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**UNITED STATES DEPENDENCE ON CARIBBEAN
BAUXITE AND THE FORMATION OF THE INTER-
NATIONAL BAUXITE ASSOCIATION**

*Michael Deal**

**ROLE OF THE CARIBBEAN ALUMINUM SUPPLY IN
THE UNITED STATES**

The aluminum industry plays a major role in the interdependence of US-Caribbean relations. While the mining of bauxite (aluminum's basic raw material component) represents a significant contribution to the GNP of several Caribbean nations and garners valuable foreign exchange for their small open economies, the United States is dependent on imports of Caribbean bauxite and alumina (processed bauxite) to meet its consumption needs for primary aluminum. Foreign imports of bauxite and alumina comprise nearly ninety percent of U.S. industrial demand for aluminum and the Caribbean has traditionally been the principal supplier. A decade ago the Caribbean producers enjoyed a position of almost total dominance of the U.S. market, controlling ninety-seven percent of imports for 1966.

In recent years, however, new suppliers have emerged to accommodate the increased demand and have gradually eroded the Caribbean's position, which in 1975 still represented sixty-two percent of total U.S. imports of bauxite and alumina, expressed in aluminum equivalents. There have also been frequent signs of increased friction between major North American-based aluminum companies and the various Caribbean

* Agency for International Development. This paper is a revised version of a study originally prepared for the U.S. Department of State under its External Research Program.

bauxite producing nations, such as the nationalization of aluminum companies in Guyana; imposition, notably in Jamaica, of a levy based on the ingot price of aluminum; the formation of the International Bauxite Association; and Jamaica's move to gain majority control of the foreign aluminum companies operating within her borders. In order to understand the source of this friction and its effect on the aluminum industry, the Caribbean bauxite-producing countries and the U.S. aluminum supply, it is important to analyze the structure of the aluminum industry, its relationship with the Caribbean governments and the significance of the new International Bauxite Association (IBA).

INDUSTRY STRUCTURE

The world aluminum industry is comprised of six large, vertically-integrated firms — Alcan Aluminum Ltd., Aluminum Company of America (Alcoa), Reynolds Metals Company, Kaiser Aluminum and Chemical Corp., Pechiney Ugine Kuhlmann Group (PUK) and Swiss Aluminum Ltd. (Alusuisse) — which own or have equity interests in over fifty percent of world aluminum productive capacity, and about forty other private companies, which own twenty to twenty-five percent of aluminum productive capacity, frequently in association with one or more of the six large firms. Governments of twenty-four countries own or have equity interests in the remaining twenty-five percent.

Perhaps to an even greater degree than is the case worldwide, the Caribbean bauxite industry has been owned and operated by a small number of vertically-integrated North American aluminum companies (except in Guyana, and then only since 1971). Capital and technology as well as the market for the Caribbean bauxite industry are supplied by these firms. Levels of production and the rates of investment and expansion are matters of company policy, determined by the global economics of the firm. In his analysis of the aluminum industry in the Caribbean, Norman Girvan has noted that the bauxite producing countries can be classified into "major suppliers" (Jamaica, Surinam and Guyana) and "reserve suppliers" (the Dominican Republic and Haiti) depending on the role assigned to them by the principal aluminum companies.¹

Reserve suppliers are not meant to develop large-scale production. Their production is deliberately kept low and stagnant by company fiat. Their role is to top up [sic] the company's bauxite

1. N. GIRVAN, CORPORATE IMPERIALISM: CONFLICT AND EXPROPRIATION 116 (1976).

supplies from other sources and to act as insurance and a bargaining counter in dealing with governments of the major suppliers. Thus, for these countries, the basic bauxite-producing potential is deliberately underdeveloped as a result of corporate integration.²

The "major supplier," on the other hand, have been destined to develop large-scale production with an initial high growth rate which may last for decades, but, after a certain point, will stabilize because the companies do not wish to become overdependent on any one raw material source. For the country involved, the end of the high-growth phase signals the onset of maturity in its bauxite industry, perhaps even of stagnation. For Guyana and Surinam, the high-growth phase lasted roughly from 1920 to 1950, while for Jamaica it ran roughly from 1950 to 1970.

INDUSTRY RELATIONSHIP WITH CARIBBEAN GOVERNMENTS AND THE ROLE OF THE IBA

Since the production technology is capital-intensive, wage and salary costs plus local tax payments by the companies have represented a rather small proportion of the total value of their operations. Capital allowances, profits after tax and other capital charges are high, and since the capital is foreign-owned, these accrue abroad rather than with the local economy. One of the main problems faced by Caribbean governments in taxing bauxite production has been the determination of company profits. No genuine market exists for bauxite and there have been very few sales between genuinely independent parties with equal market power. The price of bauxite, therefore, has been determined by the integrated aluminum companies which use a transfer pricing mechanism to ensure that profits are made at whatever level in the production process is most suitable.

Over the years the governments of the various Caribbean bauxite — producing countries have tried several strategies for dealing with the aluminum companies. First, attempts have been made by the governments to secure higher taxes from the companies; second, governments have urged that the companies establish local alumina and aluminum processing facilities; and third, negotiations have been entered into seeking direct state participation in the ownership and management of the subsidiary companies. A fourth strategy involves the creation of the IBA — an association of producer countries which incorporates to one degree or another the various strategies mentioned above.

In early 1974, the three major Caribbean bauxite suppliers, Jamaica, Surinam and Guyana, joined with Guinea, Australia, Sierra Leone and

2. *Id.*

Yugoslavia to form the IBA in an attempt to strengthen their negotiating position vis-à-vis the aluminum companies. The Dominican Republic, Haiti, Ghana and Indonesia have since joined the association, so that in 1975 IBA accounted for seventy-three percent of world bauxite production. The major goals of the IBA are: a) to promote the orderly and rational development of the bauxite industry; b) to secure for member countries fair and reasonable returns from the exploitation, processing and marketing of bauxite and its products for the economic and social development of their peoples; and c) to safeguard the interests of member countries in relation to the bauxite industry.

The IBA has emphasized the acquisition by each member country of full knowledge and information concerning the functions and prospects of the industry. These include knowledge about the potential of their own resources and their position relative to other producers. Such information then can be analyzed within the IBA to evaluate the effectiveness of their control of resource supply. As an important step in this direction, a majority of the IBA countries (Australia being a major exception) have decided to purchase majority ownership of the local subsidiaries of the foreign companies. In 1976 Jamaica was successful in negotiating an arrangement with Alcoa in which six percent ownership of all Alcoa operations in Jamaica, including alumina processing, was transferred to the government. And in 1977 Jamaica negotiated fifty-one percent ownership agreements with Kaiser Bauxite Company and Reynolds Jamaica Mines. Negotiations are continuing with Alcan and the Alpart consortium.

BAUXITE PRICES AND THE EMERGENCE OF NON-IBA SUPPLIERS

Bauxite prices had remained roughly constant from 1960-71, but since then, and in particular during 1975-76, bauxite prices have doubled or even tripled in some cases. In the two year period, January 1974-January 1976, members of the IBA imposed tax levies that increased the f.o.b. price of bauxite from around \$8-\$12 per ton to around \$20-\$30 per ton. While the rise in tax levies was considerable, it is very interesting to note how bauxite prices relate with other market forces in the final price of aluminum ingot. Bauxite costs prior to 1974 typically had accounted for ten percent of the final aluminum ingot price. The IBA tax increases, even if they were passed fully forward, would have had an impact of raising the ingot price by only six percent at prices that prevailed in 1974. The price of aluminum in 1975, however, was about sixty percent higher than in 1973 and eighteen percent higher than that of 1974. (Aluminum prices increased from 25¢/lb. in 1973 to almost 40¢/lb. in 1975.) Thus, apart from increases in the bauxite levy, which formed less than fifteen percent of the final ingot price in 1975, increases

in energy and labor costs have played a larger role in the price increases of aluminum since 1974.³

In May 1974, Jamaica became the first country to increase taxation on bauxite production. Based on the volume of production and linked to the market price of finished aluminum ingot, the new tax system has two basic components. The first component is a standard royalty of fifty Jamaican cents per long dry ton (LDT) of all bauxite mined. The rest of the taxation consists of a production levy. The net effect of the new taxes was to add about \$12.75 per LDT to the bauxite cost calculated at the aluminum price of \$.39 per pound.⁴ In addition, each company is required to produce a minimum tonnage of bauxite which is roughly equivalent to ninety percent of the annual production of each company in 1974.

A differential tax structure exists in the various IBA member countries. Although Jamaica's lead was followed by other Caribbean producers, the tax pattern is not uniform; all other producers have opted for lower rates than Jamaica. By the end of 1974, Surinam had secured an agreement from Alcoa for the payment of a Jamaican type levy fixed at six percent, yielding a revenue of \$11.02 per LDT and raising the government's total tax income from Alcoa from \$18 million to \$45 million for 1974. In December 1974, Haiti announced that Reynolds had agreed to a Jamaican-type levy of 7.5% which would raise per ton revenues to approximately \$11.00 (compared with \$1.88 previously) and total revenues to \$11 million per year. The Congress of the Dominican Republic proposed legislation that would almost double the bauxite royalty from \$2.73 to \$5.00 per ton, with a minimum tax-reference price of \$12.08 per ton, but the President vetoed the legislation. Among the African producers, Guinea introduced a variant of the Jamaican production levy and Sierra Leone increased bauxite royalties from ten to twenty U.S. cents per ton and imposed an income tax of sixty percent on the companies. Australia seemed to be following the Jamaican lead in 1974 when the bauxite royalty per LDT was increased from \$.10 to \$1.00 for exports and from \$.05 to \$.50 for bauxite sold locally. However, the new arrangement of March 1976 with Comalco, the country's largest bauxite producer, calls for bauxite to be taxed like other minerals at the rate of ten percent of their average export price. The arrangements nevertheless maintained the minimum royalties already in effect at the time.⁵

3. INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, MARKET STRUCTURE OF BAUXITE/ALUMINA/ALUMINUM: PROSPECTS FOR DEVELOPING COUNTRIES, Commodity Paper No. 24, p 12 (March, 1977).

4. *Id.*

5. *Id.*

This differential tax structure focuses attention on the limitations of the IBA's bargaining power and the delicate internal balance which exists between the Caribbean producers on the one hand, and members like Australia which are less willing to ardently pursue IBA directives on the other. The IBA countries, as mentioned earlier, control seventy-three percent of world bauxite production, but this factor alone is not sufficient to permit them to dictate significant future tax hikes as they were able to do from 1974-76. There are several factors involved. First, the cohesiveness of the IBA is questionable. There is a wide variation in the bauxite levies now in effect between the association's members, and especially between the two largest producers — Jamaica and Australia. The Caribbean suppliers enjoy the advantage of low transport costs because of their proximity to the United States and thus were in a position to hike their tax rates higher than were other IBA members. If the Caribbean producers decide to further raise bauxite levies while other IBA members do not, their share of the world market could be seriously eroded.

The position of the IBA and especially that of the Caribbean members may also be seriously undermined by the emergence of new non-IBA suppliers such as Brazil. In 1974 Brazil produced only 650,000 tons of bauxite, but by the early 1980s the total planned production is expected to exceed four million tons. Other non-IBA bauxite producing countries like Cameroon, India and Malaysia are also considering major investments for the development of their bauxite potential.

Finally, should the price of bauxite rise above a certain level, it would become more economical for the major companies to produce alumina from sources other than bauxite such as high-alumina clays, dawsonite, alunite and anorthosite, all of which are in great abundance in the earth's crust.⁶

The preceding discussion leads one to the opinion that while the Caribbean bauxite producers have made the longest strides among IBA members in negotiations with the major companies over levies and government participation, their present bargaining position has been severely limited. And in terms of expanding production in the future, they may in fact have placed themselves at a disadvantage with respect to other producers in attracting new investment.

6. U.S. BUREAU OF MINES, MINERAL FACTS AND PROBLEMS (1975). Alternatives to bauxite as a source of aluminum presently do not possess the technology nor the cost effectiveness to be competitive but should bauxite prices increase significantly this situation would change. According to the U.S. Bureau of Mines, before the end of this century a small but important percentage of new aluminum production may be derived from such material. The U.S. has large resources of such materials and could meet most of its aluminum raw material needs indefinitely if the technology is developed.

The immediate reaction of the companies to the imposition of the production levy and plans for government participation by IBA members was one of indignation. In Jamaica, Alcoa, Kaiser and Reynolds filed arbitration requests with the International Center for Settlement of Investment Disputes (ICSID) in addition to seriously considering a switchover to other sources of bauxite or to non-bauxite sources of alumina. The prospect of any major new investments in Jamaica are remote if not non-existent as the industry's enthusiasm for cooperation with its long-time partner has been dampened considerably. On the other hand, mining operations have not been abandoned by the companies. ICSID proceedings were terminated in October 1976, and except for Revere Copper and Brass Inc.⁷ and the continuing negotiations with Alcan and Alpart, the companies have agreed to grant Jamaica a controlling interest in the aluminum producers' bauxite operations in Jamaica and eventual control of its alumina operations as well. In return, Jamaica agreed to drop the level of its production levy from 8.5% to the 1974 level of 7.5% of the average market price for finished aluminum ingot. The companies also receive a guarantee of priority supply sufficient to maintain current rates of extraction for forty years. Nevertheless, there has been no major expansion in the Jamaican bauxite industry since the 1966-71 period when a new alumina processing capacity was installed. The industry is in stalemate and will remain there as long as the government continues to maintain its present stance towards the companies and declines to offer them incentives and a stable investment climate so as to encourage new investments.

As a result, Jamaica has decided to explore other alternatives for expansion. Jamaica has an agreement with Mexico for an aluminum smelter to be located in Mexico and an integrated alumina refinery planned for Jamaica which would be a joint Jamaica/Venezuela/Mexico venture (JAVEMEX) in which the Jamaican government would hold a majority share. For various reasons the initiation of this plan has been postponed. Jamaica, Guyana and Trinidad and Tobago had established a joint agreement for construction of two aluminum smelters, one in Trinidad and Tobago based on that island's natural gas and another in Guyana based on the Mazaruni hydropower project which that country is

7. Revere Copper and Brass, Inc. has instituted an arbitration demand with the American Arbitration Association against OPIC. The claim filed against OPIC was for \$80.4 million, including \$66.5 million expropriation compensation and \$13.9 million for reimbursement of levies paid to the Government of Jamaica, based on Revere's bauxite mining and alumina refining facilities, which the company shut down in August 1975, claiming that actions of the Government of Jamaica were expropriatory.

now developing. Negotiations broke down in 1977 and Guyana and Trinidad have decided to go it alone. The high energy costs involved in alumina refining and aluminum smelting are the major deterrent to new large-scale investments in the Caribbean. The effect that the huge petroleum import bills have had in recent years on all of the CARICOM members except Trinidad and Tobago resulted in precarious financial situations which virtually preclude winning major new investment contracts, and thus their most practical option has become joint ventures with energy-rich partners such as Mexico, Venezuela and Trinidad and Tobago. For the short term at least, budgetary and fiscal pressures in Jamaica and Guyana make even joint ventures unfeasible.

ANALYSIS FOR THE FUTURE

What conclusions does this analysis of the IBA and the relationship between the aluminum industry and the Caribbean bauxite producing countries have for future U.S. demand for imported bauxite and alumina? Based on U.S. Bureau of Mines projections of demand for primary aluminum in the year 2000, if domestic production is to maintain its average rate of ten percent of total demand for the 1973-2000 period, a total cumulative output of thirty-four million tons would be required. The potential supply of aluminum from domestic reserves has been estimated to be only ten million tons. Therefore, future U.S. aluminum demand will become increasingly reliant on foreign imports until a marked improvement over current technology for obtaining aluminum from non-bauxite raw materials is achieved.⁸

However, recent trends in the U.S. market may have a significant impact on US-Caribbean trade of these raw materials. Diversification of suppliers continues to grow as new producers emerge and a greater reliance has been placed on alumina imports than in the past which signifies that the Caribbean suppliers will constitute a diminishing share of overall U.S. foreign dependence for its aluminum supply as long as they remain primarily exporters of bauxite. Countries like Australia and perhaps Brazil in the future will gain ever larger shares of the U.S. market as increased demand is met by alumina rather than bauxite. The challenge for the Caribbean producers then becomes their ability to attract investments for establishing expanded alumina processing facilities. But as was mentioned earlier, the aluminum companies are

8. Figures are based on U.S. BUREAU OF MINES, MINERALS IN THE U.S. ECONOMY: TEN-YEAR SUPPLY-DEMAND PROFILES FOR MINERAL AND FUEL COMMODITIES (1966-75).

skeptical of new investments in the Caribbean because of increased government participation, high levies and uncertainty as to the future business climate.

Thus the outlook for future US-Caribbean relations with respect to the aluminum industry appears to be one of continued interdependence with a gradual erosion of the Caribbean's position against competing suppliers of bauxite and alumina.
