NOTE, TAXATION OF BAUXITE RESOURCES THE JAMAICAN MODEL

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Review of Previous Jamaican Bauxite Taxes

When bauxite mining began in Jamaica in 1950,[1] the taxation levied on the mining companies was confined to a royalty of about 26 cents per long dry ton (LDT).[2] This low rate of taxation was negotiated because at the time little was known about the problems of using Jamaican bauxite as a raw material. Indeed, the aluminum industry was itself in a potential over-capacity situation; it had been geared primarily to defense needs, which would possibly subside once the Korean conflict was over. In 1957, with the value of Jamaican bauxite now established and with uncertainties in the industry now diminished, the royalty basis was revised.[3]

The 1957 contracts established a fixed royalty rate which varied from 18 to 24 cents per LDT depending on the size of the mining operations (the rate falling as the size increased). The contracts also established a variable royalty equal to the fixed royalty of the U.S. primary price of 25 cents per lb., going up or down in proportion to changes in the primary price away from this base price.[4]

One of the main problems faced in taxing bauxite was the determination of company profits for the purposes of the normal company profits taxation. No genuine market existed for bauxite (indeed none exists today) and there were very few sales between genuinely independent parties with equal market power.[4a] The price of bauxite was thus determined by the integrated alumninum producers who were allegedly able to use a transfer pricing mechanism to ensure that profits were made at whatever level in the production process was most suitable. This problem was tackled by a further revision to the taxation system in 1966. The new agreement met the problem by simply deeming that the companies made a profit of $5 per LDT and charging them tax on this profit, a tax that originally yielded $2.25 per LDT. A flat rate mining royalty was maintained at 25 cents per LDT.[5]

However this system also ran into difficulties. The deemed profit of $5 per LDT applied to bauxite exports.[6] Thus, as the domestic alumina industry expanded, only the flat rate royalty was payable on the mining of bauxite processed locally into alumina. Of course, the alumina plants were liable to company profit

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1. *Agency for Public Information, Gov't of Jamaica, The Bauxite Industry in Jamaica* p.1, 3 (1975).
2. *Id.* at 13.
3. *Id.*
4. *Agency For Public Information, Gov't of Jamaica, Jamaica and Bauxite; Some Facts You Should Know* (1974).

4a. Daily Gleaner (Jamaica), May 15, 1974 at 1, col. 1.

5. *The Bauxite Industry in Jamaica, op. cit.* at 13.
6. Daily Gleaner (Jamaica), May 16, 1974 at 1, col. 1.

taxes, but in several cases these were at an early stage in their economic lives and not yet yielding profits. At the same time, just as there had been a problem about the appropriate price for bauxite for the purposes of determining company profits, the same problems arose with respect to the price of alumina. Once again there was no genuine market—indeed there is none today—and the question of where the profits were made, if anywhere, was open to challenge. In practice, the prices to be used in relation to determining the profitability of the Jamaican alumina industry were the subject of consultation between companies as well as the U.S. and Jamaican Governments.

This arrangement proved unsatisfactory to Jamaica. Firstly, it has led to a situation where the Government can claim that only one alumina company in four in Jamaica has ever paid any corporate profits taxes.[7] Secondly, because the deemed profits of bauxite mining were higher than the actual agreed profits on alumina refining, Jamaican revenue was diluted as the proportion of bauxite processed into aluminum locally rose.[8] This can be seen clearly in the following table:[9]

Bauxite Production and Taxation in Jamaica, 1970-1973

Year	Bauxite Produced (million LDT)	Revenue from Bauxite & Alumina ($million)	Average ($ per LDT)
1970	11.8	29.5	2.50
1971	12.2	30.0	2.46
1972	12.3	25.1	2.04
1973	13.4	24.4	1.82

Source: Ministry of Mining and Natural Resources, Jamaica

The situation outlined above is one which the Government of Jamaica felt it could not reasonably allow to continue to develop, particularly at a time of serious difficulty for the country. The new bauxite taxes are not, however, solely directed at raising sufficient money from bauxite exports to overcome difficulties caused by rising prices of oil and other commodities that must be imported. They are also an attempt to deal with the long-standing problem of taxing the real profits in bauxite mining and alumina production in an industry where these profits are not necessarily reflected in the actual prices charged at the interface between the various sectors. The method chosen for this is to set the tax at a certain percentage of the ingot price. This is the first point in industry where the price may be considered reasonably representative. The Government of Jamaica, however, requires companies to file details of actual prices realized and by taking reserve powers to deem prices where they feel those filed by the companies are for some reason or another not an accurate reflection of actual market conditions.

In the future, taxation of the Jamaica bauxite-alumina industries will be carried out at two levels. Firstly, there will be a standard royalty of 50 cents (Jamaican) per LDT on all bauxite or laterite mined. Secondly, there will be a production levy of 7.5 per cent of the average realized price in U.S. currency of a

7. *Id.*
8. *Id.*
9. Data in the Table was compiled from National Planning Agency, Gov't of Jamaica, *Economic and Social Survey of Jamaica* 77 et seg (1973) and *The Bauxite Industry in Jamaica, op. cit.* at 14.

short ton of primary aluminum divided by 4.3 per LDT of bauxite or laterite mined in Jamaica.[10] Because of the difference between a long dry ton and a short ton, this formula is apparently based on a ratio of 4.82:1 between Jamaican bauxite and primary aluminum (equivalent to a ratio of 2.495:1 between Jamican bauxite and alumina). The effective rates of taxation per LDT of bauxite mined and per lb. of primary aluminum produced at various ingot prices are tabulated below.[11]

Effective Rates of Bauxite Taxation in Jamaica
(expressed in U.S. currency)

Ingot Price (cents/kb.)	Royalty per Ldt bauxite (dollars)	Production Levy per LDT bauxite (dollars)	Total per LDT bauxite (dollars)	Taxation per lb. primary Al. (cents)
30	0.57	11.72	12.29	2.33
33	0.57	12.89	13.46	2.58
36	0.57	14.07	14.64	2.81
39	0.57	15.24	15.81	3.03
42	0.57	16.41	16.98	3.26
45	0.57	17.58	18.15	3.48

Source: Bauxite (Production Levy) Act 1974 (Jamaica)
Mining (Amendment) Regulation, 1974 (Jamaica)

Since the previous Jamaican taxes yielded approximately $2.50 per LDT of bauxite exported,[12] it is evident that the net effect of new taxes has been to add about $12.75 per LDT bauxite (equivalent to 2.45 cents per lb.) at the current list price of 39 cents per lb. Provided that there are not further increases in producer prices in 1974, the average published price of the primary ingot this year will be approximately 34 cents per lb.[13] At this level the bauxite taxes will add a net 2.17 cents per lb., or approximately 6.4 per cent to the price.[14]

The overall effects of this on the world aluminum industry will, however, only be 2.17 cents per lb. If all producing countries precisely follow Jamaica's line. However, Jamaican bauxite is relatively low cost on account of its proximity to the major North American market; other countries with less favourable bauxites may not secure the full tax level required by Jamaica. To this extent, the final effect on the total costs of the industry may be somewhat less than the figure quoted above.

A further feature of the Jamaican levy laws is that a basic rate of tax is specified independently of the aluminum price. Each company is required to produce a minimum tonnage of bauxite each quarter in Jamaica, and this minimum tonnage multiplied by the basic rate is the basis of calculating provisional quarterly tax payments.[14] At the end of the financial year, when average ingot prices are known for the year, these are used to work out the correct tax

10. *The Bauxite Industry in Jamaica, op. cit.*, at 14, 15.
11. Bauxite Production Levy Act of 1974, 97 *Jamaica Gazette* No. 13 at 62.
12. Address by Prime Minister Michael Manley to the Jamaica House of Representative on May 15, 1974 at 43.
13. *Agency for Public Information, Gov't of Jamaica, Jamaica and Bauxite: The Case for More Revenue* (1974).
14. Bauxite Production Levy Act of 1974, Sec. 4(1)(b), 97 *Jamaica Gazette* No. 13.

liability. So long as aluminum prices are rising, the correct rate of tax will be higher than the basic rate so that companies will tend to underpay tax throughout the year and will have to correct this at the end of the year. But if prices are falling, companies may overpay tax and be entitled to a partial refund.[15]

The minimum tonnage specified is done on a company by company, rather than a mine by mine basis, and appear to be very roughly equal to 90 per cent of the annual production of each company planned for 1974 (105 per cent of 1973 actual production).[16] One effect of the minimum tonnage provisions is to make it financially unattractive to scale down mining operations in Jamaica. If, for example, a company reduced output to 80 per cent of the minimum prescribed level, the actual tax levied would be some 25 per cent greater than if it mined at the minimum level. The effect of this provision is greatly to reduce the productive flexibility of mining companies in Jamaica. In effect, it means that operations must be continued more or less at their present level or be closed down altogether. It is clear that one of the purposes of this provision is to prevent companies gradually scaling down their Jamaican operations while expanding in some other country where there is no comparable tax legislation. The companies cannot escape from the Jamaican tax situation unless they have adequate new capacity elsewhere to replace the *whole* of their Jamaican production—except at a very high financial cost.

Related Tax Developments in Other Countries

For several years, the bauxite producing countries under the leadership of Jamaica have been discussing the possibility of forming an international association with a view to obtaining what they considered to be a fairer value for bauxite exports. Most of the developing bauxite producing countries have traditionally faced similar problems to those of Jamaica. Bauxite was, and is, an important export earning commodity, but royalty levels were low, and it was difficult to determine the profitability of bauxite mining because of the nature of price determination at this level in the industry.

These discussions were brought into sharper focus by the oil crisis in Autumn 1973. This had two effects. Firstly, it provided clear evidence of the possibility of obtaining higher prices for an essential basic commodity through joint action on the part of the major producing countries. Secondly, it placed the economies of most of the bauxite producing countries under severe strain since they are heavily dependent on imported oil and have a limited capacity to expand exports in the short-term. It thus became extremely urgent for these countries to try to increase substantially revenues from bauxite so as, in effect, to be able to pass on the higher oil costs.[17] Thus, the oil crisis has provided both the encouragement and the necessity for joint action on the part of the bauxite producers.

One result of this is the formation of the International Bauxite Association (IBA) has been accelerated,[18] and the developing bauxite producing countries have successfully attracted Australia has the largest and most rapidly expanding bauxite industry in the world,[19] and would, if it remained outside any association,

15. Bauxute Production Levy Act of 1974, §§ 4(9)-(10).
16. *Jamaica and Bauxite: The Case For More Revenue*, op. cit.
17. *Id.*
18. *International Bauxite Association Agreement*, March 5-8, 1974 (Conakry, Guinea).
19. *The Bauxite Industry in Jamaica, op. cit.*, at 1.

be a potential area to which bauxite consumers could switch their activities to escape from the higher prices being sought. It is, however, too early to determine the likely role of the Australian Government in the IBA. Clearly, Australia, as a major commodity producer, has a vested interest in international arrangements that provide for stable and renumerative prices over the widest possible range of commodities. It is likely that Australia, as a relatively high cost producer,[20] is conscious of the possible long-term danger to bauxite as a source of alumina that could flow from tax systems that push the bauxite price to excessive levels on the basis of the short-term inability of the consumers to substitute out of this situation. In this context, it is worth noting that each member of the IBA has a veto.[21]

The other founding members of the IBA are Guinea, Guyana, Jamaica, Surinam, Sierra Leone and Yugoslavia. These countries account for approximately 81 per cent of current world bauxite production and possess approximately 65 per cent of known reserves. The only potentially important large-scale source of conventional bauxite not current in the Association is Brazil.[22]

The IBA has not yet formulated any specific pricing or taxation policies. However, other countries, both members and non-members have started to follow the lead given by Jamaica. The most important of these is Guyana. The Guyana legislation is, in the most substantive matters, identical to that of Jamaica except that the rate of the production levy is 5.911 per cent of the average realized price of primary ingot in U.S. currency divided by 3.39 per LDT of bauxite.[23] This appears to be based on a ration of 3.8:1 between Guyanese bauxite and aluminum ingot equal to a ratio of 1.967:1 between Guyanese bauxite and alumina. However, the effective rate of taxation per lb. of aluminum metal contained in the bauxite is, under this formula, identical in the two countries.

The Dominican Republic, Haiti and Surinma have all recently either opened discussions, or announced an intention to do so, with a view to renegotiating bauxite tax arrangements. To the extent that these countries are under similar economic pressures as Jamaica, it seems that it will be difficult for their Governments to accept new arrangements that are not of the same order of magnitude as those already in effect in Jamaica.

In reviewing these taxation developments, it is noticeable that no distinctions have yet been drawn between two separate questions, namely the question of payment for the use of scarce and irreplaceable natural resources on the one hand, and the question of establishing a fair measure of the profits from bauxite or alumina on the other. Complications and possible conflicts are already emerging as a result of this.

Nearly all countries possessing irreplaceably scarce natural resources require royalties for their extraction in addition to, and on a distinct basis from the ordinary profits taxes levied on companies.

If a resource is scarce and irreplaceable, then it has a value attached to it over and above the value added to it by the work of extraction, refinement and shipment. In economic theory, this has been referred to as the "rental component of the price."[24] Since this rental part of the price cannot be attributed to the work

20. Mainly because of distance from major consuming markets.
21. *International Bauxite Ass'n Agreement*, Art 9, para 2.
22. *Encyclopedia Americana*, 373 (1974).
23. Bauxite Production (Levy) Act of 1974, § 12(a), *Official Gazette of Guyana*.
24. *See generally, Boulding, Economic Analysis* at 211-213 (3d ed 1955).

done by the extractor, there is a strong argument for countries holding sovereignty over the resource to regard this component as part of the national capital and to seek to retain it by levying a royalty.

The question then arises as to how large this component is in relation to the overall price of the commodity. Theoretically, this depends on the scarcity of the resource in question, and since bauxite is not a particularly scarce resource, one would expect, *a priori*, that royalties would be low—as indeed, they have been in the past. In practice, the only realistic method of determining the correct level of royalty to charge is to measure the extent to which a particular resource is economically intra-marginal. If, for example, bauxites from country A can be landed in the consuming country at a total per ton cost (i.e. a cost that includes normal profits and full amortisation of capital at replacement cost) of $11, from country B at $13, and from country C at $15, and if exploitation of the next richest bauxite would require incurring a total cost of $16, then, in theory, A should be charging a royalty of $6, B a royalty of $3 and C a royalty of $1. If this occured countries A, B and C would be retaining for themselves all the value in the bauxite that can be attributed to natural conditions such as the richness and chemistry of the deposits and the accidents of physical location, and the exploiting companies would be getting the same rewards for their work at every point.

It is to be expected, of course, that this elementary model will not operate smoothly in practice. It is a gross over-simplification. But its general implications cannot be ignored. Guyana provides a good example. Whereas in Jamaica the bauxite mining companies have continued their operations, albeit under protest, in Guyana, the main foreign producer has ceased shipping bauxite entirely.[25] There are, of course, a number of strategic, legal and political reasons that have contributed to this development which are outside the scope of this article. But there is a basic economic rationale for what has happened. Guyana has asked for a production levy that is, after taking into account the higher alumina content of their bauxite, identical to that of Jamaica.[26] But, as discussed earlier, alumina content is only one of the many factors that go to make up the quality of the bauxite. Location is another, and Guyanese bauxite is unfavourably located on account of the fact that large vesels cannot reach the Guyanese ports because of draft limitations at the entrance to the rivers. The bauxite must therefore be transhipped en route to the consuming countries, and this involves further real cost. Although richer in alumina, Guyanese bauxite also involves a significantly higher stripping ratios than Jamaican material. Guyanese bauxite was, in fact, marginally less competitive in the U.S. market Guinean bauxite, even before the introduction of the levy.[27]

This analysis suggests that if tax rates are set merely to reflect the alumina content of the bauxite, and not the full effective production costs, anomalies will arise and the long-term effect on company investment strategies will not be neutral as between countries applying the tax. This could lead to difficulties.

Jamaican bauxite is the favoured source for the United States market because it has, in the past, been relatively competitive. Individual companies have had properties elsewhere, however, and have continued to exploit these despite the

25. Telephone Interview with Sidney Smith, Embassy of Guyana, Washington, D.C., Mar 30, 1976.
26. Bauxite Production Levy Act of 1974 § 12(a), *Official Gazette of Guyana*.
27. *Ibid*.

cost penalty which was not, in relation to the full costs of metal production, excessive. However, over the last 5 years, it is the Jamaican bauxite industry that has expanded and those of Surinam and Guyana that have stagnated or grown at below average rates. This situation will continue if Surinam and Guyana duplicate the Jamaican tax system.

If all producer countries are to have the same percentage stake in the metal price, there will have to be a wide variation in the flat rate royalties to reflect the different "degrees of scarcity" of the various deposits. But the Jamaican royalty is only 50 Jamaican cents per LDT on the "scarcest" bauxite in the area. This suggests that, if there is to be an international arrangement among the bauxite producers that will not distort investment patterns, there will have to be a shift in the balance between production levies and royalties.