subsidiaries amounted to 1.3 billion dollars of which 536 million dollars was in foreign locations. ALCOA held additional foreign investments in subsidiaries and other companies owned 20 per cent or more worth 285 million dollars to bring ALCOA's total foreign investments to 821 million dollars.^{2/}

(a) Diversification

Table 10 shows revenue by major product line for ALCOA and consolidated subsidiaries. Primary and fabricated aluminum sales accounted for 79.9 per cent of total revenues in 1974. Operating revenues (shipping, engineering, construction services, etc.) account for 3.0 per cent of revenues. Other sales (chemicals, alumina, copper-magnet wire, scrap, bauxite, etc.) accounted for 16.9 per cent of total revenue. ALCOA also has two important unconsolidated subsidiaries: ALCOA Properties, Inc. (API) and ALCOA of Australia Ltd. (AA). Revenue for these two companies in 1974 was 43.3 million dollars and 241.6 million dollars respectively. API's revenues were derived from rental and sale of real estate properties. AA's revenues were obtained from sales of alumina (59 per cent), primary aluminum (7.5 per cent), fabricated aluminum products (19 per cent) and other revenues including scrap sales tolling revenues and other sales (14 per cent).^{3/}

^{1/} ALCOA Annual Report 1973, pp. 18-19.

^{2/} Securities and exchange Commission, Form 10-K for ALCOA, for the period ending December 31, 1974, p. 24 (hereinafter cited as SEC 10-K-ALCOA).

^{3/} SEC 10-K-ALCOA, pp. 5, 36, 43.

Table 10

ALUMINUM COMPANY OF AMERICA AND CONSOLIDATED SUBSIDIARIES
REVENUE BY PRODUCT

(Millions of dollars)

	1970	1974
Primary Aluminum <u>a/</u>	204	245
%	13.4	8.9
Fabricated Aluminum	1 055	1 938
%	69.3	71.0
Other Sales <u>b/</u>	202	461
%	13.2	16.9
Operating Revenues <u>c/</u>	62	83
%	4.0	3.0
Total Sales and Operating Revenues	1 522	2 727
%	100.0	100.0

Source: Securities and Exchange Commission, Form 10-K, p. 4.

a/ Metal in ingot and molten form.

b/ Includes chemicals, alumina in various forms, copper magnet, wire, scrap, bauxite, and other products.

c/ Includes revenues from engineering and construction services, shipping and other operations.

/Based on

Based on this data, it is apparent that ALCOA is heavily dependent on bauxite-alumina-aluminum. ALCOA has widely diversified operations based on aluminum.

Table 11 shows ALCOA's price realization on primary and fabricated aluminum products. The difference between the realized price for primary and for fabricated aluminum provides an indication of the value-added derived from fabricating. Price realizations for fabricated aluminum have been approximately double the price realizations for primary aluminum during the 1970-1974 period. The tonnage of primary aluminum sold by ALCOA during this period has been relatively stable while the tonnage of fabricated products increased by about 45 per cent. Expanding the production of fabricated aluminum relative to primary aluminum has been an important source of revenue growth for ALCOA in the 1970s. Revenues from fabricated products have increased by almost 85 per cent between 1970 and 1974.

Table 11

ALUMINUM COMPANY OF AMERICA

(Price Realization on Primary and Fabricated Aluminum)

	<u>Sales Quantities</u>		<u>Sales Revenues</u>		<u>Realized Price/Ton</u>	
	(000 short tons)		(\$000,000)		(\$/Ton)	
	(P)	(F)	(P)	(F)	(P)	(F)
1970	381	1 027	204	1 055	535	1 027
1971	313	946	161	950	514	1 004
1972	388	1 178	178	1 170	459	993
1973	442	1 495	220	1 507	498	1 008
1974	343	1 486	245	1 938	714	1 304

(P) - Primary (F) - Fabricated

Source: Securities and Exchange Commission, Form 10-K for the period ending December 31, 1974.

/(b) ALCOA's

(b) ALCOA's Bauxite Exploration and Development History

ALCOA has expanded its raw materials' sources continuously throughout the twentieth century. From 1888 to 1902, ALCOA's predecessor, The Pittsburgh Reduction Company, purchased alumina from companies which were making it for various uses such as abrasives. Most of the purchases were from the Pennsylvania Salt Manufacturing Company.^{1/} The Pittsburgh Reduction Company was the only entity which used alumina to make aluminum.

As the company grew, it required a growing quantity of alumina. In 1903, ALCOA began refining alumina at East St. Louis.^{2/} In 1904, the company entered bauxite mining through the purchase of the General Bauxite Company, a subsidiary of the General Chemical Company which operated in Arkansas. In 1909, ALCOA purchased a second property in Arkansas, this time from the Norton Company. In 1913, another deposit was acquired bringing ALCOA's United States reserves to approximately seven or eight million tons.^{3/} In 1912, ALCOA sent an engineer to British Guiana and acquisition of ore deposits began almost immediately. In 1916, the Demerara Bauxite Company Ltd. was formed to hold and mine the deposits and in 1917, 2,000 tons of bauxite were shipped to the United States.

"In spite of belated efforts of others to obtain deposits, it appears that the Aluminum Company of America, through persistent negotiation, litigation, and compromise, had acquired a very large proportion of the suitable bauxite of British Guiana by 1925."^{4/}

Discovery and exploitation of deposits in Dutch Guiana occurred at the same time. Mining began in 1915 under the direction of a subsidiary, the Surinaamsche Bauxite Maatschappij.^{5/}

^{1/} C.C. Carr, ALCOA: An American Enterprise, Reinhart and Co. Inc., New York, 1952, p. 61

^{2/} Ibid., p. 68.

^{3/} D.H. Wallace, Market Control and the Aluminum Industry, Harvard Press, 1937, p. 105.

^{4/} Ibid., p. 70.

^{5/} Ibid., p. 71.

ALCOA's aggressive programme in South America resulted in a worldwide scramble for bauxite properties in which ALCOA continued to seek further reserves. In 1912, some Dalmatian and French lands were bought. In 1921, ALCOA purchased 50 per cent interest in a Norwegian firm which was renamed Norsk Aluminium Co. Norsk possessed bauxite deposits in France and Dutch Guiana.^{1/}

In 1919, an engineer representing the Uihlein group from Milwaukee managed to obtain bauxite deposits in British Guiana which would have provided the Uihleins with sufficient bauxite to enter the aluminum industry and thereby end ALCOA's monopoly. ALCOA brought suit against the company alleging that the deposits had not been obtained in a legal manner. After litigation in the West Indian Court of Appeal and finally before the Privy Council in London in 1923, the deposit was judged to belong legally to the Uihleins. In the meantime, the latter group had managed to secure additional deposits in Dutch Guiana and had an option to further deposits in British Guiana.

On New Year's Day of 1925, all of the Uihlein's bauxite deposits were sold to an equal partnership of ALCOA, the Carborundum Company and the Acheson Graphite Company. The Uihleins stated that they had decided not to enter the aluminum industry because it would be "too much work".^{2/}

The search for bauxite in Europe by ALCOA continued and resulted in the acquisition of high-grade ore in Istria, a province of Italy, in 1924. Also, in 1925, ore bodies were obtained in Yugoslavia by acquisition of majority stock holdings in two companies which were subsequently merged.^{3/}

^{1/} Ibid., pp. 71-72.

^{2/} Ibid., pp. 130-131.

^{3/} Ibid., p. 139.

In 1927, L.T. Emory stated that he knew of no available bauxite deposits which would justify a new aluminum venture in the United States. An ALCOA official denied this assertion saying that many such deposits existed. Wallace, writing in 1937, ventured the opinion that while large, high-grade deposits were known to exist and to be available, these deposits were mainly located in remote areas which were either inaccessible or lacked adequate transport facilities or both.^{1/} While the quantity and grade of bauxite were adequate, the cost of the necessary infrastructure to extract and ship the bauxite made such projects unfeasible.

The next major change in ALCOA's bauxite situation occurred when Aluminium Ltd., the predecessor of ALCAN, was formed as a Canadian corporation in 1928. All foreign holdings of bauxite with the exception of Surinaamsche Bauxite Maatschappij were transferred to Aluminium Ltd.

As ALCOA continued to expand, an increasing proportion of its bauxite was imported from Surinam. Surinam's deposits were drawn on heavily during the war having produced 5.2 million metric tons.^{2/} The Minerals Yearbook of 1951 reported that 53 per cent of United States bauxite was imported during the war, mostly from Surinam.^{3/} ALCOA's reserves of bauxite in Surinam have never been disclosed.

After the war, the Reconstruction Finance Corporation, a government enterprise, assisted Reynolds and Kaiser in purchasing alumina and aluminum capacity owned and built by the United States government during the war. ALCOA had supplied the requisite technology

1/ Ibid., p. 141.

2/ Minerals Yearbook 1945, United States Bureau of Mines p. 686.

3/ Minerals Yearbook 1951, p. 196.

/and operated

and operated the aluminum facilities during the war. However, ALCOA agreed to allow Kaiser and Reynolds to use the patented technology royalty-free 1/ and also provided the two companies with bauxite during the initial period of operation.2/

In 1944, ALCOA sent geologists to explore in the Barahona province of the Dominican Republic. The government passed a law stating that a tax of 10¢ per hectare annually and a royalty of 10¢ per ton of ore would be levied and that contracts would be valid for not more than thirty years but would be renewable.3/ In 1945, ALCOA was granted a mining concession.4/ But development of the concession did not occur immediately. In 1952, it was reported that ALCOA was constructing facilities to mine bauxite in the Barahona province. Upon completion of a 14 mile road, shipments were expected to begin late in 1953.5/ But, for some reason, they did not. Then in 1957, it was reported that ALCOA had negotiated a 50-year contract with the Dominican Republic. The contract also called for a possible 20 year extension, at ALCOA's option.6/ Development work continued and the first shipment of ore came in 1959, fourteen years after ALCOA was first granted mining privileges.7/

In 1952, the International Bank for Reconstruction and Development (IBRD) performed a study on Surinam's bauxite resources and the possibility of establishing an aluminum industry. The study recommended that over a ten year period an aluminum smelter should

1/ Minerals Yearbook 1945, p. 690.

2/ Minerals Yearbook 1946, p. 115.

3/ Minerals Yearbook 1944, p. 692-3.

4/ Minerals Yearbook 1945, p. 684.

5/ Minerals Yearbook 1952, p. 199.

6/ Minerals Yearbook 1957, p. 248.

7/ Minerals Yearbook 1959, p. 235.

be constructed based on power which was to be developed from the Brokopondo River. IBRD estimated the cost at 53 million dollars.^{1/} Negotiations with ALCOA followed. ALCOA agreed to undertake the project and in return the government of Surinam granted ALCOA exploration rights in the northeast section of Surinam.^{2/} The rights allowed ALCOA exclusive privilege to explore an area of 500,000 hectares and to exploit or mine 20,000 hectares if exploration was successful.^{3/}

In 1958, it was announced that ALCOA was granted sole ownership of the Brokopondo project for a 75-year period. Upon the expiration of this time, ownership would revert to the government of Surinam.^{4/} Negotiations with Billiton, the only other Surinam bauxite producer resulted in an agreement whereby, some of the bauxite for the Brokopondo project would be supplied by Billiton.^{5/} The hydro development was financed by the government of Surinam. Production began in 1966.

Exploration for bauxite began in Costa Rica in 1956 when permits were granted to Kaiser, ALCOA, Reynolds and the American Metal Co.^{6/} By 1958, several of the companies had announced bauxite discoveries but no mining development projects were announced.^{7/} In 1964, the government of Costa Rica imposed a royalty of 25¢/ton an export duty of 25¢/ton and compensation of 5¢ per ton, plus property damage to owners of property upon which bauxite was found.^{8/}

1/ Minerals Yearbook 1952, p. 202.

2/ Minerals Yearbook 1956, p. 248.

3/ Minerals Yearbook 1957, p. 252.

4/ Minerals Yearbook 1958, p. 222.

5/ Minerals Yearbook 1963, p. 292.

6/ Minerals Yearbook 1956, p. 246.

7/ Minerals Yearbook 1958, p. 220.

8/ Minerals Yearbook 1964, p. 262.

In 1967, ALCOA announced that it was investigating a bauxite deposit under a 25-year lease.^{1/} In 1968, an agreement was reached between the government of Costa Rica and ALCOA whereby the latter agreed to build a 440,000 ton per year alumina plant. It was agreed that ALCOA's 25-year lease would be automatically renewable if ALCOA invested 150 million dollars during the first 25 years. ALCOA was guaranteed 165 million tons of bauxite from the deposit and any excess was to be split equally between ALCOA and the government.^{2/} In 1971, infrastructure work began and total project costs were estimated at 119 million dollars. The mine-refinery complex was scheduled to be completed by 1977.^{3/}

ALCOA explored for bauxite in Panama during the period from 1958 to 1960 but announced no discoveries.^{4/}

In 1958, a subsidiary of American Metal Climax called Caribex, Ltd. was granted exploration rights in Jamaica.^{5/} In 1959, it was reported that ALCOA acquired a joint interest in Caribex and that prospecting was continuing in Clarendon Parish.^{6/} In 1960, it was reported that a new company, ALCOA Minerals of Jamaica, Inc., had completed prospecting and exercised its option on a lease of over 50 square miles formerly held by Caribex, Ltd. ALCOA announced plan to spend 15 million dollars on construction and development.^{7/} A scant three years later, ALCOA shipped its initial cargo of bauxite from Jamaica.^{8/} The swiftness of the Jamaican development was a sharp contrast with the 15-year lag from discovery to first

1/ Minerals Yearbook 1967, p. 226.

2/ Minerals Yearbook 1968, p. 202.

3/ Minerals Yearbook 1971, p. 210.

4/ Minerals Yearbook 1958, p. 211; and 1960, p. 246.

5/ Minerals Yearbook 1958, p. 220.

6/ Minerals Yearbook 1959, p. 236.

7/ Minerals Yearbook 1960, p. 246.

8/ Minerals Yearbook 1963, p. 290.

shipment in the Dominican Republic, the 10-year lag between the initial agreement and production startup of the Brokopondo project in Surinam and the probable 21 year-lag in Costa Rica.

In 1962, ALCOA signed a 25-year agreement with the government of Jamaica which set the royalty rate on bauxite. In the same year, negotiations between the United States and Jamaican governments resulted in a Jamaican agreement to exempt foreign investors from income tax for the first seven years of operation and to permit duty free imports of machinery, equipment, raw materials which were to be used to manufacture products for export.^{1/}

In 1968, ALCOA agreed to build an alumina plant in Jamaica in return for additional bauxite mining concessions. The plant was to be 440,000 tons per year capacity initially and eventually 880,000 tpy.^{2/} The alumina plant came on line in 1972 but ALCOA continued to ship unprocessed bauxite to the United States as well as alumina. In 1969, ALCOA agreed to a limit set by the government on the amount of bauxite which can be exported.^{3/} In 1971, ALCOA, Reynolds and Kaiser agreed to increase the assumed profit per long ton of bauxite to \$5.00 for income tax calculation. The change increased total income tax payments by \$11.3 million dollars.^{4/} In 1972, Jamaica formed a National Bauxite Commission to insure that bauxite was being developed so as to achieve maximum possible benefit for Jamaica.^{5/} Most of ALCOA's exploration activity during the 1950s appears to have been centered in the Caribbean and South America.

In 1956, the Commonwealth Aluminum Corp. (Pty.) disclosed that a huge discovery had been made in Queensland.^{6/} This discovery stirred the North American companies and the Australian bauxite rush began. ALCAN secured a concession west of COMALCO in 1956.^{7/}

^{1/} Minerals Yearbook 1962, p. 300.

^{2/} Minerals Yearbook 1968, p. 204.

^{3/} Minerals Yearbook 1969, p. 210.

^{4/} Minerals Yearbook 1971, p. 210.

^{5/} Minerals Yearbook 1972, p. 202.

^{6/} Minerals Yearbook 1956, pp. 250-251.

^{7/} Minerals Yearbook 1956, pp. 250-251.

Reynolds announced that it was exploring in Queensland in 1957 and announced a discovery on an island off the coast of the Northern Territory in 1958.^{1/} Western Aluminum, N.L. was incorporated to perform exploration in the Darling Ranges of Western Australia in the same year.^{2/}

In 1961, the year after ALCOA took over the Caribex find in Jamaica, the company purchased 51 per cent of the Western Aluminum discovery in the Darling Ranges. ALCOA also agreed with the Australian government to establish an integrated mine to smelter operation.^{3/} In 1962, ALCOA closed a deal to sell alumina to Mitsubishi in Japan.^{4/} The Australian development was even more rapid than that in Jamaica. By late 1963, ALCOA's entire integrated complex was on line.^{5/} The alumina refinery at Kwinana, W.A. had been expanded to a capacity of 1.37 million tons per year by 1970 and a second refinery was planned for Pinjarra with initial capacity of 550,000 tpy.^{6/}

The government of Indonesia was looking in 1960 for foreign capital to develop the bauxite discovered in Kalimantan in 1955.^{7/} But it was not until 1967 that ALCOA applied for and was granted exclusive bauxite exploration rights to all of Indonesia except the island of Bintan.^{8/} Two years expired before an acceptable contract was signed by ALCOA and the government.^{9/} In 1970, ALCOA announced

1/ Minerals Yearbook 1958, p. 225.

2/ Minerals Yearbook 1958, p. 225.

3/ Minerals Yearbook 1961, p. 328.

4/ Minerals Yearbook 1962, p. 305.

5/ Minerals Yearbook 1963, p. 296.

6/ Minerals Yearbook 1969, p. 218.

7/ Minerals Yearbook 1960, p. 248.

8/ Minerals Yearbook 1967, p. 228.

9/ Minerals Yearbook 1969, p. 209.

that large reserves of bauxite had been discovered in Kalimantan.^{1/} The company had agreed with the Indonesian government to build an alumina refinery and the initial planned capacity was 800,000 metric tons per year. During 1974, a consortium of ALCOA, Kaiser and five Japanese companies were planning to build a 250,000 tpy. smelter in Northern Sumatra, Indonesia. The estimated cost of the entire project was 500 million dollars. At the end of August, Kaiser dropped out and ALCOA was undecided about participating.^{2/}

Another major source of bauxite which materialized in the 1960s was in the Boké region of Guinea, formerly French West Africa. Aluminium Ltd., through its French subsidiary, Bauxites du Midi, was granted bauxite rights in the Boké area in the 1920s.^{3/}

Compagnie des Bauxites de Guinée (CBG) was formed in 1964 to develop the Boké project. Harvey Aluminum Company owned 51 per cent of CBG and the government owned the remaining 49 per cent. In 1967, negotiations were underway to divide Harvey's 51 per cent interest in order to leave equity shares in CBG as shown in column (1).^{4/} However, the final result of the negotiations ended with equity shares as shown in column (2).^{5/}

Group	(1) 1967	(2) 1968
Government of Guinea	49.0	49.0
Harvey	26.0	10.2
ALCOA	8.8	13.8
ALCAN	8.8	13.8
Pechiney (France)	3.1	5.1
VAW (Germany)	2.6	5.1
Montecatini-Edison (Italy)	1.5	3.1
	99.8	100.1

1/ Minerals Yearbook 1970, p. 221.

2/ American Metal Market, August 31, 1974, p. 1.

3/ Minerals Yearbook 1961, p. 328.

4/ Minerals Yearbook 1967, p. 227.

5/ Minerals Yearbook 1968, p. 203.

Financing of the project was also underway in 1968. IBRD agreed to loan CBG 64.5 million dollars to develop the deposit. The United States Export-Import Bank lent CBG 25 million dollars to finance purchases from the United States of bauxite mining, transporting, crushing, drying, calcining and handling equipment. The United States Agency for International Development also advanced a loan of 21 million dollars in local currency.^{1/} In 1971, IBRD lent CBG an additional 9 million dollars.^{2/} Total investment in the Boké project by the end of 1972 was expected to be about 320 million dollars.^{3/} Production capacity was planned at 9 million tons per year. This compares with total production of 12.3 million tons in Jamaica and 14.2 million tons in Australia in 1972.^{4/} First shipment of bauxite from Boké occurred in 1973.^{5/}

Recently, ALCOA has shown renewed interest in exploration in Surinam. In 1968, SURALCO, ALCOA's wholly-owned subsidiary, participated in an exploration consortium with Billiton, ALCAN and Ormet. The group announced that it would build an alumina refinery with capacity between 450,000 and 560,000 tpy.^{6/}

Another joint venture, this time with Pechiney, was formed in 1969. The two companies negotiated with the government of France for the right to mine bauxite in French Guiana. A proposal by the two companies suggested that the bauxite be shipped by barge to the SURALCO refinery.^{7/} SURALCO planned to expand its alumina capacity by 500,000 tpy. to handle the bauxite from French Guiana.^{8/} The

1/ Minerals Yearbook 1968, p. 203.

2/ Minerals Yearbook 1971, p. 210.

3/ Minerals Yearbook 1972, p. 202.

4/ Minerals Yearbook 1973, p. 197.

5/ ALCOA Annual Report 1973, p. 5.

6/ Minerals Yearbook 1968, p. 205.

7/ Minerals Yearbook 1969, p. 208.

8/ Minerals Yearbook 1970, p. 222.

/joint venture

joint venture company, Companies Minière ALCOA de Guyane (CMAG), was owned 75 per cent by ALCOA and 25 per cent by Pechiney. Estimated bauxite reserves in French Guiana amount to about 25 million tons. CMAG agreed that if further reserves were discovered up to 100 million tons then an alumina refinery would be built in French Guiana. Otherwise, bauxite was to be shipped to SURALCO. The total investment was expected to be 16 million dollars.^{1/} In 1973, plans to develop the French Guiana reserves were deferred and options on the reserves were allowed to lapse.^{2/}

(c) ALCOA's Integrated Aluminum Facilities in 1974.

Table 12 lists ALCOA's current sources of bauxite. The company operates wholly-owned mines in United States of America, Dominican Republic, Surinam, and Jamaica and participates in partnerships or consortia in Australia, Brazil and Guinea. Surinam Aluminum Company is ALCOA's oldest and largest source of bauxite. In 1974, Surinam supplied about 32 per cent of ALCOA's worldwide bauxite requirements. Total bauxite production by SURALCO in 1974 was about 3.5 million tons of which 2.0 million tons (57 per cent) was exported, mainly to the United States. The remaining 1.5 million tons of bauxite was converted to alumina in Surinam.^{3/} In 1974, Jamaica accounted for about 20 per cent of ALCOA's bauxite requirements. ALCOA mined approximately 2.1 million tons of bauxite in Jamaica of which 1.0 million tons was exported to the United States and 1.1 million tons was refined to alumina in Jamaica.^{4/}

Australia has rapidly become an important bauxite source for ALCOA. Originally, ALCOA used Australian bauxite either to produce aluminum for the local market or to export in the form of alumina to Japan. More recently, ALCOA has begun to ship alumina to the United States, largely because of the rising cost of Caribbean bauxite. ALCOA has reported that by 1976, following completion of

^{1/} Minerals Yearbook 1971, p. 210.

^{2/} ALCOA Annual Report 1973, p. 5.

^{3/} Surinam Aluminum Company, Fact Sheet 1973, p. 4.

^{4/} Economics and Statistics Division, Ministry of Mining and Natural Resources, Jamaica.

Table 12

ALUMINUM COMPANY OF AMERICA: BAUXITE MINING

Country	Company	ALCOA Equity (%)	Approximate 1974 Output (000 short tons)	ALCOA's Share	% of ALCOA's Bauxite
U.S.A.	ALCOA	100	650	650	6.0
Dominican Republic	ALCOA Exploration Company	100	1 200	1 200	11.1
Surinam	SURALCO	100	3 500	3 500	32.4
Jamaica	ALCOA Minerals of Jamaica	100	2 100	2 100	19.4
Guinea	HALCO Mining Company	27a/	N.A.	1 000	9.3
Australia	ALCOA of Australia	51b/	N.A.	2 300	21.3
Brazil	Cia Mineira de Alumínio	50c/	125	60	0.6
<u>Total</u>				<u>10 810</u>	<u>100.0</u>

Sources: Securities and Exchange Commission, Form 10-K for the period ending December 31, 1975. Government of Jamaica, Economics and Statistics Division, Ministry of Mining and Natural Resources.
United States Bureau of Mines, Minerals Yearbook 1972.

a/ See page 63 for ownership of HALCO Mining Co.

b/ Australian interests 49 per cent.

c/ Hanna Mining Co., 23.5 per cent; Brazilian interests, 26.5 per cent.

/an expansion

an expansion of mining facilities and of the Pinjarra alumina plant, 880,000 short tons of alumina will be available to the parent company from Australia.^{1/} In addition, the Australian reserves supply the smelter of ALCOA of Australia at Port Henry, which has an aluminum capacity of 100,000 tons per year and therefore requires approximately 500,000 tons of bauxite per year. Based on these two facts, ALCOA's share of the bauxite mined by ALCOA of Australia is about 2.3 million tons or 21.3 per cent of ALCOA's worldwide bauxite supply.

In 1974, the Dominican Republic supplied ALCOA with about 1.2 million tons of bauxite or 11 per cent of ALCOA's supply. All of the bauxite was shipped in unprocessed form to the United States.^{2/}

HALCO Mining Company in Guinea began bauxite shipments in 1973 and in 1974, ALCOA's share was about 1.0 million tons. ALCOA's share will rise by 2.6 million tons by 1979.^{3/} In 1974, Guinea supplied about 9 per cent of ALCOA's bauxite. This figure could rise to almost 20 per cent in 1979.

ALCOA continues to extract bauxite from its mine at Bauxite, Arkansas. In 1974, this mine supplied the 375,000 tons per year alumina plant at Bauxite, Arkansas with approximately 650,000 tons of bauxite.

Finally, ALCOA has a 50 per cent interest in Cia. Mineira de Alumínio (ALCOMINAS) in Brazil. In 1974, this unconsolidated subsidiary mined about 125,000 tons of bauxite and ALCOA's share, by the equity method, was about 60,000 tons. This accounted for less than one per cent of ALCOA's bauxite supply. Currently, an expansion programme is underway in Brazil which will double the mine-to-metal capacity at ALCOMINAS.^{4/}

^{1/} SEC 10-K-ALCOA, p.2.

^{2/} Government of Dominican Republic, correspondence.

^{3/} SEC 10-K-ALCOA, p.2.

^{4/} ALCOA Annual Report 1973, p. 4.

(d) Alumina Refining

ALCOA operates alumina refineries in five countries with a total annual alumina capacity of approximately 5 million tons (table 13).

ALCOA imports bauxite to the United States from Surinam, Dominican Republic, Jamaica and Guinea in addition to the bauxite shipped at Bauxite, Arkansas to feed its three United States refineries. These refineries, located at Point Comfort, Texas, Mobile, Alabama and Bauxite, Arkansas account for 53 per cent of ALCOA's worldwide refining capacity.

The SURALCO refinery at Paranam, Surinam has annual alumina capacity of 1.3 million short tons. However, ALCOA uses only 750,000 tons of this capacity to refine its own bauxite and uses the remaining 600,000 tons capacity to toll process bauxite for Billiton, the other major bauxite producer in Surinam. ALCOA's share of the alumina is exported to Europe and the United States.1/

ALCOA of Australia operates two refineries. The refinery at Kwinana has capacity of 1.38 million tons of alumina per year. The Pinjarra refinery opened in May 1972 at an initial capacity of 463,000 tons per year. By the end of 1974, capacity had reached 880,000 tons per year and by 1976, capacity was planned to exceed 1.4 million tons.2/ ALCOA, the parent company, is to be supplied with 880,000 tons of alumina by ALCOA of Australia in 1976. In addition to this, about 200,000 tons of alumina is used by ALCOA of Australia in the company's Point Henry smelter. This brings ALCOA's share of the alumina produced by ALCOA of Australia to about 1.1 million tons. Most of the remainder is sold to Mitsubishi of Japan under a long-term contract.3/

1/ Surinam Aluminum Company, SURALCO Public Relations Pamphlet, 1973, pp. 6-7.

2/ Minerals Yearbook 1972, pp. 196-197.

3/ Minerals Yearbook 1962, p. 305.

Table 13

ALUMINUM COMPANY OF AMERICA: ALUMINA REFINING

Country	Company	ALCOA Equity	Approx. 1974 Capacity (000 short ton)	ALCOA's Share	% of ALCOA's Alumina	Bauxite Source
U.S.A.	ALCOA-Pt. Comfort	100 %	1 350	1 350	26.1	(Surinam, Dominican Republic, Jamaica, Guinea)
	ALCOA-Mobile	100 %	1 025	1 025	19.8	Guinea
	ALCOA-Bauxite	100 %	375	375	7.2	Bauxite, Arkansas
Surinam	SNRALCO - Paranam	100 %	1 323	750	14.5	Surinam
Australia	ALCOA of Australia - Kwinana - Pinjarra	51 %	1 378) 880)	1 100	21.2	Australia
Jamaica	ALCOA Minerals of Jamaica - Woodside	100 %	551	551	10.6	Jamaica
Brazil	Cia. Mineira de Aluminio - Poços de Caldas	50 %	55	27	0.5	Brazil
<u>Total</u>			<u>6 937</u>	<u>5 178</u>	<u>100.0</u>	

Source: United States Bureau of Mines, Minerals Yearbook 1972, pp. 191, 200-201. Securities and Exchange Commission, Form 10-K for the period ending December 31, 1974.

a/ Australian interest - 49 per cent.

b/ Hanna Mining Company 23.5 per cent, Brazilian interests 26.5 per cent.

/In Jamaica,

In Jamaica, ALCOA operates a 550,000 tons per year alumina refinery at Woodside which began production in 1971. The refinery uses local bauxite and accounts for almost 11 per cent of ALCOA's refining capacity. All of the alumina is exported, mainly to the United States and Norway.

In Brazil, ALCOMINAS has a 55,000 ton per year refinery. As mentioned earlier, ALCOMINAS has a project underway to double the capacity of all facilities by 1976.

(e) Aluminum Smelting

ALCOA operates eight aluminum smelters in the United States, two in Norway and one in each of Mexico, Brazil, Surinam and Australia. With the exception of SURALCO in Surinam, all of ALCOA's foreign smelting affiliates are partnerships. (See table 14).

ALCOA's smelting capacity is heavily concentrated in the United States where about 85 per cent of ALCOA's capacity is located. Currently, about 70 per cent of the bauxite used in ALCOA's United States smelters comes from the Caribbean, about 15 per cent from Guinea and 15 per cent from Australia and United States combined.

In Norway, ALCOA has smelters at Mosjøen (105,000 tons per year) and Lista (62,000 tons per year) which are operated as equal partnerships by ALCOA and Elkem of Norway. The alumina for these smelters probably comes from Jamaica and Surinam.

In Surinam, SURALCO has a 73,000 tons per year smelter. Most of the aluminum is successfully sold to the European Common Market of which Surinam has been an associated member since 1962.^{1/}

The Point Henry smelter of ALCOA of Australia has an annual capacity of 101,000 tons per year and represents about 5 per cent of ALCOA's worldwide smelting capacity.

Two small smelters are located in Mexico (44,000 tons per year) and Brazil (28,000 tons per year). The former smelter is probably supplied with alumina by ALCOA's Point Comfort, Texas refinery. The ALCOMINAS smelter in Brazil is in the process of being expanded to approximately 56,000 tpy.

^{1/} Surinam Aluminum Company, op.cit., p.12.

Table 14

ALUMINUM COMPANY OF AMERICA: ALUMINUM SMELTING

Country	Company	ALCOA Equity	1973 Capacity (000 short tons)	ALCOA's Share	% of ALCOA Aluminum	Alumina Source
United States	ALCOA-ALCOA, Tenn.	100%	270	270	14.5	Bauxite, Pt. Comfort, Mobile
	ALCOA-Bodin, N.C.	100%	115	115	6.1	Mobile, Pt. Comfort
	ALCOA-Warrick, Ind.	100%	275	275	14.7	Jamaica, Surinam
	ALCOA-Massena, New York	100%	160	160	8.6	Mobile
	ALCOA-Pt. Comfort, Texas	100%	185	185	9.9	Pt. Comfort
	ALCOA-Rockdale, Texas	100%	280	280	15.0	Bauxite, Pt. Comfort
	ALCOA-Vancouver, Washington	100%	115	115	6.2	Jamaica, Surinam, Australia
	ALCOA-Wenatchee, Washington	100%	175	175	9.4	Jamaica, Surinam
	<u>Sub-total</u>		<u>1 575</u>	<u>1 575</u>	<u>84.4</u>	
Mexico	Aluminio, S.A. de C.V.					
	-Vera Cruz	44% ^{a/}	44	19	1.0	Pt. Comfort
Brazil	Cia. Mineira de Alumínio, S.A.					
	-Pocos de Caldas	50% ^{b/}	28	14	0.8	Brazil
Surinam	SURALCO-Paranam	100% ^{c/}	73	73	3.9	SURALCO
Norway	Mosjøen	50% ^{d/}	105	52	2.8	(Jamaica)
	Lista	50% ^{d/}	62	31	1.7	(Surinam)
Australia	ALCOA of Australia Pty. Ltd.					
	-Point Henry	51% ^{e/}	101	101	5.4	Australia
	<u>TOTAL</u>		<u>1 988</u>	<u>1 865</u>	<u>100.0</u>	

Source: United States Bureau of Mines, Minerals Yearbook 1972, pp.137, 149-152.

- ^{a/} Mexican interests 56 per cent.
^{b/} Hanna Mining Co. 23.5 per cent, Minas Gerais State 26.5 per cent.
^{c/} Elkem - 50 per cent;
^{d/} Elkem - 50 per cent.
^{e/} Australian interests - 49 per cent.

/In total,

In total, the smelter capacity of ALCOA and its affiliates was 1,988,000 tons per year at the end of 1974. For several of the less than wholly-owned smelters, it is difficult to determine ALCOA's share of the output. However, ALCOA does provide all of the alumina input to feed the smelters. Using a ratio of 1.9 tons of alumina to produce 1.0 ton of aluminum, ALCOA and its affiliates required about 3,775,000 tons of alumina in 1974. From table 13 it appears that ALCOA has a substantial excess of alumina supply relative to its smelter requirements.

(f) Aluminum Fabricating

ALCOA operates 33 fabricating plants in 11 countries:

United States (23), Australia, El Salvador, France, Colombia, Japan, Mexico, Morocco, Netherlands, United Kingdom, West Germany.

(g) Recent Developments

JAMAICA

In May 1974, the government of Jamaica announced that it would unilaterally increase the royalty paid by bauxite mining companies. The new production levy is tied to the "realized price" for aluminum ingot. In 1974, the production levy was 7.5 per cent of the ingot price and was scheduled to rise in two stages to 8.5 per cent by 1976-1977.^{1/} At an ingot price of 35¢ lb. in the United States, the Jamaican royalty (7.5 per cent) yields over 11 dollars per ton of bauxite. ALCOA mined about 2.1 million tons of bauxite in 1974 so that a rough estimate of the production levy paid by ALCOA is 23-24 million dollars.

Prior to May 1974, the bauxite companies had been paying a royalty of approximately 2.50 dollars per ton of bauxite.^{2/}

ALCOA may have been paying a lower royalty of 1.65 dollars 1.75 dollars per ton. ALCOA claimed that the increase to over 11 dollars per ton constituted a 700 per cent

^{1/} The Economist, May 25, 1974, p.116; Business Week June 22, 1974, p.29.

^{2/} Securities and Exchange Commission, Form 10-K, for ALCAN Aluminum Ltd., for the period ending December 31, 1974, p.7.

increase in the royalty rate. ALCOA had previously negotiated its royalty rate with the government of Jamaica in 1968 when ALCOA agreed to build an alumina refinery in Jamaica in return for expanded mining rights.^{1/}

At the time of writing this study, the government of Jamaica is engaged in negotiations with all Jamaican bauxite mining companies with respect to land ownership, government participation and bauxite reserves. ALCOA expects that after conclusion of such negotiations it will have available to it in Jamaica reserves adequate to supply its needs for Jamaican bauxite at current consumption rates for a period of at least forty years.^{2/}

DOMINICAN REPUBLIC

Following the Jamaican production levy the Dominican Republic asked ALCOA to renegotiate its bauxite contract. Under the existing contract, ALCOA was paying a royalty of 2.73 dollars per ton of bauxite plus income taxes. ALCOA offered to double the export royalty to 5.59 dollars per ton but this offer was less than half of the Jamaica royalty. ALCOA was also negotiating with the government concerning the transfer price paid by ALCOA to the Dominican subsidiary which forms the basis for the subsidiary's profit and income tax.^{3/}

Information obtained from the government of the Dominican Republic indicates that both royalties and income taxes increased and that a supplementary royalty was added.

^{1/} American Metal Market, July 22, 1974, p. 24.

^{2/} SEC 10-K-ALCOA, p. 2.

^{3/} Quarterly Economic Review of Cuba, Dominican Republic, Haiti and Puerto Rico, Economist Intelligence Unit, London, No 3, 1974, p. 6.

DOMINICAN REPUBLIC GOVERNMENT REVENUES
FROM THE BAUXITE INDUSTRY

Year	Exports (000 s.t.)	Royalties	Income Taxes	Other Taxes	Supplementary	Total
1973	1 145	286	3 074	6	-	3 316
1974	1 210	587	6 019	8	905	7 519

Source: Government of Dominican Republic.

ALCOA is the only bauxite producer in the Dominican Republic. The agreement which determined the above taxes was reached in December 1974 and according to the Dominican Government, the agreement is provisional.

SURINAM

In November 1974, agreement was reached between the Government of Surinam and SURALCO concerning the country's bauxite revenues. SURALCO agreed to pay 27 million dollars in extra taxes in 1974 calculated as 6 per cent of the price of ingot derived from Surinamese bauxite. SURALCO had already paid taxes amounting to 18 million dollars in 1974. The agreement runs until the end of 1975 and then a new contract will be negotiated.^{1/}

(h) New Bauxite Sources

It is unlikely that the increased taxes and royalties in Jamaica, Dominican Republic and Surinam will result in reduction of output at these locations in the short run. However, ALCOA may choose to reduce the rate of growth of bauxite mining in the Caribbean in favour of developing new bauxite sources in countries where taxes and royalties are less severe. Several possibilities exist for ALCOA.

^{1/} Mining Journal, November 29, 1974, p. 465.

/In Australia,

In Australia, ALCOA's mineral rights that are presently being mined, supply bauxite sufficient to produce 7 per cent of the alumina required to operate the company's present United States primary aluminum capacity. ALCOA can increase this supply to 42 per cent of such requirements, in five increments, by exercising options to acquire additional mineral rights and developing these reserves. Options for three increments were exercised late in 1973. Exercise of the last two options, after December 31, 1986, is subject to the approval of the government of Western Australia.^{1/} Bauxite royalties are set by the state governments in Australia. The royalty in Western Australia is not known but in Queensland, the other major bauxite producing state, the royalty in 1974 was 0.50 dollars per ton on bauxite processed in Australia and 1.00 dollar per ton on exported bauxite.^{2/}

As mentioned earlier, the HALCO Mining Company project in Guinea will increase shipments of bauxite to ALCOA from about 1.0 million tons in 1974 to 2.6 million tons in 1979. This bauxite would be sufficient to supply over 40 per cent of ALCOA's current United States of America refinery requirements.

Other potential bauxite sources which have already been mentioned are located in Indonesia and Costa Rica. ALCOA reports that it is continuing to study the feasibility of the Indonesia bauxite-alumina project,^{3/} and that it continues to hold bauxite concessions in Costa Rica.^{4/}

In May 1975, ALCOA announced that it had discovered a large deposit of bauxite in the Amazon region of Brazil but that "some additional exploration will be necessary in order to establish the tonnage and grade of the deposit". ALCOA said that it is not involved in the consortium headed by ALCAN which is developing a bauxite deposit in the Amazon but that ALCOA's bauxite find is in the same region.^{5/}

^{1/} SEC 10-K-ALCOA, p.2.

^{2/} Securities and Exchange Commission, Form 10-K for Kaiser Aluminum and Chemical Corp., for the period ending December 31, 1974, pp. 3-4.

^{3/} SEC 10-K-ALCOA, p. 2.

^{4/} ALCOA Annual Report 1973, p. 5.

^{5/} "ALCOA Asserts it has Large Bauxite Deposits in Brazil's Amazon", Wall Street Journal, May 14, 1975, p. 23.

2. ALCAN Aluminium Ltd.

ALCAN Aluminium Ltd. is a Canadian company with headquarters in Montreal which is engaged, through subsidiary and related companies, in all phases of aluminum business on an international scale. Its operations involve the mining and processing of bauxite, the basic aluminum ore; the production of alumina from bauxite; the reduction of alumina to aluminum using large amounts of electricity, the major portion of which is generated by ALCAN; and the fabricating of aluminum alloys into semi-finished and finished products. The company is also engaged in transportation and warehousing, power transmission and sales, research and development for the company's own use and for sale to third parties and the operation of trading and service companies in the Caribbean. Table 15, showing ALCAN's revenues by product, reveals the great diversification which ALCAN has achieved based on aluminum. The categories shown in the table are ingot and ingot products, fabricated products, all other products which include alumina and aluminum based chemicals among other things, and operating income which includes revenues from the sale of hydroelectric power and shipping services. Within the category of fabricated products an enormous range of products are manufactured by ALCAN subsidiaries.

(a) ALCAN's Integrated Aluminum Facilities

ALCAN's bauxite mining operations are summarized in table 16. ALCAN has wholly-owned bauxite mines in four countries (Jamaica, Malaysia, France and Brazil), a majority-owned mine in India and participates in mining consortia in two countries (Australia and Guinea). Jamaica is currently ALCAN's largest source of bauxite. However, the major growth areas are HALCO Mining Co. in Guinea which will supply ALCAN with 2.6 million tons of bauxite per year in 1979, and a new bauxite development in the Amazon region of Brazil which will supply ALCAN with 1.2 million tons of bauxite per year.

/Table 15

Table 15

ALCAN ALUMINUM LTD.: REVENUES BY PRODUCT

Sales (\$million)	1956	1970	1974
Ingot and Ingot Products <u>a/</u>	224	321	449
%	27	23	18
Fabricated Products	461	723	1 498
%	55	53	62
All other products	87	268	400
%	10	19	16
Other Income	7	10	15
%	1	1	1
Operating Income <u>b/</u>	55	52	75
%	7	4	3
<u>Total</u>	<u>834</u>	<u>1 374</u>	<u>2 437</u>
%	100	100	100

Source: Annual Report 1974, p.27

a/ Represents primary aluminum sold in the form of ingot for remelting, extruding, rolling, and forging plus a small amount of secondary aluminum.

b/ Includes revenues from the sale of hydroelectric power and shipping operations.

Table 16

ALCAN ALUMINIUM LTD.: BAUXITE MINING

Country	Company	ALCAN Equity	1974 Output	% of ALCAN Bauxite Supply
Jamaica	AlJam	100	2 600 <u>a/</u>	29
Australia	Queensland Alumina	22	1 250 <u>b/</u>	14
Guinea	HALCO Mining Co.	27	1 000 <u>c/</u>	11
Malaysia	Southeast Asia Bauxite	100	880	10
France	Soc. Anonyme des Bauxites	100	540 <u>d/</u>	6
India	Indian Aluminum Co.	55	500 <u>e/</u>	5
Brazil	Aluminio Minas Gerais	100	250 <u>f/</u>	3
Outside Purchases	(Guyana, Surinam, Sierra Leone)		1 950	22
<u>Total</u>			<u>8 970</u>	<u>100</u>

Source: See Table 18.

- 1/ Equivalent of 1 240,000 tons of alumina.
- 2/ ALCAN's Share - 500,000 tons of alumina.
- 3/ ALCAN's Share.
- 4/ Sold to third parties.
- 5/ Equivalent of 200,000 tons of alumina.
- 6/ Equivalent of 100,000 tons of alumina.

/Alumina refining

Alumina refining capacity is shown in table 17. All bauxite mined in Jamaica is reduced to alumina at ALCAN's two alumina plants at Ewarton and Kirkvine. The Canadian alumina plants at Arvida process bauxite obtained from HALCO Mining Co. in Guinea and also, from third party sources in Guyana, Surinam and Sierra Leone. As ALCAN's new bauxite sources come on stream, they will replace the outside purchases by the Arvida plant. In Brazil and India, the alumina plants refine local bauxite. Nippon Light Metal Company, ALCAN's related company in Japan, purchases bauxite under long-term contract from ALCAN's mine in Malaysia and from the bauxite mines of Queensland Alumina. Queensland Alumina Ltd. is 22 per cent owned by ALCAN and has a capacity of 2.7 million tons per year of which ALCAN received about 500,000 tons in 1974. ALCAN also purchased about 400,000 tons of alumina from third party sources in 1974.

Early in 1974, plans for an 880,000 ton alumina plant to be built on the Shannon River estuary in Ireland were announced. Cost of the refinery is expected to exceed 350 million dollars. The plant is scheduled for completion in 1980 and will process bauxite from Guinea and other sources and will supply alumina to ALCAN smelters and related customers in Britain and Western Europe.

As of December 1974, ALCAN's five Canadian primary aluminum smelters had a rated capacity of 1,035,000 short tons per year or 42.8 per cent of the total smelting capacity of ALCAN's consolidated and related companies. The remainder of ALCAN's smelting capacity was distributed geographically as follows: Norway - 16.7 per cent; Japan - 16.7 per cent; Spain - 5.6 per cent; United Kingdom - 5.5 per cent; India - 4.5 per cent; Sweden - 3.9 per cent; Australia - 2.1 per cent; Brazil - 2.1 per cent and Italy 0.2 per cent. Table 18 indicates the alumina sources of these smelters in those cases in which it is known. Total smelting capacity of ALCAN's consolidated and related companies was 2,420,000 tons per year as of December 31, 1974. Production in 1974 was 2,174,000 tons. In 1972, the primary aluminum capacity of ALCAN's consolidated and related companies was 2,260,000 tons per year and accounted for about 18.8 per cent of western world aluminum capacity in that year. ALCAN has aluminum fabricating interests in 33 countries.

Table 17

ALCAN ALUMINIUM LTD.

<u>Alumina Refining</u>		ALCAN Equity %	Alumina Capacity (000 st)	% of ALCAN's Alumina Supply	Bauxite Source(s)
Country	Company				
Canada	ALCAN-Arvida	100	1 387	29.1	Guyana, Guinea, Surinam
Jamaica	AlJam-Ewarton	100	624	(26.0)	Jamaica
	-Kirkvine	100	615		
Brazil <u>a/</u>	Aluminio Minas Gerais, S.A.	100	100	2.1	Brazil
India <u>a/</u>	Indian Aluminum Co.	55	210	2.4	India
Japan <u>a/</u>	Nippon Light Metal Co. -Shimizu	50	595	20.2	Malaysia, Australia
	-Tomakomai		367		
Australia	Queensland Alumina	22	2 700 <u>a/</u>	12.4	Australia
<u>Total Capacity of ALCAN and Related Companies</u>			<u>6 598</u>		
<u>Capacity wholly-owned by ALCAN</u>			<u>2 726</u>		
Alumina available to ALCAN from wholly-owned and related companies			4 398	92.2	
Outside purchases			370	7.8	
<u>Total</u>			<u>4 768</u>	<u>100.0</u>	

Source: See Table 18

a/ ALCAN received 500,000 tons of alumina from Queensland Alumina in 1974.

a/ Output not marketed by ALCAN.

/Table 18

Table 18

ALCAN ALUMINIUM LTD.

Country	Aluminum Smelting Company	ALCAN Equity (%)	Aluminum Capacity (000 st)	% of ALCAN Aluminum Capacity	Alumina Source(s)
Canada	Five subsidiary companies	100	1 035	42.2	Arvida, Jamaica, Queensland
Brazil	Aluminio Minas Gerais, S.A.	100			
	-Saramenha		36		Brazil
	-Arutu		15		Brazil
	SUBTOTAL		51	2.1	
Italy	ALCAN Aluminio Italiano	100	4	0.2	
Norway	A/S Ardal og Sunndal	25	358	14.6	Caribbean
	Det Norske Nitidaktieselskap	50	43	1.9	Caribbean
Spain	ENDASA	25	138	5.6	Caribbean
	SUBTOTAL		138		
U.K.	ALCAN (U.K.) Ltd.	100	132	5.5	Jamaica
India	Indian Aluminum Co.	55	119	4.9	India
Japan	Nippon Light Metal	50	425	17.3	Nippon
Australia	ALCAN-Australia	70	50	2.0	Queensland
Sweden	Granges Essem AB	21	95	3.9	
<u>Total Aluminum Capacity of Consolidated and Related Companies</u>			<u>2 450</u>	<u>100.0</u>	
Capacity of ALCAN's Consolidated Companies			1 391		
1974 Aluminum Production by Consolidated and Related Companies			2 174		

- Sources: 1) Securities and Exchange Commission, Form 10-K, for ALCAN Aluminium Ltd. For the year ended December 31, 1974, pp.1-17.
 2) ALCAN Facts 1974, Public Affairs Department of ALCAN Aluminium Ltd., April 1974.
 3) ALCAN Aluminium Ltd., Annual Report 1974.

/(b) ALCAN's

(b) ALCAN's Organizational Structure

In 1968, ALCAN announced a company reorganization which was deemed necessary because of increased size, geographical spread, and vertical integration. The company adopted a decentralized product line structure. The original product line breakdown included three operating groups - Raw Materials, Smelting, and Fabricating and Sales - and a services group. In 1973, the smelting and raw materials divisions were amalgamated. It was felt that the two divisions were highly interdependent and hence, close co-operation was needed for both to function efficiently. Also, both divisions involved process technology and therefore required similar styles of management.

Within the Fabricating and Sales Division, Area General Managers report to the Executive Vice-President. ALCAN's consolidated and related companies involved in fabricating and sales have been organized into eight independent geographical areas: Canada, United States and Caribbean; Latin America; United Kingdom, Ireland and Scandinavia; Europe and Near East; Africa; Far East; and South Pacific.

Each of the operating groups has well defined responsibilities. The Raw Materials Division is responsible for supplying the bauxite and alumina requirements of the Smelting Division, and also ocean shipping operations, sales of ores, alumina and aluminum based chemicals, magnesium sales, and the operations of the fabricating companies in the Caribbean.

The Smelting Division's prime responsibility is to supply the bulk of the ingot requirements of the Fabricating and Sales Division. Other activities of the Smelting Division include: operation of Canadian power plants; operation of the Arvida alumina plant; consulting on existing and potential group smelter capacity; smelter construction and smelting techniques and costs; administration of ALCAN's export metal pools (including Scandinavian and other purchased metal); fabricating and sales operations in Canada (under the strategic guidance of the Fabricating and Sales Division); and the sale of aluminum based chemicals in Canada.

/The Fabricating

The Fabricating and Sales Division is responsible for the manufacture and sale of fabricated products and the sale of ingot products. Other activities of the division include: determining which geographic and end-use markets offer the greatest profit potential and what products, facilities and services will be required to achieve the desired share of these markets; providing guidance to the Smelting Division for Canadian fabricating and sales; and responsibility for raw materials and smelting in Australia and Italy (under the guidance of the Smelting Division). The Fabricating and Sales Division is not responsible for sales of ingot or fabricated products of A/S Ardal og Sunndal Verk, Indian Aluminum Company, Nippon Light Metal Company or the fabricating companies in the Caribbean.

In 1975, another major company reorganization took place. The company's basic organization now consists of three geographically-defined operating regions, two management committees, and a number of service (staff) units. Each region - one comprising Canada, the United States and the Caribbean; another the Far East (including Japan and India) and the South Pacific (including Australia and New Zealand); and the third, Continental Europe, the United Kingdom, Africa, and Latin America - is headed by a regional executive vice-president. These officers are responsible from Montreal for the efficient and profitable ongoing, development and growth of all the ALCAN operations falling within their respective territories. Supporting them are ten area general managers in various parts of the world.

Also at head office in Montreal are two key committees. The Corporate Development Committee, headed by ALCAN's chairman and chief executive officer, concentrates on strategic planning and on continuing review of Group objectives associated with longer-range issues. The Executive Committee, chaired by the president, is responsible for operational decisions, short-range planning, and implementation of the objectives and strategies established by the Corporate Development Committee.

/Completing the

Completing the organization of ALCAN at head office are a number of staff units. Their role is to provide service and co-ordination, in their areas of specialization, to the management committees, to regional headquarters and to all ALCAN operating companies.

(c) Bauxite Mining

(i) The situation in 1970. In 1970, ALCAN's consolidated companies were mining bauxite in six countries: Guyana, Jamaica, Malaysia, France, India and Brazil. A related company was mining bauxite and producing alumina in Australia and two other related companies, in Guinea and Brazil, were developing bauxite deposits.

GUYANA

In 1916, the Demerara Bauxite Company (Demba) was formed in British Guiana as a subsidiary of the Aluminium Company of America (ALCOA) to hold and mine bauxite deposits.^{1/} In 1928, Aluminium Ltd., the predecessor of ALCAN, was formed as a Canadian corporation. All of ALCOA's foreign holdings of bauxite, with the exception of those in Surinam, were transferred to Aluminium Ltd. In 1937, Aluminium Ltd. began production of calcined bauxite, a product developed by the technical staff which is used in the production of abrasives and refractory bricks. Calcined bauxite became an important product of Demba in the 1950s.^{2/} Between 1957 and 1961, Demba planned and constructed an alumina plant. Sproston Construction Ltd., a subsidiary of the Aluminium Company of Canada, built the alumina plant at a cost of 37.5 million dollars.^{3/}

1/ D.H. Wallace, Market Control and the Aluminum Industry, Harvard University Press, 1937, p. 70

2/ E.H. Roach, "Bauxite, Demba, Alumina and British Guiana", Address delivered to the Royal Agricultural and Commercial Society of British Guiana, May 29, 1957, p. 5.

3/ Ibid., p. 4.

In 1970,

In 1970, production at Demba was as follows:^{1/}

Metal Grade Bauxite	1,373,000 tons
Alumina	324,000 tons
Calcined Bauxite	626,000 tons

Total bauxite production in 1970 was about 3.4 million tons, of which 38 per cent was shipped to ALCAN's alumina plant at Arvida, Quebec in the form of metal grade bauxite, 22 per cent was converted into Alumina at Demba's alumina refinery at Mackenzie, and 40 per cent was processed into calcined bauxite in Guyana for sale to the abrasive and refractory industries. Alumina output was sold on world markets at commercial prices, mostly on long term contracts.^{2/}

JAMAICA

The red earth areas which cover almost two-thirds of Jamaica's surface were identified as bauxite by the Jamaican Department of Agriculture in 1942. Aluminium Ltd. of Canada began the first economic investigations of the Island's bauxite deposits in 1942 and, in 1943, a subsidiary company, ALCAN Jamaica Ltd. (known at that time as Jamaica Bauxite Ltd.) was incorporated in Jamaica to continue the investigations.^{3/} In 1943, the first shipment of Jamaica bauxite was sent to plants in North America for laboratory examination and process investigation. A relatively high ferric oxide content rendered the bauxite uneconomic initially but this technical problem was soon overcome.

Between 1949 and 1952, ALCAN constructed an alumina plant, the Kirkvine Works, near Mandeville. The construction of Port Esquivel was finished by ALCAN in 1954. A second alumina plant was built at Ewarton between 1956 and 1959.^{4/} Both alumina plants have been

^{1/} Fact Sheet, ALCAN in Guyana, 1970, mimeo.

^{2/} Ibid.

^{3/} "ALCAN, Alumina and Agriculture 1943-1967", company document, mimeo, p.1.

^{4/} "Jamaican Achievement", company document, 1966.

expanded and each currently has an annual capacity of 550,000 long tons.

In 1970, ALCAN Jamaica Ltd. produced 535,599 long tons of alumina at the Kirkyine Works and 487,537 long tons of alumina at the Ewarton Works. Bauxite requirements to produce this alumina were approximately 2.3 million tons. Twenty-six per cent of the alumina was shipped to ALCAN's Canadian smelters, 48 per cent was shipped to related smelters in Scandinavia, 20 per cent was sold in the United States and 6 per cent was sold elsewhere.

MALAYSIA

Bauxite was first mined in Malaysia by the Ramunia Bauxite Mining Company in 1952. The Minerals Yearbook reported in that year that there was a title dispute over bauxite reserves on the property adjoining Ramunia's mines. In 1955, it was reported that Aluminium Ltd. was the other party in the dispute and that Aluminium had won title to the reserves. South-East Asia Bauxites Ltd. (SEABA) was formed as a subsidiary of Aluminium Ltd. to hold the reserves, estimated at about 10 million tons of bauxite, and to work the reserves jointly with the Ramunia Bauxite Mining Co. Production was shipped to ALCAN's related company, Nippon Light Metal of Japan, beginning in 1956. In 1960, a 25 per cent interest in SEABA was sold to Nippon Light Metal. In 1961, ALCAN announced plans to build a washing plant to treat ore mined by SEABA. The plant was to be completed in 1962 with a capacity of 500,000 tons of bauxite per year and was to be operated by the newly formed subsidiary, Johore Mining and Stevedoring Ltd.

In 1970, about 550,000 tons of bauxite were mined and shipped, mainly to Japan.

AUSTRALIA

As stated earlier, the huge bauxite discovery made in Queensland, Australia by COMALCO in 1956 stirred the North American aluminum companies and started an Australian bauxite rush.^{1/} ALCAN secured

^{1/} See page 61.

a concession west of COMALCO in 1956 ^{1/} However, it was not until 1964 that ALCAN began using Australian bauxite. In that year, a loan of 117 million dollars was secured from 11 United States banks headed by Mellon National Bank and Trust as interim finance for an alumina plant to be built by Queensland Alumina Ltd. (QAL). QAL was initially held 52 per cent by Kaiser, 20 per cent by ALCAN, 20 per cent by Pechiney of France and 8 per cent by Conzinc Rio Tinto of Australia Ltd.^{2/} The alumina plant was to be supplied with bauxite from the COMALCO mines.

QAL came on stream in 1967 at a capacity of 600,000 tons per year.^{3/} In 1968, capacity was increased to about 1,000,000 tons per year and by the end of 1970, capacity was 1,428,000 tons per year. Ownership of QAL underwent some changes as capacity grew. At year-end 1970, Kaiser owned 37.3 per cent; ALCAN's share had increased to 21 per cent; Pechiney held 20 per cent; COMALCO had purchased 11.3 per cent and Conzinc Rio Tinto of Australia held 9.4 per cent.^{4/} In 1970, ALCAN's share of QAL was approximately 320,000 tons per year of which about 80,000 tons was used in ALCAN's subsidiary smelter in Australia and the remainder was sent to ALCAN's Kitimat, British Columbia smelter.

GUINEA

Aluminium Ltd., through its French subsidiary, was granted bauxite rights in the Boké region of Guinea in the 1920s.^{5/} In the mid-1950s, ALCAN decided to begin to develop the deposits which graded at 58-60 per cent alumina. ALCAN reached an agreement with

^{1/} Ibid., pp. 250-251.

^{2/} Minerals Yearbook 1964, p. 264.

^{3/} Minerals Yearbook 1967, p. 228.

^{4/} Minerals Yearbook 1972, p. 201.

^{5/} Minerals Yearbook 1961, p. 328.

the colonial government to establish a bauxite-alumina producing and exporting industry at a cost of 150 million dollars. A seventy-five mile railroad and a 250,000 ton per year alumina plant were planned. Construction was scheduled to begin in 1957 and be completed in 1961.^{1/} In 1958, Guinea gained independence. ALCAN had begun construction on the railway and port facilities. However, in 1961, ALCAN, announced that work on the Boké project, scheduled to be completed in 1964, was halted due to an inability to solve financial problems. The government demanded that a minimum of 175 million dollars be invested in the project. ALCAN made a new proposal but it was rejected by the government and ALCAN was ordered to cease all operations and all assets were expropriated.^{2/}

Subsequently, a joint venture between Harvey Aluminum Corp. (HALCO) and the government was negotiated. *Compagnie des Bauxites de Guinée* (CBG) was formed in 1964 to develop the Boké project. At present, ALCAN holds 13.8 per cent interest in CBG through its 27 per cent holding in HALCO.^{3/}

Financing of the Boké project was underway in 1968. The World Bank (IBRD) agreed to loan CBG 64.5 million dollars to develop the deposit. The Export-Import Bank of the United States lent CBG 25 million dollars to finance purchases from the United States of bauxite mining, transporting, crushing, drying, calcining and handling equipment. The United States Agency for International Development also advanced a loan of 21 million dollars in local currency.^{4/} Total investment by the end of 1972 was expected to be 320 million dollars and production capacity was expected to be 9 million tons of bauxite per year.^{5/} In 1970, ALCAN expected that the first shipments would begin in 1973.

^{1/} Minerals Yearbook 1956, p.250.

^{2/} "Bauxite, Harvey's Guinea Venture", Mining Journal, October 11, 1963, Volume 261, No 6686, p.329.

^{3/} See page 50 for ownership of HALCO and CBG.

^{4/} Minerals Yearbook 1968, p. 203.

^{5/} Minerals Yearbook 1972, p. 202.

FRANCE

Aluminum Ltd. acquired bauxite deposits in France in 1928 when ALCOA's bauxite holdings in that country were transferred to Aluminium Ltd. In 1970, Société Anonyme des Bauxites et Alumines de Province (SABAP) produced about 500,000 tons of bauxite all of which was sold to third party customers in Europe.

INDIA

ALCAN holds a 55 per cent interest in the Indian Aluminum Company (INDALCO). This company is fully integrated from mine to fabricated products and is self-sufficient in bauxite-alumina.

BRAZIL

ALCAN's operations in Brazil began in 1948 with the opening of a fabricating plant. In 1950, ALCAN acquired a small company, Electro Quimica Brasileira, S.A., which owned a bauxite mine, an alumina plant and a small aluminum and ferro-alloy smelter located at Saramenha in the state of Minas Gerais. This smelter was expanded after it was acquired by ALCAN. A second smelter was built by ALCAN at Aratu in the northeastern state of Bahia. The location was chosen because of government regional development incentives. The bauxite for the Saramenha and Aratu smelters comes from two bauxite mines, one at Saramenha and one at Pocos de Caldas. All bauxite is converted to alumina at the alumina plant at Saramenha.^{1/}

In 1969, ALCAN announced plans to develop a 30 million dollar bauxite mining project capable of an annual output of one million tons. The high grade reserves had been under investigation for five years in the state of Para. The mine site is located close to the Amazon River and ALCAN's plans called for a drying plant and ocean shipping facilities to be built on the Amazon. ALCAN's share of the bauxite was to be shipped to the Arvida alumina plant in Canada.^{2/}

^{1/} ALCAN Aluminium Ltd., Annual Report 1973, pp.22-24.

^{2/} Minerals Yearbook 1969.

Summary of ALCAN's Bauxite Operations in 1970

ALCAN's raw material supplies in 1970 are summarized in the following table.

ALCAN BAUXITE SOURCES - 1970

<u>Country</u>	<u>1970 Bauxite Production</u>		<u>Comments</u>
	(000 tons)	(%)	
Guyana	2 000	30	not including calcined
Jamaica	2 300	35	
Malaysia	550	8	
Australia	700	11	
Guinea	-	-	under construction
France	500	8	sold to third parties
India	400	6	
Brazil	140	2	
Brazil-Trombetas	-	-	under construction
TOTAL	6 590	100	

(ii) Developments since 1970. On March 1st, 1971, the Demerara Bauxite Company was nationalized by the government of Guyana. ALCAN agreed to purchase, until the end of 1971, more than 50 per cent of the full capacity production of metal grade bauxite and alumina from the government-owned Guyana Bauxite Company. The rated capacity of the alumina plant at the time of nationalization was 385,000 tons. ALCAN also agreed to buy "limited tonnages" of metal grade bauxite from Guyana Bauxite Company at favourable prices in the years 1972 and 1973. The company reported that short falls in bauxite supply in 1972 and 1973 would be made by "additional shipments from other group and third party sources". To make up for the loss of alumina shipments from Guyana in 1972 onwards, ALCAN announced plans to "reinforce the capacity of its Canadian alumina plants" and also expected to receive alumina from other ALCAN group sources.^{1/}

During 1970-1971, the aluminum market was in a depressed state with world markets in a state of oversupply. The worldwide smelter capacity utilization rate was only 83 per cent in 1971.^{2/} A similar

^{1/} ALCAN Aluminium Ltd., Annual Report 1971, p. 5.

^{2/} Minerals Yearbook 1972, p. 135.

oversupply situation existed with respect to bauxite and this undoubtedly made ALCAN's task of finding substitute sources of bauxite somewhat easier. Table 19 showing Canadian imports of bauxite and alumina indicates how ALCAN supplied its Canadian alumina plants and smelters.

Table 19

ALCAN ALUMINIUM LTD.

	1970		1974	
	Volume (thousand of tons)	Value (millions of dollars)	Volume (thousand of tons)	Value (millions of dollars)
<u>Bauxite Imports - Canada</u>				
Sierra Leone	-	-	346	2.7
Guinea	49	0.20	972	10.3
P.R. China	-	-	38	0.7
Guyana	2 281	19.34	1 253	10.4
Surinam	174	3.28	349	7.8
United States	6	0.23	35	1.9
Malaysia	176	0.89	-	-
Australia	36	0.54	-	-
India	30	0.15	-	-
Indonesia	26	0.14	-	-
Venezuela	6	0.08	-	-
Ghana	-	-	-	-
<u>Total</u>	<u>2 784</u>	<u>24.85</u>	<u>2 993</u>	<u>33.8</u>
<u>Alumina Imports - Canada</u>				
France	-	-	-	-
W. Germany	-	-	102	9.1
Australia	183	12.87	425	37.1
Guyana	90	6.10	26	1.8
Surinam	33	2.12	12	0.8
Jamaica	349	24.53	133	12.8
United States	386	27.39	225	18.6
Guinea	-	-	-	-
<u>Total</u>	<u>1 041</u>	<u>73.01</u>	<u>973</u>	<u>80.2</u>

Source: Statistics Canada, Imports by Commodities, Cat. 65-007.

Note: The Canadian Reynolds Metals Company imports alumina from United States and Jamaica to feed its 175,000 tpy smelter at Baie Comeau, Que.

/Bauxite shipments

Bauxite shipments from Guyana began falling in 1972 and by 1974 amounted to only 55 per cent of the 1971 volume. In 1972 and 1973, Malaysian bauxite production was increased and about 100,000 tons was shipped to Canada in each of these years. ALCAN made outside purchases from Sierra Leone, Surinam, Indonesia and Guinea. In 1974, the Boké project came on stream and ALCAN received 972,000 tons of bauxite. ALCAN expects to receive 2.6 million tons per year from Guinea by 1979.

The bauxite development in the Amazon Basin of Brazil is expected to come on stream in 1978 and ALCAN's share of annual production will be 1.3 million tons. In 1973-1974, financial backing for the project was obtained by the formation of an international consortium comprised of two Brazilian companies - CVRD and Companhia Brasileira de Alumínio - which hold 51 per cent, ALCAN which has 19 per cent and six international companies - Reynolds (U.S.), Shell (U.K.), Norsk Hydro and A/S Ardal og Sunndal Verk (Norway), Instituto Nacional de Industria (Spain) and Rio Tinto Zinc Corp. (U.K.) - which have the remaining 30 per cent. The initial output of bauxite is expected to be 3.3 million tons per year.^{1/}

ALCAN Jamaica paid a production levy of \$30.4 million dollars in 1974 under the new law of Jamaica^{2/} described earlier.

(iii) The current situation and outlook. The following shows ALCAN's sources of bauxite in 1974 and projections for 1978-1979:

Country	1974 Bauxite		1978-1979	
	Production	%	Projections	%
	000 tons		000 tons	
Jamaica	2 600	34	2 600	28
Guyana	1 250	17	-	-
Australia	1 200	16	1 200	13
Guinea	970	13	2 600	28
Brazil	250	3	1 600	17
India	400	5	400	4
Malaysia	880	12	880	8
<u>Total</u>	<u>7 550</u>	<u>100</u>	<u>9 280</u>	<u>100</u>

^{1/} E.H. Roach, speech, University of Montreal, November 27, 1974.

^{2/} See pp. 73-74 and 114.

3. Reynolds Metals Company

Reynolds Metals Company (Reynolds) is the world's third largest producer of primary aluminum and fabricated aluminum products. The company's operations through subsidiary and related companies include the mining of bauxite in three countries, the production of alumina from bauxite in three countries, the reduction of alumina to aluminum in six countries and the fabrication of aluminum and aluminum alloys into a variety of products in fifteen countries. Reynolds also holds a 48 per cent interest in British Aluminum Company (BACO). The latter company has bauxite mining facilities in three countries, alumina refining operations in two countries, primary aluminum smelting facilities in two countries, and fabricating plants in the United Kingdom. BACO is an unconsolidated associated company. Reynolds shares in the net income of BACO on an equity basis.

Reynolds was originally incorporated in Delaware in 1928 when it acquired the business and operating assets of United States Foil Company.^{1/} In its early years, Reynolds was primarily involved in the production of metal foil. To expand this line of business Reynolds acquired Midland Metal Company of Chicago in January 1930, Lehmaier, Schwartz and Company (New York manufactures of metal foils) in May 1930, and Embossed Metal Products Corporation of New York in August 1930. Other companies engaged in the manufacture of radiators, thermostats, and thermometers were acquired during the 1930s. In 1940, the company incorporated Bauxite Mining Corporation of Delaware to conduct bauxite exploration and mining in the United States. In 1941, the subsidiary's name was changed to Reynolds Mining Company.

^{1/} Moodies Industrial Manual 1974, Moodies Investors Service, Inc., p. 2505.

Table 20 shows that Reynolds is more dependent on its aluminum operations, 90 per cent of total sales, than ALCOA, ALCAN and Kaiser, with increasing importance being given to revenue from fabricated aluminum products than from primary aluminum. Reynolds' dependence on foreign operations has increased in recent years, in that 33 per cent of its assets are located abroad, 92 per cent of its bauxite is imported, with 72 per cent of total bauxite requirements coming from the Caribbean. On the other hand, 75 per cent of Reynolds' alumina and 83 per cent of its smelter capacity is located in the United States.

Table 20

REYNOLDS METALS COMPANY AND CONSOLIDATED SUBSIDIARIES: REVENUE
BY PRODUCT AND NET INCOME
(Millions of dollars)

	1970	1974
Primary Aluminum	246	278
%	23.8	14.0
Fabricated Aluminum	673	1 512
%	65.2	75.8
Other	115	204
%	11.1	10.2
Total Net Sales	1 034	1 994
%	100.0	100.0
Net Income	46.9	111.1

Source: Securities and Exchange Commission, Form 10-K, for Reynolds Metals Company, for the fiscal year ended December 31, 1974.

/(a)-Bauxite

(a) Bauxite Mining

HAITI

Reynolds discovered bauxite deposits in Haiti in 1944, which were said to be of considerable size and only three miles from a seaport. The Government of Haiti granted Reynolds a sixty year mining concession,^{1/} and Reynolds Haitian Mines Incorporated was incorporated in Delaware in 1944 as a wholly-owned subsidiary of Reynolds Metals Company.

Production by Reynolds Haitian Mines did not begin until 1957.^{2/} In 1960, about 340,000 tons of bauxite was shipped from Haiti to Reynolds' alumina refinery at La Quinta, Texas. Production capacity was expanded around 1968-1969 and exports rose to 620,000 tons in 1970. In 1973, exports reached 700,000 tons but declined to 626,000 tons in 1974.^{3/}

Reynolds has stated that its bauxite concessions covered approximately 34,000 acres in 1974, and that in the same year, Haitian bauxite supplied about 11 per cent of the company's requirements,^{4/} table 21. During December 1974, an agreement was entered into between Reynolds Haitian Mines, Incorporated and the Government of Haiti regarding bauxite taxation for 1974. The agreement called for the payment of a severance tax amounting to 6.3 per cent of the realized price per ton of primary aluminum ingot produced from Haitian bauxite less the amount of income and other taxes. This percentage amounts to a tax of 9.33 dollars per long dry ton of bauxite based on a realized price of 32 cents per

^{1/} Minerals Yearbook 1943, p. 709.

^{2/} Minerals Yearbook 1957, p. 248.

^{3/} Production figures come from the Government of Haiti, Direction Generale des Contributions, Port au Prince.

^{4/} Securities and Exchange Commission, Form 10-K for Reynolds Metals Company for the year ending December 31, 1974, p. 6.

pound of aluminum.^{1/} As a result of this new agreement Reynolds' income tax payments increased from 901,000 dollars in 1973 to 6,960,000 dollars in 1974. Royalty payment declined from 349,000 dollars in 1973 to 315,000 dollars in 1974, presumably because of the reduced production.^{2/}

Table 21

REYNOLDS METALS COMPANY: BAUXITE MINING

Country	Company	Reynolds' equity %	Approx. 1974 output 000 s.t.	Reynolds' share	% of Reynolds' Bauxite
U.S.A.	Reynolds - Saline, Ark	100.0	500	500	7.6
Haiti	Reynolds Haitian Mines	100.0	700	700	10.7
Jamaica	Reynolds Jamaica Mines - Lydford	100.0	3 500	3 500	53.4
Jamaica	ALPART - Nain	36.8	3 200	1 200	18.3
Guyana	Reynolds Guyana Mines - Kwakwani	100.0	650	650	9.9
<u>Total</u>				<u>6 550</u>	<u>100.0</u>

- Sources:
1. Securities and Exchange Commission, Form 10-K for Reynolds Metals Company, for the year ending December 31, 1974.
 2. United States Bureau of Mines, Minerals Yearbook 1972, Washington, D.C., pp. 137, 149-152, 192-193, 200-201.
 3. Government sources in Jamaica and Haiti.

^{1/} Ibid., pp. 6-7.

^{2/} Government of Haiti, Direction Générale des Contributions, Port au Prince.

Table 22

REYNOLDS METALS COMPANY: ALUMINA REFINING

Country	Company (location)	Reynolds' equity %	Approx. 1974 Capacity 000 s.t.	Reynolds' share	% of Reynolds' Alumina	Bauxite Sources
U.S.A.	Reynolds - Hurricane Creek, Ark.	100	840	840	27.3	Arkansas Guyana
U.S.A.	Corpus Christi, Texas	100	1 385	1 385	45.0	Jamaica Haiti
Jamaica	ALPART - Nain	36.8	1 000	368	12.0	Jamaica
U.K.	British Aluminum Co. - Burntisland	48.0	110	110	3.6	
U.K.	British Aluminum Co. - Newport	48.0	44	44	1.4	
Germany	Aluminium Oxid - Stade	50.0	660	330	10.7	
<u>Total</u>				<u>2 923</u>	<u>100.0</u>	

Source: See table 21.

Table 23

REYNOLDS METALS COMPANY: ALUMINUM SMELTING

Country	Company (location)	Reynolds' Equity %	Approx. 1974 Capacity 000 s.t.	Reynolds' Share %	% of Reynolds' Capacity	Alumina Sources
U.S.A.	Reynolds (7 plants)	100	175	975	69.6	Corpus Christi and Hurricane Creek
Canada	Canadian Reynolds Metals - Baie Comeau	100	175	175	12.5	ALPART
Venezuela	ALCASA - Matanzas	50	50	25	1.8	ALPART
Norway	DNN - Eydehavn - Tysseldal	24	14 31	3 8	0.8	
U.K.	British Aluminium Co. (3 plants)	48	165	79	5.6	ALPART
Ghana	Volta Aluminium Co. - Tema	10	162	16	1.1	
Iran	Iran Aluminium Co. - Arak	17.3	50	9	0.6	
Germany	Reynolds Hamburg	90	110	110	7.9	
<u>Total</u>				<u>1 400</u>	<u>100.0</u>	

Source: See table 21.

/JAMAICA

JAMAICA

Reynolds became involved in Jamaica in 1943.^{1/} Interest in Jamaican bauxite took place in the late 1930s when Billiton of the Netherlands, and Aluminium Limited of Canada had both been granted bauxite concessions by the government. All bauxite deposits were Crown Property in November 1942. Bauxite in Jamaica was shipped to the East St. Louis alumina plant of ALCOA in February 1943 for experimental testing. It was found that both operating procedures and the equipment of the available alumina plants would have to be modified before they could use Jamaican bauxite satisfactorily. It was felt that an alumina plant's effective capacity was cut by 75 per cent while processing Jamaican bauxite. Bauxite was not scarce in 1943, and the main interest in the Jamaican bauxite deposits had been due to the close proximity of Jamaica to the United States, and the resulting strategic advantage of Jamaican bauxite over bauxite from Guyana and Surinam. Since Jamaican bauxite could not be used in existing alumina plants without cutting their effective capacity drastically, its promise as a war-time expedient evaporated.

Reynolds sent geologists to Jamaica in February 1943. The geologists set preliminary estimates of reserves at more than 100 million tons. Reynolds then requested from the Jamaican Government permission to explore on a parity with Aluminium Limited in obtaining permanent concessions. In February 1944, the Jamaican Government lifted its emergency war-time restrictions on the exploration and acquisition of bauxite lands. By October 1944, Reynolds Metals had acquired options on 15,000 acres of land. The company also announced that further exploration had revealed that bauxite reserves appeared to exceed 200 million tons, and that Reynolds had spent over one million dollars on research in conjunction with MIT to devise a method of treating Jamaica's high-iron content bauxite.

^{1/} This section draws extensively from a Reynolds booklet, Reynolds in Jamaica.

Development of reserves was also slowed by the absence of mining laws and regulations, which were not enacted until the summer of 1974. In the meantime, Reynolds had contracted with an engineering firm in 1945 for the selection of a site for, and the design of, a wharf with storage and shiploading facilities. Demand for bauxite and aluminum slumped after the war, and in 1946, aluminum production was 61 per cent below the 1943-1944 levels.

In 1948, Reynolds sought and secured a 10 million dollars loan from the Economic Co-operation Administration (ECA), which was administering Marshall Plan funds, to construct facilities to mine, dry and transport Jamaican bauxite. In 1949, Reynolds proposed that it would go ahead with its project in spite of the fact that the technical problems of treated Jamaican bauxite had not yet been fully resolved, if the Jamaican Government would:

- grant Reynolds a 25 year renewable mining lease;
- grant a five year exemption from duty and tonnage tax on materials and equipment;
- stabilize the royalty rate on bauxite and not impose any export tax on bauxite over the 25 year lease period;
- reach an agreement with Reynolds concerning the assumed profit on bauxite sales for Jamaican income tax computation. The assumed profit could be adjusted after the first five years.

Reynolds proposed the construction of a 400,000 ton per year mining facility and promised to train Jamaican personnel for production and supervisory jobs. Reynolds also offered to restore mined-out land for agricultural purposes.

The Government of Jamaica responded by saying that the proposal was, for the most part, acceptable but that the following modifications were necessary:

- while the Government stated that it had no intention of levying an export tax, it was unable to agree to stabilization of the bauxite royalty for a 25 year period. Instead the royalty would be revised every 5 years;

/- to

- to simplify calculations and to obviate the necessity for determination of production costs, the Government suggested an assumed profit of 60¢ United States currency per ton on all bauxite exported throughout the 25 year lease period.

In 1950, Reynolds Jamaica Mines Limited was incorporated in the State of Delaware, as a wholly-owned subsidiary of Reynolds Metals Company.

The Korean War caused increased demand for aluminum and Reynolds decided that initial capacity in Jamaica should be 750,000 tons per year. In April 1951, more than 1,600 people were employed in construction by Reynolds. Construction was completed in the spring of 1952 and the first shipment of Jamaican bauxite left the port of Ocho Rios on June 5, 1952.

Strong demand for aluminum for both civilian and military use had developed by 1952. In 1953, the first full year of production, Reynolds shipped 610,000 short tons of bauxite to its new alumina plant at Corpus Christi, Texas, which was especially designed to use Jamaican bauxite. Reynolds' bauxite exports increased to 845,000 tons in 1954 and to 1,045,000 tons in 1955. Early in 1956, Reynolds announced a programme to expand its capacity to 2.25 million short tons per year. Shipments continued to increase as follows: 1956 - 1,070,000 tons, 1957 - 1,466,000 tons, 1958 - 2,170,000 tons. However, in 1959, the United States economy entered a recession and by 1960, shipments had declined to 1,735,000 tons.

In the 1961-1974 period, Reynolds' shipments have been as follows:^{1/}

^{1/} Production figures for 1961-1970 come from Reynolds in Jamaica, p. 32. For 1971-1974 the data come from Economics and Statistics Division, Ministry of Mining and Natural Resources, Government of Jamaica.

<u>Year</u>	<u>Bauxite Exports</u> <u>000 Short Tons</u>	<u>Comments</u>
1961	2,027	
1962	2,166	
1963	2,136	
1964	2,121	
1965	2,289	
1966	2,780	
1967	2,270	
1968	1,741	New conveyor belt system installed. Labour difficulties in United States.
1969	2,670	
1970	2,780	
1971	2,468	
1972	2,626	
1973	2,998	
1974	3,548	Capacity expanded from 3.0 to 4.1 million short tons.

In 1966, Alumina Partners of Jamaica (ALPART) was organized as a consortium of Reynolds Jamaica Alumina Ltd. (36.54 per cent), Kaiser Jamaica Corp. (36.54 per cent) and Anaconda Jamaica, Inc. (26.92 per cent). Kaiser contributed bauxite deposits in Manchester and St. Elizabeth to ALPART, as well as rail facilities and its Port Kaiser shipping and bauxite drying facilities. Reynolds also contributed bauxite properties in Manchester and St. Elizabeth to the consortium. Kaiser is the managing partner and supervises ALPART's operations. Bauxite mining and alumina production at ALPART began in 1969. At that time, ALCAN was the only other company converting bauxite to alumina in Jamaica.

ALPART's bauxite production record is as follows:

<u>Year</u>	<u>Bauxite Production</u> <u>000 Short Tons</u>
1970	1,986
1971	2,468
1972	2,350
1973	2,099
1974	3,210

/Reynolds' share

Reynolds' share in ALPART's output of bauxite is identical to the company's equity share, i.e., 36.5 per cent, or about 1,150,000 tons in 1974.

The tax legislation passed by the Jamaican Government, which includes a provision for a minimum production levy based on specified production, and gives the Minister of Mining and Natural Resources the power to increase the rate of the production levy, required payments of the production levy and increased royalties for 1974 by Reynolds totalling approximately 47.7 million dollars. This figure included its share of 1974 royalties and production levy imposed on Alumina Partners of Jamaica, based on the minimum production specified for Reynolds and Alumina Partners of Jamaica, the 7 1/2 per cent rate, and an assumed "realized price" for primary aluminum of 32 cents per pound. The Jamaican tax legislation provides for a final determination of "realized price", and the final amount of the production levy, in accordance with regulations there-under which have not yet been issued.

In January and February 1975, Reynolds commenced discussions with the Government on other proposals made by it, including land ownership, bauxite reserves, Government participation in operations and expansion of operations. These discussions have been inconclusive at the time of writing this report.

GUYANA

In 1952, Reynolds purchased the assets of The Berbice Bauxite Company in Guyana (then, British Guiana). Berbice was a subsidiary of American Cyanamid Co. and had been mining and exporting bauxite from British Guiana on a small scale for several years.^{1/} The acquisition included mining leases and exclusive permissions covering some 490,000 acres, complete mining equipment, houses, washing plant, drying plant, service facilities, a short railroad and a barge line.^{2/} In 1953

^{1/} Minerals Yearbook 1952, p. 199.

^{2/} Moodies Industrial Manual 1974, p. 2505.

Reynolds' purchase of Berbice was contested by Harvey Machine Co. which claimed a prior sales agreement.^{1/} In the meantime, Reynolds started production and shipped 65,000 short tons of bauxite to the United States during 1953. It was reported in 1953 that the Government of British Guiana had imposed an export duty of 58.3 cents per ton on calcined ore and 26.2 cents per ton on regular bauxite, and also royalties ranging from 5.8 cents per ton to 14.5 cents per ton.^{2/}

During 1954, the litigation brought by Harvey against Reynolds was decided in favour of Reynolds,^{3/} and the Company expanded exports to 160,000 short tons in 1954 and to 240,000 tons in 1955. The export duty had increased to 1.00 dollar per ton for calcined ore and 0.45 dollar per ton for metal grade bauxite. There was also a royalty of 10 cents per ton on all bauxite production.

Over the decade 1955-1965, Reynolds continued to expand bauxite production and in 1965, entered into an agreement with the Government of British Guiana in which Reynolds agreed to increase production to 600,000 long tons per year immediately and to 1,000,000 long tons per year by 1976.^{4/}

As mentioned earlier, on March 1, 1971, The Demerara Bauxite Co., a wholly-owned subsidiary of ALCAN Aluminium Ltd., was nationalized by the Government of Guyana. Also in 1971, Reynolds Guyana Mines Ltd., produced 1,155,000 long tons (1,295,000 short tons). In 1973, production had fallen to 812,000 long tons (910,000 short tons).^{5/} At the end of 1973, the Government requested discussions of possible participation in Reynolds Guyana Mines Ltd.^{6/} In July 1974, the

^{1/} Minerals Yearbook 1953, p. 227.

^{2/} Ibid., p. 226.

^{3/} Minerals Yearbook 1954, p. 215.

^{4/} Minerals Yearbook 1965, p. 231; American Metal Market, August 1, 1974, p. 1.

^{5/} "Burnham issues warning to Reynolds", Caribbean Business News, September 1974.

^{6/} Reynolds Metals Company, Annual Report 1973, p. 2.

Government published a white paper stating that Reynolds paid no corporate income tax from 1952-1963 because Reynolds Guyana Mines Ltd., declared no profit during those years. Up to the end of 1973, Reynolds had shipped 10.7 million long tons of bauxite. The white paper stated that Guyana was only receiving 5 per cent. of the selling price of aluminum. Guyana's share of the proceeds of every ton of Reynolds' exported bauxite in 1970 was 1.86 dollars. By 1973, this figure had slumped to 1.36 dollars per ton.^{1/} Production in 1974 was expected to be 615,000 long tons of metal grade bauxite and 300,000 long tons of calcined bauxite.^{2/}

Negotiations between the company and the Government continued through the summer. On July 10, 1974, the Government announced that a large tax increase would be imposed on Reynolds Guyana Mines Ltd. The Guyanese Finance Minister, Mrs. Hubert Jack, stated that the country aimed to increase its revenues by 15 million dollars by placing a new tax on bauxite production which would apply only to vertically integrated companies (i.e., the tax would apply to Reynolds but not to the non-integrated Government owned Guyana Bauxite Company).

A Guyanese newspaper, the Daily Chronicle, rationalized the tax increase to Reynolds in the following manner:

"The economy is now vitally in need of considerable injections of revenue and experts do not believe that Reynolds would make the maximum possible contribution to the country under the present tax structure.... GUYBAU has meanwhile shown a much greater understanding of the real problems of the country and the role which such an important industry should play to help the nation over the economic hump."^{3/}

On July 14, 1974, Prime Minister Forbes Burnham announced that Reynolds would be nationalized by the end of 1974. Burnham also attacked the United States Government for its opposition to the nationalization of the Demerara Bauxite Company in 1971. Burnham

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- 1/ American Metal Market, August 1, 1974, p. 1; "Reynolds Told of New Bauxite Tax", Daily Chronicle (Guyana), July 11, 1974, p. 1.
 - 2/ "Caribbean Battleground" Metal Bulletin, September 27, 1974.
 - 3/ Daily Chronicle, July 11, 1974, p. 1.

/stated that

stated that the talks on tax increases and the talks on Government ownership and control of Reynolds were not related, indicating that the higher taxes were not an alternative to nationalization. Late in August, Reynolds spokesmen announced that if Reynolds Guyana Mines Ltd., was nationalized, the parent company might not purchase any bauxite from the country.^{1/}

It was suggested that Forbes Burnham would probably prefer to take a partnership in the Reynolds operation rather than nationalize it 100 per cent, because he wanted to keep the advantages of Reynolds' personnel and finance capital. The article went on to say that if Reynolds and Burnham could agree on a partnership, Burnham might be willing to combine GUYBAU and the Reynolds' facilities and give Reynolds the overall management, and marketing authority. Spokesmen for Reynolds and Guyana would neither confirm nor deny that this was being discussed. However, a source close to GUYBAU said that such an arrangement was under consideration.^{2/}

On September 25, 1974, the Government announced its new tax formula for Reynolds in the Bauxite Act 1974, which increased to at least 11.16 dollars from 0.68 dollars the tax on one ton of bauxite. Mr. Jack said that the levy was retroactive to January 1, 1974, and was expected to yield 7 million dollars for 1974 of which 3.5 million was due within 15 days. The production levy was computed at 5.911 per cent of the price of aluminum on the open market. The Government used a price of 32 cents per pound for its initial calculations, but adjustments were to be made at the end of the year. In announcing the new tax, Mr. Jack stated that the Government expected pressure from United States aluminum companies and possibly the United States Government. He states, "I have received information to the effect that the chairman of ALCOA is seeking to have the United States Government intervene in the bauxite situation in the Caribbean as a whole". Mr. Jack also told the Guyanese

^{1/} American Metal Market, August 26, 1974, p. 36.

^{2/} "Guyana levies 7 million dollars Bauxite Tax on Reynolds" Metals Week, September 30, 1974.

parliament that the Government had rejected a Reynolds offer to pay 4 million dollars on the condition that moves for nationalization or any form of State participation be frozen for five years. The legislation set out the procedure for collecting the levy, a system of appeal open to the company, and sanctions for refusal to pay.^{1/} The sanctions included withdrawal of permission for Reynolds to mine or export bauxite.^{2/} In addition, the law implemented prison terms of two to four years for individual management employees guilty of non-payment and related offenses, with fines as high as 150,000 dollars.^{3/}

Reynolds immediately announced that it would pay only the 1973 tax of 68 cents per ton. Industry observers felt that since nationalization was scheduled for December 31, 1974, Reynolds had little to lose by refusing to pay the new tax and incurring the sanctions on mining and exporting bauxite for the last three months of the year.^{4/}

On October 3, 1974, Reynolds announced that it was initiating legal action in Guyana, challenging the legality of the new tax. Reynolds estimated that, since aluminum prices had risen above 32 cents per pound, the total tax for 1974 would amount to 8.5 million dollars. Spokesmen for the company asserted that Reynolds had always had excellent relations with Guyana and added that they regretted the Government's decision to impose a tax which made continued operations economically impossible. The Company advised the Government that it would continue operating its facilities as long as the Government permitted it to do so. However, four management personnel and their families were withdrawn from Guyana "for consultation" and because of unsettled conditions.^{5/} A Reynolds' spokesman later said that there were no plans for any of these people to return to Guyana.

1/ Ottawa Citizen, September 26, 1974, p. 13.

2/ Metal Bulletin, September 27, 1974.

3/ "Reynolds begins Action against Guyana Levy", Globe and Mail, October 4, 1974, p. 86.

4/ Metal Bulletin, September 27, 1974.

5/ Globe and Mail, October 4, 1974, p. 86.

In an interview with Metals Week, Shridath Ramphal, at that time Cuyana's Foreign Minister and Minister of Justice, said that the possibility of a Reynolds' victory in the courts struck him as highly unlikely.1/

Reynolds described the Guyanese levy as expropriatory.2/ The Government retorted in a statement released at the United Nations, that the Reynolds court action was merely a manoeuvre to qualify the Company for OPIC (Overseas Private Investment Corporation) expropriation insurance, and that Reynolds was seeking to create the impression that the Government was trying to confiscate its property.3/ The Chronicle reported that although the Company's written down net book value was given as G\$ 10.6 million, Reynolds Guyana Mines was insured by two foreign companies for over 28 million dollars.4/ Spokesmen for the Government said that it never intended to confiscate Reynolds' property but reaffirmed the country's intention to nationalize the Reynolds operation by year end.5/ The Guyana Government stated that it regarded the levy and nationalization as two completely separate issues.6/

The Government also charged that Reynolds was pursuing "a phased plan of abandonment and run-down of its operations", and said that the withdrawal of management personnel was an example of the plan.7/

When Reynolds refused to pay the initial installment of 3.5 million dollars, the Government said that it would consider publicly auctioning the Reynolds' property to recover the tax. Other options available to

1/ Metals Week, October 7, 1974.

2/ Globe and Mail, October 4, 1974, p. 86.

3/ "Guyana Wrangle", Metal Bulletin, October 18, 1974, p. 20.

4/ Daily Chronicle, July 11, 1974, p. 1.

5/ "Guyana may Consider Publicly Auctioning Reynolds Metals Side", Wall Street Journal, October 7, 1974, p. 12.

6/ "Anti-American Sentiment in Guyana", Financial Times, (London), October 8, 1974, p. 33.

7/ Wall Street Journal, October 7, 1974, p. 12.

the Government included suing for recovery of the unpaid levy, restricting Reynolds from extracting or exporting bauxite, or appointing a Government controller to oversee Reynolds' operations.^{1/}

On October 8, three days after the initial installment was due, the Government said that Reynolds could continue to ship metal grade bauxite, but that all shipments would be subject to the levy which Reynolds had already refused to pay. The Government also told Reynolds that calcined and chemical grade bauxite could not be shipped and authorities prevented two loaded ships from leaving port. On October 9, Guyana's Commissioner for Inland Revenue filed a writ in a Guyana court seeking payment of the bauxite levy and ordering Reynolds to appear in court on October 14.^{2/} Reynolds' lawyers appeared in court to hear the Government's complaint and were given until October 28 to respond.

During the week October 14-18, Reynolds laid off 428 persons or about 40 per cent of its Guyana work force. The Company said that it was forced into the temporary layoffs as a result of the Government's restriction on shipment of calcined and chemical grade bauxite.^{3/} A Guyana Government official described the layoffs as "an attempt to victimize innocent workers". Reynolds stated that the temporary layoffs should not be regarded as any intention of abandoning operations and that it was only necessitated by the Government embargo.^{4/}

On October 29, Forbes Burnham addressed a mass public meeting and said that the country must be ready for the possibility that United States aid to Guyana might cease with the nationalization of Reynolds. He also warned that the United States might apply pressure at the World Bank to prevent Guyana from obtaining loans. According to the Financial Times (London), the comments reflected a stepped-up campaign

^{1/} Ibid.

^{2/} "Reynolds and Guyana Still Sparring", Metals Week, October 14, 1974.

^{3/} "Reynolds Metals Idles 50 per cent of Its Work Force at Guyana Mining Site", Wall Street Journal, October 22, 1974, p. 10.

^{4/} Ibid.

by the Government to gain support for the bauxite levy and the nationalization plan.^{1/} On October 28, Reynolds' officials had appeared in court and presented their reasons for not paying the tax. The court made no decision on the case.^{2/}

The assets of Reynolds Guyana Mines, which were located in Guyana, were nationalized by the Government of Guyana on January 1, 1975. An agreement relating to the settlement of compensation and other issues was entered into among the OPIC (Overseas Private Investment Corporation, a United States Government agency), Reynolds Metals Company, Reynolds Guyana Mines and Guyana on December 31, 1974.

Under the terms of the agreement, Guyana has agreed to pay 14.5 million dollars for the nationalized assets. Settlement of claims between Guyana and Reynolds over income tax and bauxite production levies reduced the net compensation to be paid to 10 million dollars. Court cases relating to these matters were discontinued. Guyana issued 10 million dollars of its notes to OPIC, which carried the expropriation risk insurance on Reynolds' investment, and following the issuance of these notes, Reynolds received payment from OPIC in the amount of 10 million dollars on February 20, 1975.

(b) Sources of Bauxite for British Aluminium Company

The British Aluminium Company, Ltd. (BACO), in which Reynolds holds a 48 per cent interest, has bauxite mining interests in Ghana, Guinea and France. In Guinea, BACO owns a 10 per cent interest in the Fria consortium. In the 1970s, total output by the consortium has been approximately two million tons of bauxite. Alumina production from this bauxite was about 775,000 tons.

(c) New sources of bauxite for Reynolds

The Government of Surinam had awarded Reynolds exploration and concession rights for bauxite in the Bakhuis area in an agreement signed August 31, 1971, which provided for a joint venture with the Government.

1/ "Guyanans warned United States may Cut Off Aid", Financial Times, October 30, 1974, p. 5.

2/ Metals Week, November 4, 1974, p. 6.

of Surinam to explore for bauxite, and, if sufficient reserves were discovered, for the development and use of bauxite reserves to produce alumina in Western Surinam. Another concession was awarded by the Government of Surinam solely to Reynolds for exploration for bauxite in the Coppename area, and, if found in sufficient quantity, for the development and use of bauxite to produce alumina in Surinam. Under this agreement, the Government was granted optional rights to participate in the production of alumina from bauxite from the Coppename area. Sufficient bauxite had not been discovered in the concession areas to meet the requirements for the construction of an alumina plant. Under the terms of the agreement, Reynolds believed it was entitled to export a portion of the bauxite that it had discovered, but the Government was reluctant to grant these rights. The matter was resolved in the fourth quarter of 1974, whereby Reynolds agreed to relinquish these concession rights to the Government for 3,500,000 dollars to be paid during 1975.

During 1974, the Company joined a consortium with eight other companies including ABCAN Aluminium Ltd., as the operating partner to mine bauxite in the Trombetas area of the lower Amazon River Basin of Brazil. As a member of the consortium, Reynolds is to receive a minimum of 350,000 tons of bauxite a year commencing in 1977. Financing plans for this project have not yet been completed.

In the United States, Reynolds has acquired property containing substantial tonnages of laterite which can be used for a limited number of years in lieu of bauxite as protection in the event of interruption of overseas bauxite supplies. During the year, Reynolds produced a trial commercial run of alumina in domestic facilities from domestic laterite. This trial run demonstrated that the company can (although presently at higher costs for raw materials, transportation and processing) produce alumina from laterite in existing facilities. In addition, Reynolds has acquired property containing several hundred million tons of clay and has accelerated its experimental work aimed at producing alumina from such domestic clay on an economic basis. Reynolds is also participating with seven other aluminum producers in

a United States Bureau of Mines programme for a pilot plant process for clay and other domestic alumina bearing ores. The mining of laterite and clay may require the approval of the various State and local governmental agencies, which Reynolds believes it will be able to obtain. As additional protection in the event of interruption of existing overseas bauxite supplies, Reynolds has entered into an agreement, dated December 17, 1971, with Commonwealth Aluminium Corporation Limited (COMALCO), under which Reynolds has the option to purchase from COMALCO, from its bauxite deposits in Australia, up to 50 million long tons of bauxite, but not exceeding three and one-half million long tons per year. Under the agreement, if Reynolds exercises its option, COMALCO could insist upon up to two years notice before delivery of bauxite begins. Based principally upon information by COMALCO, Reynolds is satisfied that these reserves are available.

(d) Fabrication

Reynolds is extensively involved in aluminum fabricating around the world. It operates either singly, or in joint ventures, in the following countries: United States (33 plants), United Kingdom (13 plants), Canada (6 plants), West Germany (2 plants), Belgium (4 plants), Netherlands, Italy, Spain, Japan, Philippines, Venezuela, Colombia, Mexico, India, Sri Lanka and several other countries.

4. Kaiser Aluminum and Chemical Corporation

Kaiser Aluminum and Chemical Corporation (Kaiser) is the world's fourth largest producer of primary aluminum and fabricated aluminum products. The Company's operations through subsidiary and related companies include the mining of bauxite in three countries, the production of alumina from bauxite in four countries, the reduction of alumina to aluminum in eight countries and the fabrication of aluminum and aluminum alloys into a variety of fabricated products in twelve countries. Of the major aluminum producers of the world, Kaiser is probably the most diversified with its interests in agricultural chemicals, refractories materials, industrial chemicals, strontium, international commodity trading, real estate and shipping.

/Kaiser was

Kaiser was originally incorporated in Delaware in 1940 as the Todd-California Shipbuilding Corp. In 1941, the Company changed its name to Permanente Metals Corp., and was engaged in shipbuilding and the production of magnesium and refractory bricks.^{1/} During World War II, United States aluminum capacity was greatly expanded and 57 per cent of this expansion was in plants owned and financed by the United States Government. Following the war, ALCOA was prohibited from purchasing any of the Government owned capacity. Other purchasers were sought. Attempts to induce other companies to purchase the Government smelters were unsuccessful until ALCOA agreed to allow royalty-free use of patents and to provide new entrants with raw materials.^{2/} Permanente Metals Corp., then entered the industry by leasing three smelters (total capacity 639,000 tons per year) from the Government which the Company later purchased.^{3/} ALCOA provided Permanente with bauxite from Surinam.^{4/} Arrangements were made whereby Permanente was allowed to pay for the aluminum smelters by shipping aluminum to the G.S.A. stockpile as aluminum was considered to be a strategic mineral by the American Government.^{5/} In 1949, the Company's name was changed to Kaiser Aluminum and Chemical Corporation.

(a) Diversification

Table 24 shows revenues by product for Kaiser. In 1974, aluminum and aluminum related products accounted for 65.1 per cent of total revenues compared to 71.6 per cent in 1970 and 79 per cent in 1967.

1/ Moodies Industrial Manual 1974, Moodies Investors Service Inc., New York, p. 2689

2/ Charles River Associates; An Economic Analysis of the Aluminum Industry, Cambridge, Mass., March 1971, pp. 3-25 - 3-27.

3/ United States Bureau of Mines, Minerals Yearbook 1946, Washington, D.C., p. 115.

4/ Minerals Yearbook 1948, p. 187.

5/ Minerals Yearbook 1949, p. 117.

Table 24
KAISER ALUMINUM AND CHEMICAL CORPORATION: REVENUES BY PRODUCT
 (Millions of dollars)

	1970	1974
Primary Aluminum	149	184
%	16.3	10.4
Fabricated Aluminum	443	878
%	48.4	49.7
Other Aluminum-related	63	89
%	6.9	5.0
Agricultural Chemicals	80	161
%	8.7	9.1
Refractories	67	139
%	7.3	7.9
Industrial Chemicals	46	81
%	5.0	4.6
Trading	11	195
%	1.2	11.0
Strontium	-	3
%	-	0.2
Other	55	38
%	6.0	2.1
Total	914	1,768
%	100.0	100.0

Source: Securities and Exchange Commission, Form 10-K, 1975, p. 1.

/Agricultural chemicals

Agricultural chemicals accounted for 9.1 per cent of sales in 1974, and consisted principally of anhydrous ammonia and derivatives which are used as fertilizers or in the production of fertilizers solutions. Agricultural chemicals are marketed through 180 retail outlets in the United States, most of which are wholly-owned and through hundreds of independent dealers. Kaiser entered the agricultural chemicals industry through the acquisition of Southern Nitrogen Company in 1966.^{1/}

Kaiser's refractories division produces heat and impact-resistant refractory materials to line kilns and furnaces. Products include fire clay, high alumina and basic magnesia refractories. In 1974, refractories accounted for 7.9 per cent of Kaiser's sales. The Company is the fourth largest United States refractories producer.

Kaiser's industrial chemicals division was formed in 1963, and manufactures and markets most of the chemicals required for alumina and aluminum production and also produces a number of specialty chemicals. The division is the leading United States supplier of synthetic cryolite and the western world's second largest producer of aluminum fluoride. These are the major chemicals used as bath materials in the aluminum reduction process. Caustic soda, another chemical used in the production of alumina and specialty aluminas, is also produced by the division. In 1974, sales of industrial chemicals amounted to 81 million dollars or 4.6 per cent of Kaiser's total revenues.^{2/}

Kaiser Trading Company is a wholly-owned subsidiary formed in 1969 which conducts worldwide commodities trading activities in a variety of bulk products with particular emphasis on metals, minerals, and industrial and agricultural chemicals. Kaiser Trading Company is the worldwide seller of many of Kaiser's products but its major source of revenues (90 per cent in 1974) comes from initiating "third party" transactions, i.e., locating new markets for producers and new sources of supply for manufacturers. The growth of revenues of the Trading

^{1/} Kaiser Aluminum and Chemical Corporation, Profile, Company Publication, February 1974, p. 13.

^{2/} Ibid., p. 12.

division has been dramatic. From 11 million dollars in 1970, sales have expanded to 195 million dollars in 1974, or 11.0 per cent of Kaiser's total revenue.

Other sources of revenue include strontium products in Nova Scotia; real estate projects in Hawaii, California, Arizona and Guam; ocean shipping through Hendy International Company, a shipping management firm which transports chemicals, petroleum and a variety of bulk-ore cargoes; and exploration for and mining of non-bauxite minerals.

(b) Integrated aluminum facilities

(i) Bauxite mining. Kaiser's bauxite mining operations are listed in table 25. Kaiser Bauxite Company in Jamaica is the company's oldest and largest source of bauxite. In 1947, the then Permanente Metals Corp. began exploring for bauxite in Jamaica and during the same year, purchased large tracts of land. In 1950, the Kaiser Bauxite Company was formed and construction of mining facilities began the following year. Shipment of bauxite began in 1952, reached one million tons per year in 1955, two million tons per year in 1957, and four million tons per year in 1962. Kaiser Bauxite's original bauxite mining site was at Port Kaiser on the South Coast of Jamaica. Ore from this deposit was mined, dried and shipped from 1953 until 1967 when operations were transferred to the North Coast. The facilities at Port Kaiser now form part of the bauxite-alumina complex operated by Alumina Partners of Jamaica (ALPART), owned by a consortium comprising Kaiser, Reynolds, and Anaconda. In 1963, Kaiser announced plans to establish bauxite mining, drying and shipping facilities in the St. Ann/Trelawny area of the North Coast. A deep water port was constructed at Port Rhoades on Discovery Bay. The first shipment of bauxite occurred in January 1967. Currently the capacity of the Port Rhoades complex is 4.5 million tons of bauxite per year.^{1/} All of the bauxite is shipped to Kaiser's United States alumina plants at Baton Rouge and Gramercy, Louisiana.

^{1/} Kaiser Bauxite Company, Public Affairs Department, "Kaiser Bauxite - In Partnership with Jamaica", Company Publication, 1970.

Table 25

KAISER ALUMINUM AND CHEMICAL CORPORATION: BAUXITE MINING

Country	Company	Kaiser's Equity %	1974 Output	Kaiser's Share	% of Kaiser's Bauxite Supply
Jamaica	Kaiser Bauxite Co.	49.0a/	4 500	4 500	54.6
Jamaica	ALPART	36.5b/	3 200	1 150	13.9
Australia	COMALCO	45.0c/	10 000	2 500	30.3
India	Hindustan Aluminum	27.0d/	375	100	1.2
<u>Total</u>			<u>15 075</u>	<u>8 250</u>	<u>100.0</u>

- Sources: 1. Securities and Exchange Commission, Form 10-K for Kaiser Aluminum and Chemical Corp., for the year ending December 31, 1974, pp. 2-5.
 2. United States Bureau of Mines, Mineral Yearbook 1972, Washington, D.C., pp. 137, 149-152, 191, 200-201.
 3. Kaiser Aluminum and Chemical Corp., Profile, Company publication, February 1974.

- a/ Government of Jamaica - 51 per cent.
 b/ Reynolds Metal Company - 36.5 per cent, Anaconda Company - 27 per cent.
 c/ Conzinc Rio Tinto of Australia Ltd. - 45 per cent, public - 10 per cent.
 d/ Birla and Indian interests - 73 per cent.

/Kaiser Bauxite

Kaiser Bauxite Company owns the land on which its bauxite reserves are located, but under Jamaican law the bauxite is owned by the Government and cannot be mined except under Government lease. In 1974, Kaiser's lease still had 25 year to run. Under the new law on production levies in Jamaica (see pages 59, 60 and 90 for details). Kaiser paid a total levy of 54 million dollars for 1974 which included Kaiser Bauxite Company's payment (approximately 43 million dollars and Kaiser's share of ALPART's payment (approximately 11 million dollars).

In the fall of 1974, preliminary agreement was negotiated by Kaiser Bauxite with the Government of Jamaica containing the following points: 1/

- (i) Kaiser Bauxite will receive rights to a 40-year supply of bauxite sufficient for the Corporation's Gramercy and Baton Rouge facilities' operations at their present production rates. In return for these rights, Kaiser Bauxite will annually pay seven per cent of the Government's purchase price for the land under the mining lease.
- (ii) Kaiser Bauxite will sell to the Government for book value (approximately 12,000,000 dollars) all of its bauxite lands, resettlement lands, and other property not required for plant operations. Payment will be received over a 1-year period with a seven per cent annual interest rate.
- (iii) Kaiser Bauxite will sell 51 per cent of its mining assets to the Government of Jamaica for book value (approximately 16,000,000 dollars). This amount would also be paid to Kaiser Bauxite over a 10-year period at 8.5 per cent interest. It was agreed that both Kaiser Bauxite and the Government will form a new partnership, in order to carry out mining activities. The new partnership will have an executive committee with equal voting rights for Kaiser Bauxite and the Government. Kaiser Bauxite will manage the operation under a management

1/ Securities and Exchange Commission, Form 10-K for Kaiser Aluminum and Chemical Corp., for the period ending December 31, 1975, p. 3.

agreement which will last for seven years. Kaiser Bauxite will receive bauxite from the partnership at cost including depreciation and will pay the Jamaican Government a return of 12 per cent on its investment. Kaiser Bauxite will continue to sell bauxite to Kaiser Aluminum.

- (iv) The production levy will remain at 7.5 per cent of the realized price for primary aluminum for 1975, 1976 and 1977. For 1978 and 1979, the production levy will be one per cent less than the percentage provided under Jamaican law at the time.

As stated earlier, ALPART produced about two million tons of bauxite in 1970 and about 3.2 million tons in 1974.^{1/} The alumina plant has had operating problems and has not managed to produce at its rated capacity and as a result bauxite production has also been at less than capacity. Kaiser's share, like Reynolds', in ALPART's output of bauxite is identical to the Company's equity share, i.e., 36.5 per cent, or about 1,150,000 tons in 1974.

As mentioned earlier, in 1956, the Commonwealth Aluminum Corp., (Pty.) (COMALCO) disclosed that a huge bauxite discovery had been made in Queensland, Australia. Early reports set reserves at "many hundreds of million tons".^{2/} COMALCO was operated as a joint venture, with British Aluminum Company and Consolidated Zinc Corporation, originally each holding a 50 per cent interest. In 1960, Consolidated Zinc Corp., purchased British Aluminum's share thereby dissolving their partnership. The same year, Kaiser joined with Consolidated Zinc as an equal partner to undertake the establishment of an integrated aluminum industry in Australia and New Zealand. The new partnership was named COMALCO Industries Pty. Ltd.^{3/} In 1961, COMALCO purchased a small aluminum

^{1/} Calculated from data supplied by: Economics and Statistics Division, Ministry of Mining and Natural Resources, Government of Jamaica.

^{2/} Minerals Yearbook 1956, pp. 250-251, see also pages 48-49.

^{3/} Minerals Yearbook 1960, p. 249.

smelter and alumina refinery at Bell Bay, Tasmania from the Government of Tasmania.^{1/} In 1962, mining began at the COMALCO deposit and by the middle of 1963, the Bell Bay refinery was receiving all of its bauxite requirements from COMALCO. The Company also contracted to ship 600,000 tons of bauxite per year to Japan for the three-year period 1963-1966.

In 1963, a new company, Queensland Alumina Ltd., was formed as a consortium consisting of Kaiser, Conzinc Rio Tinto of Australia Ltd., Aluminium Ltd., of Canada, Pechiney and COMALCO. In 1964, a loan of 117 million dollars was acquired from 11 United States banks headed by the Mellon National Bank and Trust as interim finance for an alumina plant to be built by Queensland Alumina Ltd., (QAL). The alumina plant was to be supplied with alumina from the COMALCO deposit.^{2/} QAL came on stream in 1967 at a capacity of 600,000 tons per year. In 1968, capacity was increased to about 1,000,000 tons per year and by the end of 1970, capacity was 1,428,000 tons per year. Capacity remained stable for two years and then increased to 2,240,000 tons at the end of 1973 and 2,638,000 tons at the end of 1974. Kaiser owns 32.3 per cent of QAL directly and 6.2 per cent indirectly since COMALCO owns 13.8 per cent of QAL. In 1974, COMALCO produced about 10 million tons of bauxite. About 800,000 tons were refined into alumina and used by COMALCO's affiliated smelters at Bell Bay and at Bluff, New Zealand. Kaiser Aluminum has a call upon 868,000 tons per year of QAL's alumina capacity for the processing, essentially on a cost basis of bauxite purchased by Kaiser Aluminum from the COMALCO reserves.^{3/}

Hindustan Aluminium Corp., Ltd., a Kaiser affiliate in India, mines bauxite, refines alumina and produces aluminum for local consumption. Kaiser shares in the profits of this company but does not market the aluminum output through its international sales organization.

^{1/} Minerals Yearbook 1961, p. 323.

^{2/} Minerals Yearbook 1964, p. 264.

^{3/} Securities and Exchange Commission, Form 10-K, p. 3.

In 1974, Hindustan Aluminium produced about 375,000 tons of bauxite. Kaiser's share by the equity method was about 100,000 tons or 1.2 per cent of Kaiser's worldwide bauxite supply.

A new source of bauxite which is under investigation is located in the Kibi region of Ghana. Bauxite Alumina Study Co., Ltd., (BASCOL), a consortium consisting of Kaiser and Aluminum Resources Development Co. (ARDECO), has announced plans to build a bauxite-alumina complex at a cost of 130-150 million dollars. The planned initial capacity of the alumina plant is 600,000 tons per year and is to rise eventually to 1,000,000 tons per year.^{1/} The alumina will be smelted by Kaiser's Volta Aluminium Company.^{2/}

(ii) Alumina refining. Alumina refining capacity is shown in table 26. Kaiser's United States alumina refineries located at Gramercy, Louisiana and Baton Rouge, Louisiana, obtain bauxite from Kaiser Bauxite Co., in Jamaica. These refineries have capacities of 800,000 and 1,025,000 tons of alumina per year. The alumina plant operated by ALPART has an annual capacity in excess of 1,000,000 tons per year. In 1970, ALPART announced plans to expand the refinery's capacity to 1.3 million tons per year. This expansion has been deferred due to lack of demand for alumina.^{3/} In 1974, output was approximately 1.1 million tons. When the expansion is completed, Kaiser's share of ALPART's output will be 475,000 tons per year.

In Australia, Kaiser's affiliated company, COMALCO, operates a small refinery at Bell Bay, Tasmania which obtains bauxite from the COMALCO deposit. Kaiser owns 32.3 per cent of Queensland Alumina, the world's largest alumina refinery with a capacity of 2,688,000 tons per year. Kaiser's share of this capacity is 868,000 tons. COMALCO owns 13.8 per cent of Queensland Alumina and thereby has a claim of 371,000 tons per year.^{4/}

^{1/} Minerals Yearbook 1972, Area Reports, Vol. III, p. 350.

^{2/} Quarterly Economic Review of Ghana, Sierra Leone, Gambia, Liberia, Annual Supplement 1973, Economist Intelligence Unit, pp. 8-9.

^{3/} Securities and Exchange Commission, Form 10-K, p. 2.

^{4/} Ibid., pp. 3-4.

Table 26

KAISER ALUMINUM AND CHEMICAL CORPORATION: ALUMINA REFINING

Country	Company (location)	Kaiser Equity %	Alumina Capacity (000 tpy)	Kaiser's Share	% of Kaiser's Alumina Capacity	Bauxite Source
U.S.A.	Kaiser - Gramercy	100.0	800	800	21.9	Kaiser Bauxite Co.
	Kaiser - Baton Rouge	100.0	1 025	1 025	28.1	Kaiser Bauxite Co.
Jamaica	ALPART - Nain	36.5 ^{a/}	1 300	475	13.0	ALPART
Australia	Queensland Alumina	32.3 ^{b/}	2 688	868	23.8	COMALCO
	COMALCO - Bell Bay	45.0 ^{c/}	65	65	1.8	COMALCO
	COMALCO - QAL	45.0 ^{c/}	-	371	10.2	COMALCO
India	Hindustan Aluminium Corp.	27.0 ^{d/}	182	50	1.4	Hindustan
<u>Total</u>			<u>6 060</u>	<u>3 654</u>	<u>100.0</u>	

Source: See table 25.

- a/ Reynolds Metal Company - 36.5 per cent, Anaconda Company - 27 per cent.
- b/ ALCAN Aluminium Ltd. - 22 per cent, Pechiney - 20 per cent, COMALCO - 13.8 per cent, Conzinc Rio Tinto of Australia Ltd. - 11.9 per cent.
- c/ Conzinc Rio Tinto of Australia Ltd. - 45 per cent, public 10 per cent.
- d/ Birla and Indian interests - 73 per cent.

/In India,

In India, Kaiser holds a 27 per cent interest in the 182,000 ton per year alumina refinery of Hindustan Aluminium Corp. Kaiser's share of Hindustan's capacity, by the equity method, is 50,000 tons per year or 1.4 per cent of Kaiser's alumina supply.

(iii) Aluminum smelting. Aluminum smelting capacity of Kaiser and its affiliated companies is shown in table 27. Kaiser has interests in eleven smelters in eight countries. Total aluminum capacity of these smelters is 1,543,000 tons per year. The share of Kaiser and affiliated companies is 1,167,000 tons per year. In Kaiser's 10-K Report to the Securities and Exchange Commission, the Company states that its primary aluminum rated capacity at the end of 1974 was 937,000 tons. This figure includes only United States aluminum capacity plus Kaiser's share of the capacity of Volta Aluminium Company Ltd., Anglesey Aluminium Ltd., and Aluminium Bahrain. This indicates that Kaiser-Preussag in Germany, COMALCO in Australia, and Hindustan Aluminium Corp., in India operate autonomously.

Kaiser's international aluminum capacity is distributed as follows: United States - 62.1 per cent, Germany - 3.0 per cent, United Kingdom - 3.2 per cent, Ghana - 13.1 per cent, Bahrain - 2.0 per cent, India - 2.4 per cent, Australia - 9.1 per cent and New Zealand - 5.2 per cent.

Based on a smelter capacity of 1,543,000 tons per year, Kaiser's Alumina requirements are approximately 2,930,000 tons per year. In the previous section, Kaiser's alumina availability was calculated to be 3,650,000 tons per year. This places Kaiser in an excess alumina supply situation. Some of this excess alumina is used by the refractories division to manufacture high alumina refractories, and by the industrial chemical division. Alumina is also sold to non-integrated aluminum producers such as Noranda which operates a 70,000 tons per year aluminum smelter at New Madrid, Missouri.^{1/}

^{1/} Kaiser Aluminum and Chemical Corp., Profile, Company document, February 1974, p. 1.

Table 27

KAISER ALUMINUM AND CHEMICAL CORPORATION: ALUMINUM SMELTING

Country	Company (location)	Kaiser Aluminum Equity %	Aluminum Capacity (000 tons per year)	Kaiser's Share	% of Kaiser's Aluminum	Alumina Source(s) (where known)
U.S.A.	Kaiser - Chalmette, Louisiana	100.0	260	260	22.3	Baton Rouge, Gramercy
	Kaiser - Ravenswood, West Virginia	100.0	177	177	15.2	Baton Rouge, Gramercy
	Kaiser - Mead, Washington	100.0	206	206	17.7	QAL
	Kaiser - Tacoma, Washington	100.0	81	81	6.9	QAL
Germany	Kaiser - Preussag Voerde	50.0a/	71	35	3.0	
U.K.	Anglessy - New Wales, Scotland	34.0b/	112	37	3.2	ALPART
Ghana	VALCO - Tema	90.0c/	170	153	13.1	ALPART, U.S.A.
Bahrain	ALBA	17.0d/	132	23	2.0	
India	Hindustan - Renukoot	27.0e/	105	28	2.4	Hindustan
Australia	COMALCO - Bell Bay	45.0f/	106	106	9.1	COMALCO, QAL
New Zealand	N.Z. Aluminum Smelters - Bluff g/		123	61	5.2	QAL
Total			1 543	1 167	100.0	

Source: See table 25.

a/ Preussag, A.G. - 50 per cent; b/ Rio Tinto Zinc Corp., Ltd., - 47 per cent, British Insulated Callender Cables, Ltd. - 19 per cent; c/ Reynolds Metals Co. - 10 per cent; d/ General Gable - 17 per cent, British Metals - 17 per cent, Western Metals - 8.5 per cent, Bretton Investments - 9.5 per cent, Electro-Kopper - 12 per cent, Bahrain Government - 19 per cent; e/ Birla and Indian Interests - 73 per cent; f/ Conzinc Rio Tinto of Australia - 45 per cent, Australian public - 10 per cent; g/ COMALCO Industries - 50 per cent, Sumitomo Chemical Co. - 25 per cent, Showa Denko K.K. - 25 per cent.

/The only

The only smelter expansion currently planned is a 50,000 ton per year expansion at Volta Aluminium Company to be completed in 1976 at an estimated cost of 60 million dollars.^{1/}

(iv) Aluminum fabricating. Fabricated aluminum products accounted for 49.7 per cent of Kaiser Aluminum's total revenue in 1974, compared to 10.4 per cent of primary aluminum ingot and 5.0 per cent for other aluminum related products. Kaiser operates 54 fabricating plants in twelve countries: United States (41), Argentina (1), Australia (1), Belgium (1), Brazil (1), Canada (1), Germany (3), India (1), Switzerland (1), Thailand (1), Turkey (1), and United Kingdom (1).

5. Revere Copper and Brass Inc.

Revere Copper and Brass Incorporated, a Maryland corporation, and its subsidiaries are engaged in the production and sale of non-ferrous metal products in three classes: mill products, primary aluminum, and utensils and other products. The company is the largest American independent non-integrated producer of copper and brass mill products. It competes with five integrated and approximately fifteen major non-integrated fabricators. Revere is a medium sized producer and fabricator of aluminum. It competes with approximately ten other full integrated producers of primary aluminum and fabricated aluminum products.^{2/}

In the early 1950s, the Office of Defense Mobilization, fearing a substantial shortage of aluminum, initiated an expansion programme of aluminum capacity to meet the needs of the Korean War. Various companies were awarded accelerated five year amortization certificates for 85 per cent of the cost of expanded capacity. Total allocations of expanded capacity by the Office of Defense Mobilization amounted to 877,000 tons of which 110,000 tons were awarded to Olin Mathieson.^{3/}

^{1/} Securities and Exchange Commission, Form 10-K, p. 4.

^{2/} Securities and Exchange Commission, Form 10-K for Revere Copper and Brass Inc., for the year ended December 31, 1974, pp. 1-2.

^{3/} M.J. Peck, Competition in the Aluminum Industry, 1945-1958, Harvard University Press, Cambridge, Mass., 1961, pp. 148-150.

/On August

On August 2, 1955, Revere filed an application for accelerated amortization certificates for an aluminum smelting plant of 60,000 ton capacity and for an alumina plant of 120,000 ton capacity. Revere had been an aluminum fabricator for several years. Between 1950 and 1955, when aluminum was in short supply, Revere was forced to enter into large, long-term contracts to secure essential supplies. These contracts did not involve any price concessions to Revere. At that time, it became clear to Revere's management that the company would ultimately have to secure its own source of primary aluminum.^{1/}

As shown in table 28, Revere generates most of its revenue from fabricated products made of copper, brass and aluminum. Like the other four companies, Revere's profits in 1974 are substantially higher than those of the previous few years.

Table 28

REVERE COPPER AND BRASS INCORPORATED: REVENUE BY PRODUCT^{1/}

(Millions of dollars)

	1970	1974
Mill Products	278.4	435.7
%	84.8	84.2
Primary Aluminum	23.7	31.9
%	7.2	6.2
Utensils and Other	26.2	49.9
%	8.0	9.6
<u>Totals</u>	<u>328.3</u>	<u>517.5</u>

Source: Securities and Exchange Commission, Form 10-K for the fiscal year ended December 31, 1974, p. 4.

^{1/} Ibid., p. 177.

On September 22, 1955, the Office of Defense Mobilization announced the closing of the expansion programme for aluminum capacity. Revere's application was rejected on the grounds that the current expansion objective had already been allotted. Shortly afterwards, Revere entered into a joint venture with Olin Mathieson. Ormet was formed in the fall of 1955 and was capitalized at 231 million dollars; of this sum 200 million dollars was a loan from insurance companies and the remainder was contributed equally by Revere and Olin. Ormet planned to construct a 180,000 ton smelting plant, 60,000 tons more than originally planned by Olin and a 345,000 ton alumina refinery at Burnside, La. Construction was scheduled for completion in 1958. Olin and Revere signed a 25-year agreement to take the ingot produced by Ormet at its full cost of manufacture and these companies sold the metal in either ingot or fabricated form. Olin received 64 per cent of the ingot produced by Ormet and Revere received the remainder.^{1/}

Ormet also constructed a rolling mill in Ohio and purchased three bauxite cargo vessels. Bauxite was purchased under contract from the Dutch company, Billiton, a bauxite producer in Surinam.^{2/}

In 1966, Revere negotiated a bauxite mining lease with the Government of Jamaica for 25 years with a guarantee of extension for a further 25 years, covering a 327 square mile area. In 1968, construction began on bauxite mining and drying facilities and a 220,000 ton per year alumina refinery in Jamaica, and also on an aluminum smelting plant with capacity of 112,000 tons per year at Scottsboro, Alabama. The combined investment cost of these projects was 160 million dollars.^{3/ 4/}

The aluminum reduction plant at Scottsboro went on stream in December 1970, but used purchased alumina initially. Revere started

^{1/} Ibid., pp. 177-178.

^{2/} Revere Copper and Brass Inc., Annual Report 1971, p. 10.

^{3/} Ibid., p. 10.

^{4/} In 1974, the net assets of Revere Jamaica Alumina Ltd., were valued at 97.3 million dollars of which 61.1 million was covered by OPIC insurance against the risks of war and expropriation. Securities and Exchange Commission, Form 10-K, p. 4.

mining bauxite in Jamaica in 1971 and began producing alumina early in 1972. Production of bauxite and alumina at Revere Jamaica Alumina Ltd., has been as follows:

Year	Bauxite Mined	Alumina Refined
	000 short tons	
1971	41	-
1972	276	141
1973	450	187
1974	507	186

Source: Economics and Statistics Division, Ministry of Mining and Natural Resources, Jamaica.

Table 29 shows Revere's sources of bauxite and alumina in 1974. By 1974, Ormet's alumina plant at Burnside, La., had expanded its capacity to 600,000 short tons per year ^{1/} and purchased approximately 1,200,000 short tons of bauxite from Billiton in Surinam. Revere's indirect share of this bauxite was 34 per cent or about 408,000 tons. Revere mined 507,000 tons of bauxite in Jamaica, accounting for 55 per cent of Revere's bauxite requirements. Capacity at the Revere Jamaica Alumina Ltd. refinery is 220,000 tons per year and Revere's share of Ormet's capacity at Burnside, La., is 34 per cent or about 204,000 tons per year. Thus, Revere Jamaica Alumina Ltd., accounted for 52 per cent of Revere's 1974 alumina requirements.

^{1/} United States Bureau of Mines, Minerals Yearbook 1972, p. 191.

Table 29

REVERE COPPER AND BRASS INCORPORATED

Country	Company (location)	Revere's Equity %	1974 Output 000 s.t.	Revere's Share	% of Revere's Bauxite Supply
<u>Bauxite Mining</u>					
Jamaica	Revere Jamaica Alumina Ltd. - Maggoty	100.0	507	507	55.0
Surinam	Ormet purchases from Billiton	-	1 200	408	45.0
<u>Totals</u>			<u>1 707</u>	<u>915</u>	<u>100.0</u>

Country	Company (location)	Revere's Equity %	1974 Capacity 000 s.t.	Revere's Share	% of Revere's Alumina	Bauxite Source
<u>Alumina Refining</u>						
Jamaica	Revere Jamaica Alumina - Maggoty	100.0	220	220	52.0	Jamaica
U.S.A.	Ormet - Burnside, La.	34.0	600	204	48.0	Surinam
<u>Totals</u>			<u>820</u>	<u>424</u>	<u>100.0</u>	

Country	Company (location)	Revere's Equity %	1974 Capacity 000 s.t.	Revere's Share	% of Revere's Aluminum	Alumina Source
<u>Aluminum Smelting</u>						
U.S.A.	Revere - Scottsboro, Ala.	100.0	112	112	57.0	Jamaica
U.S.A.	Ormet Corp. - Hannibal, Ohio	34.0	250	85	43.0	Louisiana
<u>Totals</u>			<u>362</u>	<u>197</u>	<u>100.0</u>	

Sources: 1. United States Bureau of Mines, Minerals Yearbook 1972, pp. 137, 191, 200.
 2. Securities and Exchange Commission, Form 10-K for Revere Copper and Brass Inc., for the fiscal year ended December 31, 1974.

/In 1974,

In 1974, CONALCO, Inc., purchased Olin's 50 per cent investment in Ormet Corporation, Ormet Shipping Corporation and Olin Revere Realty Company (now CONALCO Revere Realty Company), a firm which acquires and leases new plant facilities to Ormet. CONALCO also exercised an option it acquired from Olin to purchase for cash, at cost, 32 per cent of the capital stock, partnership interest and notes owned by Revere in the three corporations mentioned. Accordingly, Revere's percentage ownership of capital stock, notes and its partnership interest were reduced to 34 per cent. An agreement between Revere, CONALCO and Ormet provides that Revere will continue to purchase 34 per cent and CONALCO 66 per cent of all aluminum produced by Ormet and will pay, as the price of this aluminum, 34 per cent and 66 per cent respectively, of Ormet's annual costs.^{1/}

On December 20, 1974 Revere Jamaica Alumina, Ltd., entered into an agreement in principle with the Government of Jamaica relating to bauxite mining and expansion of Revere's alumina operations in Jamaica. This agreement also provides for Revere Jamaica to sell its bauxite lands at net book value to the Government and for the Government to guarantee sufficient bauxite reserves for an expanded facility for an initial period of thirty years.

As required by the agreement in principle, Revere has commissioned a feasibility study to be completed in 1975 with respect to expansion of the alumina plant. As a result of this commission, the company is to receive a special rebate from the production levy for 1974 of approximately 2,251,000 dollars which has been reflected in the 1974 financial statements. Further rebates through 1978 are conditional primarily upon the expansion of the alumina plant.

During 1974, Revere Jamaica Alumina, Ltd., also entered into a letter of intent with a consortium of six Japanese companies which may become a party to any expansion of the Jamaican alumina plant, subject to, among other things, the results of the feasibility study.

^{1/} Securities and Exchange Commission, Form 10-K, p. 25.

/Also, during

Also, during 1974 Revere entered into a letter of intent with the same consortium of Japanese companies for the expansion of the Company's aluminum reduction plant located in Scottsboro, Alabama and has commissioned a feasibility study for expansion to various levels of capacity. The outcome of any further agreements is subject to, among other things, the results of this study which is to be completed in 1975.^{1/}

^{1/} Securities and Exchange Commission, Form 10-K for Revere Copper and Brass Corp., for the fiscal year ending December 31, 1974, p. 24.

Part III

HISTORICAL OVERVIEW OF THE U.S. AND CANADIAN
ALUMINIUM INDUSTRY DEVELOPMENT.

By the early 1970s, six large transnational corporations controlled three quarters of the world's aluminium producing capacity. Among the six were three American-based TNCs—the Aluminium Company of America (ALCOA), Reynolds Metals Company and Kaiser Aluminum and Chemical Corporation. The other three include a Canadian corporation, Aluminium Company of Canada (ALCAN), a French-based TNC—Péchiney Compagnie de Produits Chimique et Electrometallurgiques (PUK), and a Swiss-based TNC—Schweizerisches Aluminium A.G. (Alusuisse). All six are highly integrated producers, engaging in the bauxite mining, production of alumina and the smelting of aluminium ingots. They also process the final ingots into aluminium products. This section is concerned with the evolution of the firms located in Western Hemisphere, from the early stages of the industry and stressing the changes which occurred in the recent period of sixties and seventies.

In very broad terms, three periods can be distinguished in the development of the industry. From its conception to the forties, the Western Hemisphere market was monopolized by two vertically integrated firms, U.S. ALCOA and its Canadian subsidiary ALCAN which were isolated from European imports through a series of cartel arrangements.

The second stage of industry development ran between the outbreak of World War II and late 1950s. The war requirements greatly increased the demand for aluminium. Concern of the U.S. government over its strategic importance, as well as the monopoly power of ALCOA, led to

/measures which

measures which increased competition in the industry among the established and newly entering firms. This led to a scramble for mining concessions in the Caribbean countries, where, in addition, TNCs began to consider the possibility of establishing processing capacities close to the source of bauxite.

The third period runs from the end of 1950s to 1970s. During this recent period, a number of conditions led the Caribbean host countries to more active involvement in the bauxite production and processing. Although factors varied across different countries, several were of general importance, including the gaining of independence by a number of the countries and resulting development needs and programmes, the beginning of energy crisis in 1973 and the common position of developing countries towards a New International Economic Order. The foreign companies reacted to rising costs of production and the risks evolving from new host governments policies with their own counter-strategies and greater cooperation among themselves (including joint ventures).

1. Beginnings of the Industry (1900 until World War II)

At the turn of the century, the North American aluminium industry was dominated by a single firm—the Aluminium Company of America (ALCOA). Founded in 1889 under the name the Pittsburgh Reduction Company, the firm expanded rapidly, integrating both downstream into the manufacture of aluminium products and upstream towards the production of inputs. Such vertical integration is usually attributed to the firms attempt to enhance their market share, reducing the production risk and costs through greater productivity, technical complementarity and resource domination. ALCOA's history suggests that such motives are complementary and determine the firm's behaviour.

/Initially all

Initially all ALCOA plants produced aluminium by smelting alumina imported from England and Germany. In 1903, however, an alumina plant was established in Missouri which supplied most of the aluminium smelting plants of the firm. Much of the initial impetus for the vertical expansion resulted from the technological characteristic of the industry.

The Pittsburgh Reduction Company (hereon ALCOA) developed a new technology for smelting aluminium, which used significant amounts of electricity. For that reason much of the early expansion of the firm centered around the search for energy sources. ALCOA established a fully owned subsidiary in Canada, the Aluminium Company of Canada (ALCAN) and initiated there construction of hydroelectric plants serving the expansion of aluminium producing capacity. In the same initial period of vertical expansion, ALCOA entered bauxite mining, first, purchasing established plants in U.S. and, since 1916, acquiring bauxite deposits in Guyana and Suriname (then British and Dutch Guiana) and later, in several European countries. ^{1/} At the beginning of the forties the bauxite production in each of the two Caribbean countries was higher than in U.S., the only producer country of Western Hemisphere during the first quarter of the century (see table 30).

By 1928 the decision was taken to split ALCOA and ALCAN (then Aluminium Limited), incorporating the subsidiary as an independent Canadian firm. The decision was based on a desire to achieve greater management efficiency, as well as, to solve a dispute over company control. Despite this separation, however, close links subsisted between the two companies;

^{1/} See, Paul Clark, Rivers of Aluminium: The Story of ALCAN (Montreal: ALCAN Limited, 1964).

Table 30

BAUXITE PRODUCTION IN SELECTED COUNTRIES OF WESTERN HEMISPHERE
AND IN AUSTRALIA (1900-1977)

(Thousand tons)

	USA	Jamaica	Guyana	Suriname	Brazil	Australia
1900	24	-	-	-	-	-
1910	151	-	-	-	-	-
1920	530	-	32	-	-	-
1930	336	-	121	265	-	1
1940	446	-	635	615	-	26
1950	1 356	-	1 679	2 045	19	4
1955	1 817	2 529	2 474	3 123	45	8
1960	1 998	5 745	2 471	3 400	98	37
1965	1 682	8 151	2 919	4 369	188	1 161
1968	1 692	8 525	2 723	5 660	314	4 955
1970	2 115	12 009	4 417	6 022	510	9 256
1971	2 020	12 440	4 233	6 718	585	12 732
1972	1 841	12 538	3 668	7 777	765	14 437
1973	1 910	13 600	3 621	6 976	849	17 595
1974	1 980	15 327	3 606	6 864	859	19 994
1975	1 800	11 570	3 829	4 750	969	21 003
1976	1 989	10 311	3 108	4 585	998	24 083
1977	2 013	11 433	3 344	4 856	1 035	26 070

Source: Metal World Statistics, various issues.

/among them.

among them propriety relationship between the main shareholders of the two firms, and, specially, common control of bauxite mining, alumina and aluminium production and corresponding infrastructure in Canada (hydroelectric plants, port facilities and railroads, etc.).

While first ALCOA, and later ALCAN, engaged in integration upstream into the mining stages, final demand patterns for aluminium led the firms to integrate downstream into the production and diversification of final goods. In this initial period, primary aluminium was a new product without a great demand. The lack of a sizable demand for aluminium ingots led the industry into the fabrication of wide range aluminium products and active marketing to stimulate their use. Since foundation the companies fabricated light weight products (bicycle parts, reflectors, flashlight powders, bath tubs, etc.) and later expanded to intermediary ones as castings, bars, plates, sheets, tubes and wire.^{1/}

A critical factor in the growth of ALCOA and ALCAN until World War II was the isolation of the Western Hemisphere market from European competition. This resulted from cartel arrangements between ALCAN and the major European producers. A total of seven cartel arrangements were agreed upon between 1896 and 1926.^{2/} In addition, linkages between ALCAN and ALCOA allowed the later company to evade U.S. anti-trust legislation and participate informally in the cartel agreements.

The outbreak of the World War II increased substantially the demand for aluminium and led to the entry of new companies in the industry with the resulting expansion of bauxite sourcing. These changes are examined in the following part of this overview.

^{1/} See, Paul Clark, quoted above.

^{2/} For detail, see part I.5 on p. 21 above.

2. Reduction in concentration and new forms of competition (1940-1960)

As a result of the sudden increase in demand during the World War II, production of primary aluminium in U.S.A. and Canada increased, between 1940 and 1945, at an annual average growth rate of 18%, meanwhile in the occupied Western Europe it fell by 29% yearly in the same period (see table 31). The expansion of the strategic aluminium industry in the Western Hemisphere had been promoted by the allied governments of U.S.A., Canada and United Kingdom through financial contributions, deferred taxes and special depreciation, allowed to new construction. Additionally, the U.S. government had acquired during the war a considerable aluminium production capacity. Concerned about the degree of concentration within the industry, the U.S. government decided after the war to sell its facilities to Reynolds Metal and Kaiser Aluminium and Chemical Corp. who became in this way the third and fourth major primary aluminium producers in the region (see table 32). In addition, ALCOA was forced to release patents and other technical assistance to them. The support of the strategically important aluminium industry by U.S. government continued in the post war period with the beginning of the Korean War, when the aluminium companies were awarded accelerated five year amortization certificates covering over 85% of the cost of new construction.

The transnational corporations in the industry reacted in a variety of ways to these developments. From the beginning, and even after the legal separation of the two corporations in 1928, ALCAN had been a supplier of primary aluminium to ALCOA. When faced with the more competitive conditions in the industry in the 1950s, ALCAN intended to continue playing the role of supplier of primary aluminium to the industry as a whole, including the new entrants, Reynolds and Kaiser. The remaining TNCs

Table 31

PRODUCTION OF PRIMARY ALUMINIUM IN U.S.A. AND CANADA IN
COMPARISON WITH WESTERN EUROPE (1900-1977)

(Thousand metric tons.)

	U.S.A. and Canada	Western Europe	Total World	Annual Average Growth Rate		
				U.S.A. and Canada	Western Europe	Total World
1900	3.2	4.1	7.3
1910	19.6	24.2	43.8	19.9	19.4	19.7
1920	74.6	51.6	126.2	14.3	7.9	11.2
1930	138.8	130.1	268.9	6.4	9.7	7.9
1940	266.1	352.2	783.2	7.5	11.7	11.3
1945	645.1	112.2	869.2	17.7	-29.0	1.8
1950	1 011.9	245.7	1 506.9	9.4	17.0	11.7
1955	1 971.7	543.8	3 104.7	14.3	17.2	15.6
1960	2 518.5	859.9	4 547.0	5.0	9.6	8.0
1965	3 252.2	1 278.3	6 591.7	5.2	8.3	7.7
1970	4 569.6	2 015.1	8 055.9	7.0	9.5	4.1
1975	4 397.1	3 232.9	9 898.2	-0.8	9.9	4.2
1977	5 093.9	3 490.3	11 313.5	7.6	3.9	6.9

Source: Metal World Statistics, various issues.

Table 32

WESTERN HEMISPHERE: DISTRIBUTION OF TOTAL ALUMINIUM PRODUCTION CAPACITY
AMONG 4 MAIN COMPANIES (1956-1974)
(Percentage of total Western Hemisphere)

	1956	1961	1965	1970	1974
ALCAN	29.1	23.4	21.9	18.6	16.8
ALCOA	29.8	25.4	25.7	24.1	25.5
Reynolds	18.4	20.9	19.6	20.3	18.6
Kaiser	18.8	18.1	17.6	12.9	17.3

Source: Minerals Yearbook, various issues.

/in the

in the industry, however, did not accept this division of labor and the post war period was characterized by significant competition using the opportunities given by the anti-trust policies of the United States government. By 1956 the ALCOA's share in the Western Hemisphere aluminium production capacity was almost equal to that of ALCAN (29 and 30%), meanwhile Reynolds and Kaiser reached 18 and 19% respectively. At the beginning of 1960s the participation of ALCAN and ALCOA further decreased, in favor of smaller companies (see again table 32).

The competition among the principal firms led to efforts to control sources of bauxite and to reduce operating costs. By the early 1950s Reynolds had obtained concessions in Haiti, Jamaica and Guyana and Kaiser had formed the Kaiser Bauxite Company in Jamaica. In 1956 Costa Rica awarded exploration permits to ALCOA, Reynolds and Kaiser and large scale explorations also had begun in Australia, where, by 1960 the bauxite production reached only 37 000 tons (see again table 1). ALCOA began to obtain bauxite producing territory worldwide and, in particular, in the Caribbean countries. During the decade of 1950s the mining of bauxite in three Caribbean countries, Guyana, Jamaica and Suriname, increased more than three times (from 3.7 to 11.6 millions of tons., see again table 1).

Competitive pressures in the industry led also to efforts to reduce the costs of the production process through the establishment of alumina refining plants in Caribbean countries. The principal benefit of refining in the host countries came from the reduced transport costs through shipping alumina rather than bauxite to aluminium smelters. ^{1/}

^{1/} It requires between 2 and 3 tons of bauxite (depending on its quality) to produce 1 ton of alumina.

ALCOA constructed an alumina plant in Jamaica in 1952 and completed a second one there in 1956. ALCAN's Demba Corporation, located in Guyana, constructed an alumina plant in that country in 1961. In spite of this partial relocation of processing capacities their importance had been still marginal. This may be illustrated by the fact that many years later, in 1974, Jamaica accounted only for 11% of ALCAN's alumina refining capacity (compared with 53% in the United States and 21% in Australia), meanwhile her share in bauxite resources of this firm was almost double (19%). In the same year Guyana's alumina production reached only 311 000 long tons., which is one ninth that of Jamaica, although the respective relation in the bauxite production of the two countries had been 1:5 (see tables 7, 12 and 13 in Part II. above).

Furthermore, the TNCs had been able, in that period, to extract considerable concessions from colonial administrations whose representatives defended the world-wide interests of industrialized countries and their companies rather than the development and diversification needs of the plantation-economies of Caribbean region. An examination of just two of the agreements signed in that period indicates the degree of concessions obtained.^{1/}

The case of ALCOA's 1958 Brokopondo Project in Suriname is particularly interesting. The local authorities wanted not only to refine the bauxite into alumina within the country, but also construct a hydroelectric complex with which it would be possible to produce aluminium, as it had been suggested in a World Bank (IBRD) study in 1952.

^{1/} For a detailed analysis of various agreements, see N. Girvan, "Making the Rules of the Game: Company-Country Agreements in the Bauxite Industry", Social and Economic Studies, December, 1971.

In order to determine the magnitude of concessions obtained by ALCOA, the terms of the contract may be compared with previous Surinamese legislation. Suriname normally granted an exploration license for a three-year period over a maximum area of 20 000 hectares; the Brokopondo agreement gave ALCOA exclusive rights for a 10 year period over an area up to 500 000 hectares. Similarly, a mining license was usually granted for a period up to forty years and limited to 2 000 hectares; the Brokopondo agreement gives the company a 75 year operating rights and covers a maximum of 20 000 hectares. In addition, the company was granted a 45 years extension of its mining rights on existing concessions. ALCOA also obtained a number of concessions concerning taxes and costs of construction of the processing facilities. The government had to bear all the costs of the infrastructural development, provide land for the construction of the facilities, exempt the company from import and export duties on products related to the construction and production of the smelter and hydroelectric facilities and establish differential taxes on the activities of the company: 35% on profits of the bauxite mining operations and 30% on alumina production. This latter arrangement was aimed at shifting the companies towards local fabrication.

Similar agreements were signed between the ALCAN company Demba and the British governor of Guyana.^{1/} The terms included a 50 year lease of the land to be explored; the option for a 25 year renewal, a 5 year tax holiday and an agreement that all special start-up and depreciation allowances would begin after the end of the 5 year tax holiday, thus reducing the taxable profits earned by the company.

^{1/} It will be recalled that throughout the text, colonial names have been replaced with those adopted by the new independent states.

3. Further diversification of the industry in the 1960s

The trend towards diversification of the industry continued in the 1960s. In United States, a number of mining companies began to move into the aluminium industry. Both Anaconda Copper and Revere Copper and Brass Company joined the aluminium market in the late 1960s. To a large extent, this shift within the raw material sectors had to do with the diversification in the copper industry, possibilities of substitution between aluminium and copper, and the desire of the copper TNCs to gain a foothold in the aluminium industry.

The decreased concentration in the industry and greater competition among firms tended to reduce their bargaining capacity vis-à-vis the host governments. Recognizing this, the TNCs, as had done in the past, adopted a series of policies aimed at cooperation and joint sharing of the rents and risks of the industry. Joint ventures, by the late 1960s, appeared to be the dominant form of cooperation among firms. In 1966, for example, three of major TNCs—Reynolds, Kaiser and Anaconda—joined to form a new firm, ALPART, in Jamaica for the mining of bauxite. At that time, ALCAN was the only other aluminium TNC operating in Jamaica. This exclusivity was also challenged by ALCOA, which established an alumina plant in 1968 and by Revere Copper Corporation in 1970. In Suriname, the two major TNCs—ALCOA and ALCAN—joined with Billiton and Ornet (the latter being a joint corporation of Revere Copper and Brass and Olin Corporation) to build an aluminium smelter. In addition, ALCOA joined with the largest French producer of aluminium—PUK—to form a joint venture in Suriname.

Such joint ventures reduced competition and also the initial large cost of establishment of mining and processing facilities to any one TNC which is of particular importance for smaller firms. In addition,

/the joint

the joint ventures led to spreading the political risk across a number of corporations. Threats of political pressures or nationalization were born by a group of transnational corporations rather than just one. By this period, a number of Caribbean countries had recently gained independence and were making an effort to influence the behaviour of the TNCs located within the economies of the region. Their political will to extract a larger share of the industry quasi-rent to meet the development needs and increase sovereignty over their natural resources induced changes in host countries policies and consequent reactions on the part of the foreign firms. Because of the new goals of the host governments, a more careful examination of their bargaining capacity is appropriate.

The bargaining capacity of the host countries is related, among other factors, to the interaction among the TNCs in the industry, as well as to the vulnerability of the countries to pressures from the foreign firms. The first aspect has been characterized in the first three sections. The latter one depends highly on the role of the TNCs in the economy of host countries.

4. Some aspects of the importance of bauxite industry in the economies of Guyana and Jamaica at the beginning of 1970s

The foreign firms contribute to the generation of the host country GNP particularly through export income, employment, and budget income of the government. The more important the foreign firm's participation in each of those aspects of economic activity, the greater will be the its bargaining power.

Rather than examine all Caribbean bauxite producing countries, only two of them have been selected for analysis—Jamaica and Guyana, countries

engaged in a major conflict with the aluminium producing TNCs in the post-colonial period.

In both, Jamaica and Guyana, after the service sector (including various activities such as construction, distribution and transport) the mining sector has traditionally been the next important activity in the countries GNP. On the other hand, throughout the 1960s and 1970s the diversification of the two Caribbean economies was under way with increasing importance of manufacturing, particularly in Jamaica (see table 33).

Considering sources of labor absorption, the mining sector of the two countries plays a minor role. Due to the high capital intensity of the industry, only a relatively small percentage of total labor force is employed in mining. In the middle of 1970s that level in Guyana had been 14%, while in Jamaica only 4%, that is--in both countries--much less than in other two productive sector, agriculture and manufacturing (see table 34). The multiplier effects of bauxite mining seem to be limited to the backward linkages with other inputs, like water, energy, and timber, construction activities, (including corresponding infrastructure in roads, ports and other transportation facilities) and, finally, the overall impact on balance of payments, governmental budget, wage and salaries level, ^{1/} etc.

Where the TNCs have their greatest impact on the producing countries is their contribution to the foreign exchange earnings. In the middle of 1970s, the share of bauxite and alumina in total exports reached about 70% in Jamaica and one third in Guyana (see table 35). The substantial increase of export earnings in Jamaica has been related with the coming on stream of new production capacities in alumina in the late 1960s.

^{1/} Those in foreign-owned mining became usually a bench-mark for other economic sectors.

Table 33

GUYANA AND JAMAICA: GNP BY ECONOMIC SECTORS (1960-74)
(In percentage)

	1960	1966	1970	1972	1974
GUYANA					
Agriculture	26.2	21.7	19.3	19.8	30.5
Mining	11.1	17.2	20.4	18.4	13.4
Manufacturing	10.4	12.4	12.2	12.2	13.6
Services <u>a/</u>	52.3	48.2	48.1	49.6	42.6
JAMAICA					
Agriculture	12.0	11.0	8.1	7.4	7.1
Mining	9.6	15.0	15.2	8.5	13.2
Manufacturing	13.6	15.2	13.6	16.8	17.0
Services <u>b/</u>	53.0	48.1	51.4	56.7	53.3
Construction	11.8	10.7	11.7	10.6	9.4

Source: Various Economic Surveys of CEPAL.

a/ Includes construction, distribution, transportation, financial services and others.

b/ As in a/ above, but excluding construction.

/Table 34

Table 34
GUYANA AND JAMAICA: EMPLOYMENT BY ECONOMIC SECTORS
(In thousand and percent)

	GUYANA (1975)		JAMAICA (1973)	
		<u>%</u>		<u>%</u>
Agriculture	66.5	34.0	210.3	33.0
Mining	28.6	14.6	6.1	1.0
Manufacturing	56.8	29.0	78.9	12.4
Services ^{a/}	43.8	22.4	342.2	53.6
TOTAL	195.7	100.0	637.5	100.0

Source: See table 33.

a/ Includes construction, distribution, transportation, financial services and others.

Table 35. GUYANA AND JAMAICA; EXPORTS OF BAUXITE AND ALUMINA (1960-1974)
 (U.S.\$ million and percentage of total exports)

	GUYANA					JAMAICA			
	Bauxite		Alumina	Total	%	Bauxite	Alumina	Total	%
	Metallic	Calcined							
1960	10.5	6.8	-	17.3	23.0	30.5	46.5	77.0	49.3
1966	12.0	15.3	19.3	46.6	41.0	84.2	54.1	138.3	53.8
1970	21.9	24.2	23.2	69.3	52.1	91.8	133.0	224.8	67.7
1972	13.5	35.7	13.9	63.1	43.1	84.6	150.3	234.9	63.5
1974	12.5	55.7	20.5	88.7	33.0	132.8	358.3	491.1	70.8

Source: See table 33.

/The selected

The selected indicators, analyzed above, exemplify the persistent high level of dependence of Caribbean host countries on bauxite and alumina production and export and, at the same time, the importance of a more complex development of their natural resources, including processing and fabricating activities. The previous overview of the Western Hemisphere aluminium industry development and its expansion and operating conditions in Caribbean countries in the colonial period demonstrated, on the other hand, the low share of host economies in the overall benefits born by the industry development. It is therefore logical, that the gaining of political independence (in 1962 in Jamaica, 1966 in Guyana and 1975 in Suriname) brought the new nation-states greater possibilities for exploiting their bargaining power vis-a-vis the TNCs and a new formulation of their policy goals in a broader context of the development strategies. The subsequent renegotiations and legally imposed changes of previous arrangements and contracts with the foreign companies led to contradictions and conflicts among both parties with not always completely conclusive results, at least in a short term perspective. Some of the important issues of this new period in TNC-government interface will be overviewed in the last part of this paper.

Part IV. Bargaining Situation and Governments Policies in 1970s

BARGAINING SITUATION AND GOVERNMENTS POLICIES IN 1970s

In this part an overview will be given of the aluminium TNCs strategies in Caribbean countries, the new policy objectives of host governments and companies counter strategies. Finally, after summing up the changes which occurred in the bargaining balance between transnationals and Caribbean governments throughout the 1970s, the renegotiations in Guyana and Jamaica will be examined with some more detail.

1. TNCs and governments objectives and strategies

a) Transnational corporations in the colonial period

In the colonial period, initiatives came almost exclusively from the side of the foreign companies seeking favourable access to mineral raw materials in Caribbean countries. The objectives of the TNCs may be synthesized in a following way:

i) To secure rights of exploration and exploitation over as large an area and as long a time as possible and on exclusive, or monopoly terms in order to pre-empt effectively those resources, that is to block access to rival or potentially rival companies.

ii) To insulate such arrangements to the maximum degree possible from the exercise of the existing local legislative power by the device of long term contractual agreements and specifically providing for arbitration of disputes in the courts of the home country or by international bodies outside the reach of the host country's jurisdiction.

/iii) To minimize

iii) To minimize the likelihood of disputes, under such contractual arrangements, by requiring the inclusion of provisions covering as many details as possible, frequently including also such matters as hiring policies, royalties, taxes or exemption from taxes, freedom from restrictions concerning foreign exchange transactions, etc.

When pressed for renegotiation of agreements, companies were willing to yield on such matters as increased local participation in middle level management, and also on matters of royalties and taxes to be paid to the governments. Furthermore, they have been willing to undertake higher level of bauxite processing, particularly when it implied a reduction of production and transportation costs.

Ultimately all disputes concerned, in a minor or greater degree, the relative division of effective control between the two parties. If the company considers the emerging risk to loose effective control of its local activities in favour of the host country and, if it was able to transfer its sourcing to other locations, it would divest its assets in the respective host country.

b) New objectives and policies of host government

In recent years, initiatives to change the established "rules of game" have come increasingly from the governments of host countries, particularly where foreign companies had an important capital investment and have been operating in terms considered unfavourable by the governments of producer countries. In other words, where past and current economic rents are at a level which permits a redressing of the unequal balance of benefits without subjecting the company to competitive pressure of other TNCs, the host countries will demand a better deal.

/The bargaining

The bargaining objectives and policies of host countries include the following:

i) The establishment of the principle of national sovereignty over natural resources and the primacy of this principle over all contractual agreements acceded to by previous governments in their dealings with the companies.

ii) The securing of a greater degree of bauxite processing within the host country on terms, which ensure that the country gets a larger share of the "value added".

iii) The obtaining of a larger share of the industry rents by the imposition of higher royalties, taxes or levies on the production or export of the mineral, whether in raw or semi-processed form. Experience has shown that corporate allocative and transfer-pricing practices pose difficulties concerning the collection of income taxes from the processing operations. For this and other reasons some countries are moving towards joint ventures or wholly owned national processing facilities.

iv) Demand for disclosure of operating and financial information with respective legal sanctions.

v) Demand for the employment of nationals in senior as well as middle level management positions.

vi) The lowering or suppression of the companies monopoly over shipping of the export products and consequent transfer pricing with respect to freight; removing this way also the obstacles in marketing of minerals belonging to the government (by virtue of joint ventures of wholly owned public enterprises).

vii) In the case of negotiations concerning the acquisition by the government of all, or part, of the equity of TNCs in the host country, the government tries to bargain in terms of compensation, for declared

book value as a base for evaluation of assets, ^{1/} the longest repayment period possible, the lowest rate of interest on the balance owed to the company, the most favourable arrangements concerning foreign exchange availability and, eventually, future linkages with the company in marketing, investment, etc. [see point viii) below].

viii) When negotiating with TNCs for new ventures and investment projects, particularly in bauxite processing, the host government is likely to negotiate with the foreign companies technology inputs and assistance contracts, including management, finance and marketing arrangements, trying to increase progressively the national participation in senior management functions and company's equity.

c) TNCs counter-strategies

The response of companies to host countries which engage, or have been successful in obtaining substantial concessions with respect to the above bargaining demands, include the following strategies:

i) Transferring bauxite sourcing and new expansion of mining capacity to locations which offer lower unit costs of production (including the tax burden) and to where the TNCs feel more secure from escalating host country demands, once their operations are on stream.

ii) Intensified research concerning alternate inputs to their processing facilities concerning the cost factors of non-bauxite materials as compared with the rising cost of bauxite.

iii) Using geographic diversification of bauxite sourcing to diminish the potential bargaining power of anyone bauxite producing country opposing her to rival producer countries.

^{1/} This—being used by the company for tax purposes—is usually much lower than the "commercial value" of assets. See part 3. b) and c) below.

/iv) Joint ventures

iv) Joint ventures and agreements with other foreign companies (including aluminium consumers), banking and insurance consortia, etc., and also with host governments, in order to strengthen the common interest of companies, and countries alike, in protecting their oligopolistic position and distribute the risk among more parties.

v) Recourse to support and pressure capacity from home country governments and related private and public organizations.

In the next section, some outstanding aspects of the new balance of bargaining power between TNCs and Caribbean countries in the 1970s will be overviewed.

2. Changes in the bargaining balance throughout the 1970s

a) The international setting

From the closing years of the 1960s, the international climate has been undergoing significant changes. A new constellation of voting power emerged within the framework of the United Nations as political colonialism continued to be dismantled. The frustrations arising from the slow progress of two decades of international development efforts to ameliorate the basic inequalities in the international economic order, manifested themselves in rising economic nationalism in the Third World. An indication of things to come was presaged in Resolution 2156 (XXI) passed by the United Nations in 1966 calling upon foreign investors to recognize the right of "all countries, particularly the developing countries, to secure and increase their share in the administration of enterprises which are fully or partly operated by foreign capital and to have a greater share in the advantages and profits derived therefrom on an equitable basis".

The internal and external problems of the United States and the devaluation of the U.S. dollar in the early seventies signalled major

/disequilibrium in

disequilibrium in the international political-economic system. The rising industrial strength of Western Europe and Japan, as also of the socialist countries, accompanied by increasing import requirements for energy and key industrial raw materials, created an external economic environment more polycentric, more open, and somewhat less tightly controlled by U.S. based transnationals.

Initiated at the Algiers summit of Non-aligned countries and resisted by the major industrialized countries, the Special Session of the General Assembly of United Nations on Raw Materials adopted a call for a New International Economic Order in May 1974. This resolution called for a new deal for raw material producers and was in large measure directed towards transnational corporations enjoying concessions granted by previous colonial administrations, or, newly independent but weak host governments. The terms of these arrangements had been normally embodied in long term contractual agreements which, in effect, place the operations of the foreign companies beyond the reach of the law of the host country. The assertion of the primacy of national sovereignty over the inalienability of private property marked an important change in the international environment for mineral producing countries hosting foreign companies.

The acknowledgement that the existing international economic order was not an equitable one, was in no small measure the result of the concerted and successful exercise of market power by the OPEC countries initiated in the autumn of 1973 and the winter of 1974 when a group of developing countries had succeeded in improving substantially their terms of trade.

The success of OPEC on the economic front influenced strongly the mineral producing countries and was generally supported by the leaders

/of Third

of Third World nations. Thus, the Prime Minister of Jamaica M. Manley, in introducing the Bauxite Production Levy Act of 1974 stated on OPEC policies: "This move was long overdue and exactly anticipated my own thinking about the terms of trade, commodity prices and fair returns for natural resources."

b) The Caribbean governments bargaining positions in 1970s

As shown above, the Caribbean has traditionally provided the raw material for U.S. and Canadian aluminium smelters. Although the Caribbean share of world bauxite production has fallen from 55 per cent in 1947 to 28 per cent in 1975, the region still supplies over three quarters of United States imports of bauxite and alumina. Although the terms, on which Caribbean non-renewable resources of bauxite have, in the past, been made available to the companies, had been improved in the negotiations during the 1960s, the situation remained inequitable continuing to favour TNCs.

The 1970s have witnessed historic changes in this situation. From Guyana's claim to controlling partnership in ALCAN's Demba operations in 1970 and the subsequent nationalization of these properties, to Jamaica's initiative in legislating a six fold increase in taxes in the form of the production levies of 1974; from the active role played by Caribbean countries in the formation of the International Bauxite Association in 1974, to the ongoing moves aimed at expanding aluminium reduction capacity as public sector ventures, utilizing the energy resources of neighbouring Caribbean or other developing countries—the Caribbean has come a long way from its traditional role as a mere location of bauxite extraction to feed the refineries, smelters and fabricating plants of the transnational aluminium companies. The achievements of the Caribbean bauxite producer countries include long term social and economic gains, reaching beyond

/the immediate

the immediate increase in economic rents accruing from the improved terms of sale of their major national resource. Ultimately, the most significant result of the application of national commitment and technocratic skill, as manifested in the initiatives of the major Caribbean bauxite producers vis-à-vis the TNCs, consists in an important break with traditional postures of political and psychological dependence inherited from the colonial era.

In the course of 1970s, the previously existing imbalance in available information between companies and host country governments has been partially redressed. Much of the desinformation previously surrounding all aspects of costing and pricing policies of the companies has been swept away. The acquisition of managerial, technical, production and marketing knowledge on the part of producer country governments--particularly knowledge gained through direct government responsibility for decisions relating to the operation of national industries--has largely removed the element of bluff from country-company relations. Finally, and most important, fear that a harder bargaining position on the part of host country governments will invite direct intervention or the "distabilization" of the government by economic blockade, financial boycott or covert internal political interference, has receded in the changing international climate.

The bargaining situation thus approximates more closely the economic and political realities of the relative power of the parties involved. Nonetheless the companies retained oligopolistic advantages in their international control of the marketing of bauxite, alumina, and aluminium; in their near-monopoly on technology, including that required to develop alternate sources of aluminium from lower-grade bauxites and from non-bauxite materials; and in their access to large pools of consortia finance.

/Each of

Each of the Caribbean countries adopted somewhat different strategies to ensure that their intrinsic mineral wealth be used in terms which yield maximal short and long term gains. The differences reflect variations in geological, technological and logistic factors; in socioeconomic structures, in international affiliation and ideological posture. Nevertheless, the strategies have been complementary, rather than rivalistic and mutually exclusive and reinforced their common bargaining power. The debate, for example, as to whether Jamaica's levy is more or less advantageous than Guyana's nationalization is not particularly useful in determining whether either of these governments had, at the time and in the given political and economic circumstances, any option more valuable than the one they chose to adopt. Furthermore, experience and knowledge gained by each of these countries have become available to each of the others, and indeed to other bauxite producing countries, whether by explicit mutual exchange of information, or by informed observation of the results.

While some observers ascribed the recent gains of the bauxite producer countries to the formation of the International Bauxite Association (IBA) as a producer-cartel, closer examination reveals that the IBA is not in fact a cartel. It has not, to date, been successful in setting a uniform price for bauxite and alumina and does not even aspire to control their output. This organization largely owes its existence to initiatives originating in the Caribbean and the cohesion of the major bauxite producers, which provides the key to the understanding of their successes. Here their common cultural heritage and common experience as colonies play an important role. On the other hand, the high dependence of North American companies on Caribbean bauxite sourcing, and the importance of the commodity for economic development and military purposes provided the necessary economic leverage.

/The bauxite

The bauxite industry has now become a crucial component of Caribbean countries strategies to restructure and diversify their economies. For these reasons, host country policies, which reach beyond immediate revenue and foreign exchange considerations, are particularly significant. This is especially true of Guyana and Jamaica, whose governments are committed to achieve a greater measure of social justice through the transformation of their economies, and whose foreign exchange situation tend to be very difficult. Although Suriname has followed policies which are, in major respects, similar to those of Jamaica, her less developed economy and her continuing close ties with the Netherlands, as manifested in the availability of large volumes of financial grants and soft loans and heavy out-migration resulting from Dutch social security policies, have insulated her from foreign exchange pressures and problems.

Burdened by the heritage of a high cost sugar industry and a series of minor agricultural export crops, operating in chronically unstable markets, by very high rates of unemployment and social inequalities (particularly in Jamaica), the Caribbean countries need to convert their bauxite into primary aluminium and aluminium products.

Furthermore, both Suriname and Guyana have hydroelectric potential. ALCOA's hydroelectric plant in Suriname produces energy at a very economic cost. In recent years, large quantities of natural gas have come on stream in Trinidad and Tobago. The convenience of combining bauxite with hydroelectricity has long been considered by Suriname and Guyana. The project of restructuring the Caribbean bauxite industry from its traditional and dependent pattern of corporate integration to a self-assertive one of Caribbean regional integration was powerfully argued by West Indian economists in the 1960s. At that time, their proposals appeared visionary and impractical, given the all-powerful

/dominance of

dominance of the major Northamerican aluminium companies in the Western Hemisphere. Yet a few years later, in mid 1974, scaled down variant of this proposal has been adopted by a joint meeting of the Prime Ministers of Guyana, Jamaica and Trinidad and Tobago: a proposal to build two aluminium smelters, one in Trinidad, to be fuelled by natural gas, and another one in Guyana based on hydroelectricity. Furthermore, it was specifically stipulated that there would be no equity participation by any transnational corporation in such a joint venture. Although the fate of the Trinidad smelter project is presently quite uncertain, it nevertheless has a great significance in terms of future possibilities of broader Caribbean political and economic cooperation and integration.

c) Government policies and TNCs reactions

Policies currently being pursued by the governments of Caribbean bauxite producing countries with respect to the bauxite-aluminium industry and the foreign companies can usefully be reviewed under the following five headings:

- i) Increased taxation of companies incomes, with or without majority government equity participation, but without operational control over the industry;
- ii) increased degree of processing without erosion of company control;
- iii) extension of host government ownership and effective control over bauxite reserves, mining operations, alumina refining and aluminium smelting;
- iv) cooperation among bauxite producers;
- v) cooperation among developing countries in joint ventures on a government to government basis.

These policies are not mutually exclusive. Nor are they incompatible with the objectives and practices of TNCs, given the size and growth rate of the international market for aluminium and its products.

/i) Increased taxation

i) Increased taxation

Prior to the Jamaican initiatives, which resulted in her bauxite levy of 1974, the companies had rarely paid more than \$2 per ton of bauxite. The new Jamaican levy, which is tied to the realized price of primary aluminium, increased government bauxite revenues five to six fold to a level of about \$12 per ton. Although the companies initially resisted increased taxation, they had no great difficulty in adjusting to the new arrangements, or in agreeing to maintain negotiated minimum production levels. In imposing stiffer taxes on the companies, it is important for the host government to know the production costs of alternate bauxite sources, so that the tax is set at a level at which it remains profitable for the companies to continue to operate their established facilities in the host country. Once the companies accept the new fiscal rules, they in effect become tax collectors for the host government, and government and TNCs alike have a common interest in the smooth and efficient operation of companies' mines and plants.

In addition to the levy—which was also instituted in Suriname, Haiti and the Dominican Republic—the Jamaican government acquired ownership participation in the mining operations of the aluminium companies operating in that country. The arrangement is one of non-controlling participation, in the sense that the government is essentially a "sleeping partner". Management and marketing remain the exclusive responsibility of the TNCs and the output of bauxite and alumina production is available to the companies to feed their aluminium smelter in the United States. The point here is that there are not essential modifications in the government-TNC relationship: non-controlling participation, taken together with substantial tax yields create a mutuality of interest between the company and the government, which guarantees secure bauxite supplies to the former and assures increased revenues to the latter.

/ii) Increased degree

ii) Increased degree of processing

Prior to the mid sixties, almost all Caribbean metal grade bauxite was exported in raw form. Because the aluminium contained in bauxite increases its value about three times when converted to alumina, Caribbean host countries offered strong incentives to the foreign companies to expand local refinery capacity. A large alumina refinery and a small aluminium smelter were constructed in Suriname in the mid sixties as a result of the, above analyzed, Brokopondo agreement with ALCOA. It was in Jamaica, however, where there was a very large expansion of refining capacity. Over half of Jamaica's bauxite production is now exported as alumina. The TNCs received generous fiscal concessions, reduced their transportation costs, and in cases, escaped paying any tax at all by operating refineries at apparent losses.

Nevertheless, both the TNCs and the country gained by the location of processing plants in Jamaica. New employment and income were created, particularly during the construction phase. Under the terms of the new bauxite production levy, the government now receives revenue for bauxite locally processed, even where income taxes payable by the refineries are difficult to establish on account of the absence of market prices either for bauxite or for alumina. Moreover, the discretion afforded to the foreign companies in terms of their choice concerning the types of ores they process locally and those they transfer in raw form, can adversely affect the apparent profitability of the local refineries.

In the longer perspective however, an important aspect of the location of refining capacity in the host country lies in the possibilities implicit in arrangements such as those embodied in Jamaica's recent agreement with ALCOA. Here the host country has acquired a small (6 per cent) equity in the over-all Jamaican operation of the company, which includes the

/country's right

country's right to use or sell its resulting share of alumina production. Furthermore, Jamaica has the option of expanding its share in the joint venture by putting up the capital to construct an additional refining capacity on the existing site—and is planning to do so. The output of this capacity will be at the disposal of the government of Jamaica, for export sale or as an input to primary aluminium smelting.

iii) Extension of host government ownership and effective control

In 1970, Guyana requested controlling participation in ALCAN's DEMBA operations. After protracted negotiations, ALCAN rejected Guyana's proposals and challenged the government to "take all or nothing". In a historic break with past company-country relations in the bauxite industry, Guyana took up the challenge and in 1971, DEMBA, the first mining operation set up in the Caribbean by ALCOA in 1916, was nationalized and shortly thereafter the same occurred with Reynold's assets in this country. Guyana's national company, GUYABAU added new capacity to its plant, tries to recover the plant nationalization losses, expanded employment and forms the nucleus of a national engineering construction company.

Guyana, however, was fortunate in her endowment of exceptionally high grade ores suitable for the production of calcined refractory bauxite. The latter is a finished product with widely dispersed markets, and Guyana enjoys a near world monopoly. GUYABAU has thus been able to survive the reduction in its production and the squeeze with respect to the rather unfavourable prices, at which it has been forced to sell its metal grade bauxite and alumina. Although Guyana's production of metal grade bauxite is not large, and modest amounts have been sold to socialist countries, there is little doubt that ALCAN has indicated its displeasure with Guyana's course of action, by exercising its economic power over the market for bauxite and alumina. ^{1/}

^{1/} See part 4. a) and b) below.

Given this situation, and given Guyana's rich endowment of hydroelectric potential, it is logical that this country should look to a nationally controlled integrated aluminium industry, as the next step in the development of her natural resources. Indeed, this has been a Guyanese goal for many years; among the many grievances against ALCAN was the persistent refusal of that company to study seriously the feasibility of a hydroelectric and aluminium smelting complex in Guyana.

In the other Caribbean countries, there has been no intention to displace the foreign companies from bauxite mining, although it is doubtful whether they will expand their capacity beyond present levels, especially in Jamaica. Although it is sometimes assumed that company decisions to shift new bauxite mining capacity to other than the Caribbean countries, because of the threat of nationalization or the increased levies, company decisions to diversify their bauxite sources and expand in Australia, Africa and Brazil were taken long before 1974.

Both in Suriname and in Jamaica, the governments have plans for large new mining development under direct government ownership and control, accompanied by plans for the expansion of refining and smelting capacity.

In Suriname, these developments are taking shape in West Suriname, and in Jamaica they had been part of joint ventures planned with the governments of Mexico, Venezuela and Trinidad and Tobago.

Projects for government owned and controlled aluminium smelters in the Caribbean do not in effect constitute a challenge to the international industry, because sales are likely to be confined largely to the markets of the Caribbean and Latin America. Although the major TNCs oppose the entry of new firms in the international aluminium market,

/which might

which might undermine their traditional oligopolistic control, their fears relate more to the markets of North America, Europe and Japan, rather than to the incipient ones of the developing countries.

iv) Cooperation among bauxite producer countries

Cooperation among bauxite producer countries is an important condition for the success of host government policies vis-à-vis TNCs. For example, in the case of increasing taxation it is necessary to prevent the foreign companies from shifting their short-term sourcing to less "radical" countries or threatening to do so. An examination of the taxes and levies imposed by the member countries of the International Bauxite Association suggests that they result in roughly similar landed costs at U.S. ports. Thus Jamaica's bauxite levy is higher than that imposed in Suriname, because production and ocean transport costs are lower in the first country. On the other hand, the export duty imposed by Guinea is approximately half the Jamaican one corresponding to higher capital costs and ocean freight for the bauxite exported by the country.

Furthermore, the International Bauxite Association has been a valuable instrument of contact and information among bauxite producing countries.

v) Cooperation with other countries in joint ventures

As stated above, both Guyana and Suriname have large hydroelectric power potential. Both countries have plans to develop integrated national aluminium industries. Given great investment cost, this is not feasible without large scale external loans on concessional terms and participation by foreign companies in the construction of alumina refineries and aluminium smelters. Jamaica, however has presently no cheap energy source and imports 90% of its requirements. Mexico is importing yearly

/about 150 000

about 150 000 tons of aluminium, and is developing extensive oil and gas reserves. Venezuela is exploiting her oil reserves and plans to expand aluminium smelting for which she needs bauxite or alumina. Several joint ventures had been under consideration: an alumina plant in Jamaica of a capacity from 600 000 to 900 000 tons, jointly owned by Jamaica, Mexico and Venezuela; an aluminium smelter in Mexico jointly owned with Jamaica and construction of a aluminium smelter in Trinidad, based on his natural gas, with alumina to be supplied by Guyana and Jamaica.

These projects are small in comparison with the scale of operations of TNCs in the world terms and still encounter many difficulties,^{1/} but for the countries of the region they signify a large potential capacity of a full use of their natural resources.

^{1/} The joint Jamaica-Mexico-Venezuela bauxite/alumina project had been postponed indefinitely in 1978, owing to the withdrawal of Mexico. A modified joint project involving the construction of an alumina plant in Jamaica with minority Venezuelan participation, is now under consideration (see, CEPAL, Economic Survey of Latin America, 1978).

3. The cases of different policy approaches in Jamaica and Guyana

After evaluating the new bargaining situation and Caribbean governments policies in 1970s in more general terms, in this part, the particular cases of Jamaica and Guyana will be analysed with some more detail.

a) The new fiscal policy of Jamaica

The Jamaican government had traditionally depended on fiscal measures to extract a return on the activities of aluminium TNCs operating in the country. In the colonial period such moves met little success. In the 1950's the government received the lowest receipts from bauxite exports than any other country in the Caribbean. This was true despite the fact that the Jamaican ore had a relatively low cost of mining and the island had a significant locational advantage over most of the other bauxite exporting countries, reaching this way a high level of competitiveness over other producers in the U.S. market (see table 36). In addition, during the initial phase of bauxite industry development the TNCs had increased substantially fixed asset holdings, which provided an additional bargaining factor for the government.

i) Renegotiation in the colonial period (1957)

In 1957 Jamaica renegotiated its agreements with the aluminium companies operating within the country—Kaiser, Reynolds and ALCAN. That new agreements increased taxes on exported bauxite five-fold to an average of about US\$1,85 per ton. They were particularly interesting, because one-half of the value of total royalty and income tax payments varied with the price of aluminium ingot in the U.S. market. This clause reflected the recognition of particular characteristics of the industry in the absence of an arms-length price for bauxite, which makes the determination of TNCs subsidiaries profit levels strictly an intra-firm accounting affair. Profits

/Table 36

Table 36

COMPETITIVENESS OF JAMAICAN BAUXITE IN THE U. S. MARKET

(Estimated cost in U. S. Dollars per ton of bauxite)

	Jamaica	Guyana	Guinea	Brazil	Australia
Mine operating costs	3.00	3.00	3.00	3.00	4.00
Mine capital costs	1.07	3.20	3.20	3.20	3.20
Inland transport	2.00	2.00	2.00	2.00	2.00
Infrastructure share	-	2.50	2.50	2.50	2.50
Ocean transport	3.00	5.60	6.00	10.00	13.50
Sub-total	<u>9.07</u>	<u>16.30</u>	<u>16.30</u>	<u>20.70</u>	<u>25.20</u>
Tons bauxite/ton alumina	2.5	2.0	1.9	1.8	2.2
Cost bauxite per ton alumina	22.68	32.60	31.73	37.26	55.44
Advantage of Jamaica per ton of alumina	..	9.92	9.05	14.58	32.76

Source: IBRD, Market Structure of Bauxite/Alumina/Aluminum and Prospects Developing Countries, Commodity Paper N° 24 (3/77).

/in the

in the host countries can be essentially determined by the parent company by simply altering the terms of exchange within the firm.

Taxing the revenues derived from the aluminium sales seemed to be an excellent manner of circumventing the problems resulting from the lack of bauxite market prices. Unfortunately, the price of aluminium fell rather than rose after the 1957 agreement. It was not until the early 1970's that the price rose above the 1925 level. Due to the unfavorable market trends the country did not gain in this period from the introduction of the "escalator clause". In addition, and equally as before 1957, the level of income taxes or royalties had no relation either with the quality of the ore mined or with the production costs. The colonial administration lacked the information and political will to negotiate or impose a more significant redistribution of the industry gains in favour of the host country. This occurred only later, in 1974 [as will be seen in points iii) and iv) below].

ii) Increase of alumina refining and fiscal incomes after 1962

The TNCs capacity to conceal before the public authorities the real financial results of their operations also frustrated the possibilities of securing major budget income from further processing of bauxite. After the country gained independence, in 1962, several alumina refining plants had been established. Between 1966 and 1972 alumina exports increased almost three times (from US\$54 to 150 millions, see again table 35). But the increased tax payments from bauxite activities did not materialize. In 1972, for example, 3.5 millions tons of bauxite were converted into alumina and yielded only US\$1 million in taxes. This value was only a fraction of the almost \$9 million in taxes the same bauxite would have generated without refining. The companies were able to record almost no profit from the new alumina plants by using, as in the case of bauxite, transfer pricing, or, in other words, allowing the local plants to minimize their local tax costs through artificially low "prices" accounted for alumina.

/As a result

As a result of this experience the government 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 in more equitable terms.

iii) Bargaining capacity in the 1970s

One of the factors giving significant bargaining leverage to the government was the fact that 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 37). Also Revere Copper and Brass and Anaconda Copper companies were operating in Jamaica by 1970. 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.

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 with only a slight impact on the global TNCs average costs. In 1960s, the share of mining and drying of bauxite in the total aluminium cost had been only 7% and that added by alumina refining of 24% (see table 38).^{1/} These figures are relatively low and suggest 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 favor the Jamaican government was the cost competitiveness of Jamaican bauxite production in the United States market. As can be seen again in the table 36 above, Guyana's bauxite is the closest in cost to Jamaica, but still is almost US\$10 per ton more expensive. After the introduction of the new increased

^{1/} The calculation of N. Giryan, used in the table 38, corresponds roughly to that of Pindyck, 1977 (see Selected bibliography below).

Table 37

BAUXITE PRODUCTION BY TNCs AND PRODUCING COUNTRIES (1973)

	ALCAN	ALCOA	ALUSUISSE	Kaiser	Reynolds
	a) <u>Million tons</u>				
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	2.18	4.80	-
U.S.A.	-	.98	-	-	1.25
France	.50	-	.31	-	-
Rest	1.80	.86	.92	.24	.08
TOTAL	<u>5.60</u>	<u>12.30</u>	<u>3.40</u>	<u>11.90</u>	<u>7.80</u>
	b) <u>Percentage of TNCs production worldwide</u>				
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	64.0	40.0	-
U.S.A.	-	8.0	-	-	16.0
France	4.0	-	9.0	-	-
Rest	32.0	7.0	27.0	2.0	1.0
TOTAL	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
	c) <u>Percentage of TNCs production by producing countries</u>				
Jamaica	19.5	8.6	-	43.7	28.2
Suriname	-	100.0	-	-	-
Dominican Republic	-	100.0	-	-	-
Guyana a/	-	-	-	-	100.0
Haiti	-	-	-	-	100.0
Brazil	47.7	52.3	-	-	-
Australia	-	29.0	22.3	48.7	-
U.S.A.	-	44.1	-	-	55.9
France	62.2	-	37.7	-	-
Rest	-	-	-	-	-

Source: Morris et. al. (1976), see selected bibliography below.

a/ Excludes nationalized production.

/Table 38

Table 38

PRODUCTION COSTS OF PRIMARY ALUMINIUM (1960s)

(U.S.\$ per ton)

Stages of Production	U. S. \$	Percentage of a/	
		Total cost	Cost in each stage
<u>Mining and Drying of bauxite</u>	<u>10.70</u>	<u>7.0</u>	<u>100.0</u>
Labor	1.58	1.0	14.8
Other inputs	9.12	5.7	85.2
<u>Alumina refining</u>	<u>44.00</u>	<u>27.5</u>	<u>100.0</u>
Bauxite	10.70	7.0	25.5
Other inputs	11.63	7.3	25.5
Value added	21.67	13.6	49.0
<u>Smelting - Aluminium ingots</u>	<u>159.78</u>	<u>100.0</u>	<u>100.0</u>
Alumina	44.00	27.5	27.5
Electricity	15.73	9.8	9.8
Other inputs	30.52	19.1	19.1
Value added	69.53	43.5	43.5
Total Cost	159.78	100.0	

Sources: Norman Girvan, The Caribbean Bauxite Industry (1967), see selected bibliography below.

a/ Figures do not sum to percentage contribution of each stage due to rounding.

/levy, the

levy, the cost of alumina per ton in Jamaica rose from US\$23 to about 33 which was almost equal to the cost in Guyana and much less than in Australia (\$55 per ton, see again table 36), thus removing only part of the economic rents of the TNCs.

Fourth, and as mentioned previously, 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 and examination of the conditions faced by the government greatly improved its bargaining capacity.

A fifth important factor 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 total world bauxite production. One of the purposes of this association was to present a united front of all bauxite exporting countries to the TNCs. To the extent that they were successful, 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 government of an important alternative source country —Australia—had recently adopted a pro-Third World attitude reflecting its concern about foreign control of its own natural resources.

Sixth, Jamaica faced, in 1970s, a more diversified world market for bauxite and alumina, characterized by the above described entry of several new U. S. firms in the late 1960s and more rapidly increasing Japanese and European demand, even with occasional purchases by the Soviet Union (see table 39). In addition, the Jamaican government was supposed to enter at this time into an agreement with Mexico for an aluminium smelter to be

Table 39

CONSUMPTION OF PRIMARY ALUMINIUM BY MAJOR AREAS

a) Thousands of metric tons

	1960	1965	1970	1975	1976	1977
U.S.A.	1 541	2 852	3 488	3 265	4 490	4 756
Canada	97	173	220	286	300	310
Japan	151	286	911	1 171	1 610	1 422
Europe	1 278	1 518	2 606	2 804	3 501	3 530
World (excluding socialist countries) a/	3 247	5 195	7 935	8 608	11 086	11 373

b) Annual growth rates

	World (except soc. countries) a/	U. S. A.	Canada	Japan	Europe
1961	6.5	15.2	18.6	23.2	-10.3
1962	12.0	16.5	10.4	-1.1	5.2
1963	11.5	13.2	8.7	17.9	7.6
1964	10.8	7.3	1.4	20.7	13.9
1965	8.6	12.5	23.6	9.1	2.6
1966	17.0	15.0	12.1	30.4	14.4
1967	0.2	-4.9	-13.4	33.2	0.2
1968	15.5	15.3	12.5	21.3	15.2
1969	9.9	3.0	12.2	30.0	16.3
1970	2.6	-5.9	5.2	12.9	8.3
1971	6.8	12.3	15.9	6.8	-4.3
1972	11.5	9.8	9.4	25.0	12.0
1973	18.4	18.1	7.9	32.6	14.9
1974	0.9	1.0	18.9	-19.2	5.7
1975	-23.7	-35.3	-20.1	-10.1	-17.3
1976	28.8	37.5	4.9	37.5	24.9
1977	2.6	5.9	3.3	-11.7	0.8

Annual average growth

1960-1971	8.9	8.9	9.2	18.1	6.1
1960-1966	11.1	13.4	12.3	16.2	5.2
1968-1971	6.4	4.3	10.5	16.2	7.4
1960-1977	7.7	6.9	7.1	14.1	6.2

Source: Problems and Prospects of the Primary Aluminium Industry, OECD, 1973 and Metal World Statistics, various issues.

a/ Socialist countries = Bulgaria, People's Republic of China, Czechoslovak Democratic Republic of Germany, Hungary, Poland, Romania and USSR (excluding Yugoslavia).

/located in

located in Mexico and an integrated alumina refinery planned for Jamaica, which would be a joint Jamaica/Venezuela/Mexico venture (JAVEMEX), holding Jamaican government a majority share. For a number of reasons, that project has lost momentum, but in the 1974-1975 period, the possibility of such a venture emphasized to the TNCs that Jamaica could develop a number of alternative uses for its bauxite.

Finally, the consequences of the 1973 oil crises resulted in a severe balance of payments constraints, which had been only partially offset by other exports, particularly of sugar. In this difficult situation, the development objectives of the government made increased tax revenue essential.

iv) Renegotiation and new fiscal legislation in 1974

Owing to all these factors, the early phases of the 1974 renegotiation centered on an increase in the tax applied to aluminium TNCs. The Jamaican government proposed a novel method of taxation—a production levy imposed on all bauxite produced (including that refined locally in 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. Thus the new method of taxation had to remove the difficulties faced in the previous agreements from 1960s (see points i) and ii) above).

The TNCs accepted the principal of the levy but countered with an offer of 3.5% share. 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 (and transfer the higher cost to the

/aluminium consumers,

aluminium consumers, as explained above) had been caused by the fact, that 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. A related aspect was the TNCs natural fear of the demonstration effects of Jamaican action on other bauxite producing countries, which on final account proved to be fully justified. ^{1/} The combination of these factors led the aluminium TNCs to follow a relatively inflexible bargaining position. They filed claims against the new Jamaican tax legislation at the International Centre for Settling Investment Disputes (ICSID at the World Bank) for arbitration.

Faced with the inflexible attitude of the aluminium TNCs, the Jamaican government felt that it was necessary to obtain greater control of the bauxite resources of the country through participation in their ownership. This type of policy approach will be analyzed in continuation.

b) The ownership participation policy of Jamaica

The government initiated the negotiations for participation in the ownership of the bauxite mines and lands with Kaiser, Revere and Reynolds and separate agreements were signed, but on similar terms. The bauxite land was bought by the government at book value compensation and, in turn, the government guaranteed a 40 year supply of bauxite from this land. In addition, it agreed to lease to the TNCs some part of the recovered land at a yearly rent corresponding to 7% of the purchase price. Furthermore, the government bought 51% of the mining operations assets and retained option to purchase also a share of the assets in alumina refining on the same terms, that is at book value. Operational control, however, remained in the hands of the TNCs through management contracts of ten year duration.

^{1/} An important aspect of regional cooperation was, that after Jamaica introduced the new tax policy, it offered technical cooperation to other Caribbean countries to help them implement the same type of policies. In a number of cases this offer was accepted and helped the quick follow-up response of other Caribbean producers.

/These conditions

These conditions were more favorable to the government, than those negotiated later with ALCOA and ALCAN. An additional important part of the package deal was that Kaiser and Reynolds dropped their, above mentioned, claims against the new tax policy at ICSID, which put pressure on other protesting TNCs obliging them finally to drop also their own suits. The stronger negotiating power of the government stemmed, in this case, from the fact that Kaiser and Reynolds were relatively more dependent on Jamaica's bauxite (58% and 57% of their respective world production of bauxite, see again table 37) and therefore found themselves under pressure to concede to government demands.

Later negotiations with ALCOA and ALCAN (which depended by 11% and 55% respectively on Jamaica's bauxite) came at a difficult period in the Jamaican economic situation when negotiations with the International Monetary Fund were being conducted and the government was unwilling to provoke further conflict with the TNCs. Both ALCOA and ALCAN rejected to sell the majority of their assets to the Jamaican government. As a result the government acquired only 6% of the assets of ALCOA and 7% of those of ALCAN, including all activities in mining and refining, and all their unused mineral properties.

The joint venture, ALJAM, formed as a consequence of the agreement, will assume the operation of all of ALCAN's existing activities in the country. The new enterprise has a 40-year mining lease. The government will receive 7 per cent of the annual alumina production of ALJAM. The royalty on mined bauxite is set at U. S. \$0.31 per ton while the production levy has been fixed until 1983. At the same time the aluminium companies have agreed in principal to prepay the production levy one-year in advance. Also, they have agreed to maintain the prevailing level of foreign exchange annually brought into the country to finance working capital requirements despite the fact that the unification and devaluation of the exchange rate would have reduced these

/needs by

needs by around \$40 million. The difference will be invested in the expansion of production capacity. These accords will also have a favorable impact on the balance of payments and budgetary situations. Judging by the varied agreements achieved recently, it may be concluded that the friction originally caused by the introduction of the production levy tax has been largely surmounted. ^{1/}

c) The nationalization policy of Guyana

i) The situation before nationalization in 1971

In the colonial period, negotiations between Guyana and the TNCs essentially favored the foreign firms. For example, in 1950's, during the period of considerable competition among the TNCs, ALCAN decided to construct a small alumina refining plant in the country. For this compromise ALCAN, through the subsidiary Demerara Bauxite Company (DEMBA), received an outright tax holiday lasting five years and further concessions to keep it from paying any taxes at all until 1971. An example of political pressure presented the situation in 1952, when a new constitution was adopted and the government tried to alter the relationship between ALCAN and the country. Faced with the threat of conflict, the British Crown abrogated the new constitution and installed a care-taker government more favorable to TNCs.

By 1966, the political conditions had changed. The country had obtained independence and, although a clear consensus concerning the direction of economic policy had not been resolved, an issue on which most interest groups agreed, was the need to increase the nation's benefits derived

^{1/} The export tax applied to alumina ingot reached in 1978 per ton of bauxite U.S. \$17 in comparison with 12 in 1974. The funds collected, a vital source of government revenues, have amounted in 1978 U.S. \$193 million in comparison with 185 million in 1974, even if the production declined by 26% in the same period (see CEPAL, Economic Survey of Latin America, 1978).

from the rich bauxite resources. In this new period of political independence, the relationship between the Guyanese government and the TNCs, principally ALCAN was determined as much by political factors as by economic constraints. ^{1/}

ALCAN recognized first the new political "climate" and development needs of the country and realized that considerable pressure would be put on expansion of its local investment. After a series of discussions concerning the conditions under which such expansion could take place, the government announced that ALCAN had agreed to build a local aluminium smelter using electricity generated from a new hydroelectric plant, should such a venture be judged economically feasible. In August, 1968, a United Nations sponsored report was released stating that the project was both economically and technically feasible. ALCAN claimed, however, that it had not been shown that aluminium could be produced at competitive world prices and rejected the construction of the smelter. This decision stirred up strong feelings against the TNCs throughout the country.

The issue of the role of ALCAN's DEMBA in Guyana became one of the most important factors of the new nation state political consensus. There were two principal political parties in the country at that time and the country was divided between many social groupings with great differences of income and

^{1/} There is a large literature on the negotiations between the two parties. Among those consulted for this study are: N. Girvan, "Making the Rules of the Game: Company-Country Agreements in the Bauxite Industry", Social and Economic Studies, September, 1968; N. Girvan, "Corporate Imperialism in the Caribbean Bauxite Industry", in Girvan (ed) Corporate Imperialism: Conflict and Expropriation, 1976; C.H. Grant, "Political Sequel to ALCAN Nationalization", Social and Economic Studies; Litvak and Maule, "Nationalization in the Bauxite Industry", International Affairs, January, 1975; Litvak and Maule "Forced Divestment in the Caribbean", International Journal, Summer, 1977; and M. Morris, et.al., "The Politics of Nationalization, Guyana vrs ALCAN" in Sauvart and Lavipour (eds.), Controlling Multinational Enterprises, 1976.

social status. But the question on which all agreed was that the national control over DEMBA was necessary. The universality of this perception throughout the country determined the range of bargaining options for the government and became an important factor of its negotiating capacity and a tool of pressure in the negotiations with TNCs, as well.

ii) The negotiation process

Formal discussions between Guyana and ALCAN began in December 1970 and continued through February, 1971. Early moves by the Guyanese government and the response by ALCAN formerly limited the flexibility of both parties, indicating clearly the gap in basic positions. The Prime Minister delivered a public address to the nation just before formal talks began, in which he outlined the four main objectives of the government. These included government's majority participation and operational control of DEMBA, compensation of the transferred assets of the corporation based on officially declared book value, payments for the purchase of equity from future after-tax profits and agreement that the results of renegotiation would take effect as of January 1, 1971. Furthermore, in a letter sent to the company the same day the government stated that the main changes in government-TNC relationship, declared publicly, were non-negotiable.

In the formal negotiations, the government's non-negotiable proposals necessarily governed its position to ALCAN's counter proposals. ALCAN made a number of proposals for the expansion of the calcined bauxite activities bearing in mind Guyana's almost world monopoly control in this commodity. Nevertheless, the TNC had called for the government to finance this expansion through a new joint venture company, with government and TNC participation. Negotiations centered around the organization of such a company and its control. In this ALCAN insisted on maintaining 51% participation in the ownership of the company. The last proposal of ALCAN, before the break-down of negotiations, did concede 51% participation to Guyana, but still retained operational

/control in

control in the hands of ALCAN. On February 23, the Prime Minister terminated negotiation with ALCAN and announced the government's decision to nationalize DEMBA.

From the overview, outlined above, it is clear that the nationalization of DEMBA imposed by the government, corresponded to the political conditions of the country and was not negotiable. On the other hand, this was not the case of the terms of nationalization and, particularly, the amount and conditions of compensation and future linkages between the two parties. Since Guyana needed both the TNCs support for the marketing of bauxite and private and public financial resources from industrialized countries for her development needs, the Guyanese government had to agree on a compensation formula acceptable to ALCAN.

Before the nationalization, the government had insisted that compensation be based on the official book value of the corporation (used for tax purposes) and be paid from future after-tax profits. ALCAN would have had accepted such stipulations under the conditions of a joint venture, but not as a compensation formula for nationalized assets. Out of concern for the impact such development would have on other holdings of the TNC elsewhere in developing countries, ALCAN began insisting on much greater compensation. A rigorous schedule of compensation payments and a denial of co-operation for the operation and marketing activities of the nationalized industry caused it, and the country in general, significant difficulties. Thus they became the major counter-strategy of the foreign company.

Following this strategy ALCAN tried also to get support from the Western Hemisphere home countries of TNCs. The United States government in fact expressed its disapproval of the Guyanese government compensation program by abstaining in a vote on a \$5.4 million World Bank loan for the country. It was concerned not only with the future fate of U.S. company, Reynolds

/in Guyana,

in Guyana, but also wanted to give support to a "reasonable compensation formula" for nationalization, bearing in mind the demonstration effect of the Guyanese case for other developing countries.

In the final agreement between the government and ALCAN, signed in July, 1971, DEMBA's gross value of assets for the purpose of compensation was estimated at US\$80 million. That formula was a "medium" compromise between US\$46 million, official book value, backed as a basis for compensation by the government, and US\$ 114 million required by ALCAN as "commercial value" of the nationalized assets.^{1/} Payment for the compensation was to be made out of government revenue funds, rather than out of future profits of the company (as required originally by the government).

An important conclusion emerging from the analysis of the conflict between Guyana and ALCAN is that short-term economic factors are in certain political conditions less important determinants of the process of negotiation. In order to understand the capacity to negotiate of both the government and the TNCs, it is necessary to evaluate all the factors of their actions--both economic and political. It must be recognized that non-economic factors may drastically limit the freedom to negotiate of both parties. Therefore policies designed to increase the bargaining capacity of the government must be formulated within the broadest possible examination of the conditions of the country and the TNCs retaliation capacity in counter-strategies, including possible support by industrialized home-countries and their private and public institutions. Some of these issues will be reviewed in the next section.

^{1/} For greater detail on compensation problems, see, N. Girvan, Expropriating the multinational corporation: criteria for compensation; Conference on multinational corporations in Africa, U.N. African Institute for Economic Development and Planning, Dakar, September, 1974.

4. Short-term economic impact of the new agreements and policies in Guyana and Jamaica

Different policy approaches to the negotiations with the TNCs and their results have been described above. The examination of the economic impact of recent governmental policies and agreements with TNCs is difficult and necessarily tentative. First, if a new policy or agreement were to lead to an immediate reduction in economic benefits for the country, such reduction may well be accepted by the government as a short-term cost of obtaining more permanent political and economic goals, reflected in the nation's sovereignty over her main economic resources. Fundamental alterations in the industrial structure and the distribution of the means of production necessarily require a transition period. At this point of time the long run impact of the new arrangements with TNCs cannot be evaluated and only the magnitude of short-time effects can be indicated.

Secondly, the period after 1970 was characterized by the beginning of the energy crisis and world economic recession with retraction in levels of international trade. All these factors had an impact on economic activity in the Caribbean region and must be kept in mind throughout this section, where only the level of output and structural changes in exports in the post-negotiation period will be evaluated.

a) Changes of bauxite output

In both Guyana and Jamaica, the level of bauxite output fell in the post-negotiation period. Bauxite production in Guyana fell by 1.7% yearly between 1970 and 1977. In the same period Jamaica suffered a reduction by yearly 0.7%, falling the output particularly in 1975 and 1976 (by 24.5% and 10.9%), but recovering the growth rate in 1977 (see table 40). The bauxite production of all IBA countries increased in the 1970-1977 period at an annual growth rate of 6.7%. As a result the long-term

Table 40

GUYANA AND JAMAICA: BAUXITE PRODUCTION (1960-1977)

a) Production in thousand metric tons, and percentage of IBA total production a/

	Guyana		Jamaica	
	Tons	%	Tons	%
1960	2.510,8	15.8	5.837,0	36.7
1965	2.918,7	12.8	8.651,0	37.9
1970	4.417,2	11.0	12.009,7	30.0
1971	4.233,6	9.4	12.543,4	27.8
1972	3.668,4	7.7	12.988,8	27.2
1973	3.621,4	7.0	13.489,5	26.2
1974	3.048,4	5.1	15.328,4	25.7
1975	3.559,0	6.5	11.570,0	21.2
1976	3.134,0	5.6	10.311,0	17.6
1977	3.915,0	6.2	11.433,0	18.2

b) Compound annual growth rates

	Guyana	Jamaica	IBA
1961 - 1965	3.9	5.0	5.8
1966 - 1970	5.7	5.8	9.2
1970 - 1977	-1.7	-0.7	6.7

Source: IBRD, "Market Structure of Bauxite/Alumina/Aluminium: Prospects for Developing Countries" Commodity, Paper N°24, (3/77) and CEPAL Economic Surveys, various issues.

a/ International Bauxite Association (IBA) countries include: Australia, Dominican Republic, Ghana, Guinea, Guyana, Haiti, Indonesia, Jamaica, Sierra Leone, Suriname and Yugoslavia.

/trend of

trend of diminishing share of the two Caribbean countries of the total IBA output had been accelerated: in the case of Guyana from 16% in 1960 to 11% in 1970 and further to 6% in 1977. In the case of Jamaica the respective shares were 37% in 1960, 30% in 1970, 26% in 1973 (before the new tax policy) and 18% in 1976 (see again table 40).

The data seem to suggest that the aluminium transnationals continued and even reinforced the strategy pursued since early 1960s, of diversification of their sources of bauxite in order to reduce their vulnerability to the political risk in the Caribbean countries. Although the reduction in bauxite production in both Caribbean countries in the post-negotiation period is hardly comparable, particularly for different time span examined here (1971-1977 for Guyana and only 1975-1977 for Jamaica), it can be supposed, that the TNCs reaction and counter-strategies had been stronger in the Guyanese case, where the resource ownership monopolium of TNC had been questioned, with all demonstration effect implications. ^{1/} Furthermore, and as mentioned above, the internal economic and social problems of the first country should be kept in mind, including the organization and management of a new and large public sector, wage and other social problems of its employees, etc. ^{2/} An other factor had been the conflict with Reynolds, following that with ALCAN, leading the

^{1/} A regression analysis of both countries shares in IBA total production during the 1960-1976 period demonstrated that, in comparison with the historical 1960s trend projected to 1970s, Guyana may have lost—over the 1971-1976 post-negotiation period—some 10 million ton production (that is more than double of the 1970 high level), meanwhile the reduction of Jamaican production, in 1975-1976, almost corresponded to the historical trend of 1960s.

^{2/} For example, the 1977 Minimum Wage Agreement between the government and public sector employees (mining, sugar and rice industries) contained provisions for a 3 years increase in the minimum wage amounting to 260% of the prevailing rate being this settlement dependent on a corresponding increase in productivity. As the increase in productivity in 1977-1978 was negligible the wage hikes created substantial inflationary pressures.

first case to paralization of production. A certain appreciation of the leverage of external pressures can be obtained by analyzing structural changes in export orientation of both countries.

b) Changes in bauxite and alumina exports

Tables 41 and 42 characterize the shift in trade direction of bauxite and alumina occurred between 1969 and 1976 in Guyana and Jamaica. In order to avoid difficulties of adjusting for inflation, only volume is examined. In both countries the fall in exports was accompanied by diversification of export markets.

In Guyana, exports of metallic dried bauxite decreased, in the period under examination and at an annual average rate, by 8.5% and those of calcined bauxite and alumina by 2.3% (see table 41). At the same time, the share of European consumers increased from 23% to 43% (with average annual growth rate of 6%) in the case of calcined bauxite and to 13% for metallic bauxite (in 1969 the European market did not exist for this commodity). The share of United States market stayed at the same level in the case of calcined bauxite (35%) and increased strongly in metallic bauxite (from 18% to 54%). Japanese imports of calcined bauxite rose by 5.5% yearly doubling their participation in the total export volume, from 3% to 6%. The negative shift in export orientation corresponded to Canadian and Latin American markets; With respect to Canada, imports of metallic bauxite had been falling yearly by 17% decreasing its share in overall Guyanese exports almost by a half, from 62% to 32%. Canadian imports of calcined bauxite ceased completely. The decrease in the share of Latin American markets requires more detailed analysis for it is related to transit-exports (particularly Trinidad and Tobago) and the cycle of contractual arrangements (Venezuela).

Table 41

GUYANA: EXPORT VOLUME OF BAUXITE AND ALUMINA BY DESTINATION (1969-1975)

	Percentage of total commodity exports		Annual average
	1969	1976	Growth rate: 1969 - 1976
<u>Alumina</u>	<u>100.0</u>	<u>100.0</u>	<u>-2.3</u>
U. S. A.	3.1	-	a
Canada	35.8	-	a
Europe	61.1	94.5	3.2
Venezuela	-	5.5	a
<u>Calcined bauxite</u>	<u>100.0</u>	<u>100.0</u>	<u>-2.3</u>
U. S. A.	35.2	34.9	-2.2
Canada	5.2	-	a
Europe	22.9	43.2	6.0
Latin America	32.5	10.9	-17.0
Japan	3.2	5.7	5.5
<u>Metallic dried bauxite</u>	<u>100.0</u>	<u>100.0</u>	<u>-8.5</u>
U. S. A.	17.8	54.3	6.2
Canada	62.0	32.2	-17.5
Trinidad	17.2	-	a
Venezuela	3.0	0.4	-38.0
Europe	-	12.9	a

Notes: - indicates amount too small to measure.

a Exports either increased from or fell to zero.

Source: Economic Surveys of CEPAL, various issues.

Table 42

JAMAICA: EXPORT VOLUME OF BAUXITE AND ALUMINA BY DESTINATION AND COMMODITY

	Percentage of total commodity exports		Average annual Growth rate: 1969 - 1975
	1969	1975	
<u>Bauxite</u>	<u>100.0</u>	<u>100.0</u>	<u>-5.9</u>
U. S. A.	100.0	100.0	-5.9
<u>Alumina</u>	<u>100.0</u>	<u>100.0</u>	<u>10.3</u>
U. S. A.	13.9	29.9	23.0
Canada	44.5	4.1	-28.0
Europe	37.3	52.5	15.8
Venezuela	-	0.6	a
Socialist countries	-	8.5	a

Notes: See Table 41.

Source: Same as in table 41.

/Finally, the

Finally, the most dramatic shift occurred in external sales of alumina,^{1/} where the Canadian and United States markets disappeared in 1976 (accounting jointly for 39% in 1969) and the share of Europe increased from 61% to 94%. Furthermore, a new market for this commodity appeared in Venezuela (5% share in 1976) replacing the previous imports of metallic dried bauxite by that country.

In Jamaica, there had been no change in export orientation of bauxite, U.S. market maintaining its monopsonistic position. On the other hand, alumina exports (which accounted, in 1978, for 54% of total export value in comparison with 23% for bauxite and 11% for sugar) shifted strongly to European and United States markets, from 37% to 52% and from 14% to 30% of total Jamaican alumina exports, respectively, replacing to a high degree the almost disappearing Canadian market, which decreased its participation from 44% to only 4%. A new market for alumina had been gained in 1975 in socialist countries (U.S.S.R.), the stability of which requires a more detailed analysis. In any case, the potential consumption capacity of this market, and of the Japanese one, offers further possibilities of export diversification in the two areas (see table 43). As to developing countries, a seven year contract worth of U.S.\$200 million for exports of 1 million tons of alumina to Venezuela had been signed and a first shipment of 25,000 tons effected in 1978. Another long term alumina contract is underway with Algeria.

As in the previous analysis of changes in bauxite production in the post-negotiation period, in Guyana and Jamaica, the evaluation of export levels and structure is faced by severe limitations. They consist in relatively short and different post-negotiation periods under examination for each of both countries, conjunctural changes in the world demand in a recession cycle, difficulties in evaluating the leverage of domestic production

^{1/} It should be kept in mind that alumina represented in 1977 only 14% of total Guyanese exports, meanwhile the share of dried and calcined bauxite had been of 33% and that of sugar and rice of 28% and 10% respectively.

Table 43

PROJECTED GROWTH ON ALUMINIUM CONSUMPTION BY MAIN DEVELOPED AREAS

	1970 - 1980	1980 - 1985
North America	5.5	4.5
Europe	5.3	5.6
Japan	9.0	10.9
Total developed countries	6.0	6.3
Socialist countries	3.9	5.8
Total world <u>a/</u>	6.1	6.1

Source: IBRD, "Market Structure of Bauxite/Alumina/Aluminium: Prospects for Developing Countries", Commodity Paper N° 24 (3/77).

a/ Excluding developing countries.

/and marketing

and marketing setbacks, etc. Keeping in mind these "caveat", some preliminary hypothesis can be ventured:

First, the decrease in bauxite and alumina exports in both countries was obviously related to the negative reaction and counter-strategies of TNCs in the negotiation and post negotiation period. This seems to be particularly true in the case of Canadian ALCAN, which shifted its input sourcing from the uncertain Caribbean markets to resources in countries of less political risk.

Second, the same conclusion does not seem to apply to the U.S. aluminium companies, which increased their imports of Guyanese metallic bauxite, maintained the sourcing of calcined bauxite of the same origin and their monopsonistic position in Jamaican bauxite market and, finally, expanded considerably their imports of alumina from Jamaica. These differences in TNCs reactions and strategies could have reflected, on the one hand, the above analyzed harshness of the conflict with ALCAN in Guyana and, on the other hand, competitive attitudes among the aluminium TNCs, trying some of them to fill the vacuum in developing countries markets deserted by companies in conflict.

Third, and most important, Guyana and Jamaica began to react to the TNCs traditional, and in time of conflict reinforced, strategy of resource diversification, with their own national efforts in market diversification. This has been corroborated by the sharp increase of the role of European and Japanese markets in the export reorientation of both Caribbean countries and relates obviously with potential capacities of more independent Latin American, other developing regions and socialist countries markets.

Finally, marketing strategies of bauxite exporting developing countries, aimed at decreasing the oligopolistic domination and resulting dependence on one or few TNCs and exploiting the inter-company competition, represent without any doubt one of the most important factors of their negotiating capacity vis-a-vis transnational corporations. For this reason they require a more detailed study in future research activities.

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