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Guinea: Selected Issues and Statistical Appendix

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GUINEA

Selected Issues and Statistical Appendix

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Approved by the African Department

December 6, 2007

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THE BAUXITE AND ALUMINA INDUSTRY: A MACROECONOMIC PERSPECTIVE¹

I. INTRODUCTION

1. **Guinea is endowed with the world's largest deposits of bauxite; it accounts for more than one-third of the world's known reserves.** Its production of bauxite, sourced from three mines located at Sangarédi, Kindia and Fria, is among the largest in the world. At present, crude bauxite and alumina constitute about 60 percent of Guinea's exports and generate a quarter of its tax revenues.²
2. **However, Guinea has not realized the full potential of its mineral resources.** Annual production of bauxite is very low considering the proven reserves. Production of alumina relative to bauxite is also low compared to other bauxite producing countries. The contribution of the sector to GDP declined from 13 percent in the early 1990s to 10 percent in recent years. The country has one alumina plant and no aluminum refinery. Hence, only about 4 percent of total bauxite production is locally transformed into alumina whereas the rest is exported as unrefined ore.
3. **The contribution of the bauxite and alumina industry to government revenue has been falling over the years.** Its share in government revenue was 60 percent in 1993, but only 20 percent in 2005. One possible reason for this decline is the persistent fall in Guinea's bauxite export price since the early 1990s, which appears to be the outcome of price renegotiations in the late 1980s that were conducted at the request of the mining companies. The share of bauxite and alumina in total exports has also fallen, from over 70 percent in 1990 to about 60 percent in 2005. However, the latter trend is expected to reverse in the next few years as several planned large-scale mining projects begin operations.
4. **This paper reviews the main reasons for the lackluster performance of Guinea's bauxite and alumina sector, paying particular attention to taxation and transparency issues.** It also examines the structure of the sector and discusses current investment and reform initiatives. The analysis reveals that growth of the sector has been constrained by such factors as inconsistency in mining taxation; lack of transparency in negotiations between the government and mining companies on pricing and taxation issues; and a generally weak investment climate.
5. Section B reviews the performance and structure of the bauxite and alumina industry in Guinea and looks at its medium-term prospects. Section C discusses the current mining tax system and reviews efforts to reform it. Section D highlights the transparency and governance concerns in the sector. Section E draws conclusions.

¹ Prepared by Mahvash Saeed Qureshi and Konstantin Fedorov.

² Bauxite is the most common aluminum ore. To produce aluminum, it is first refined into alumina (aluminum oxide trihydrate), which is further processed into metallic aluminum.

II. THE BAUXITE AND ALUMINA INDUSTRY IN GUINEA: BACKGROUND AND TRENDS

A. Performance, Structure, and Medium-term Prospects

6. **The bauxite and alumina sector generates more than 60 percent of Guinea's exports and at least 20 percent of its tax revenues.** The country is a major supplier of bauxite to alumina plants in the United States, Canada, and Europe. However, the relative importance of the sector has been decreasing since the early 1990s and its contribution to the mining sector, domestic output, exports, and revenues has declined noticeably (see Text Table 1).

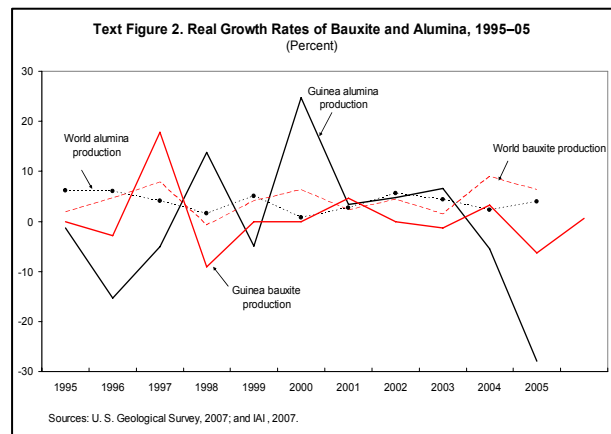
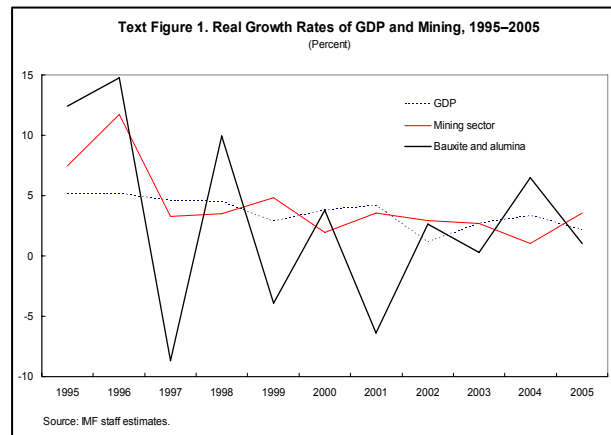
Text Table 1. Guinea: Contribution of the Bauxite and Alumina Industry to Guinea's Economy, 1990–05¹

	1990–93	1994–97	1998–2001	2002–05
Value-added (percent of mining)	85	83.5	73.8	66.9
Value-added (percent of GDP)	12.9	10.6	11.1	10.2
Exports (percent of total exports)	71.6	63.4	62.6	61.5
Tax revenue (percent of total tax revenue)	40.4	27.5	27.6	20.5
Tax revenue (percent of industry's exports)	32.2	27.1	24	18.1

Sources: Guinean authorities and IMF staff estimates.

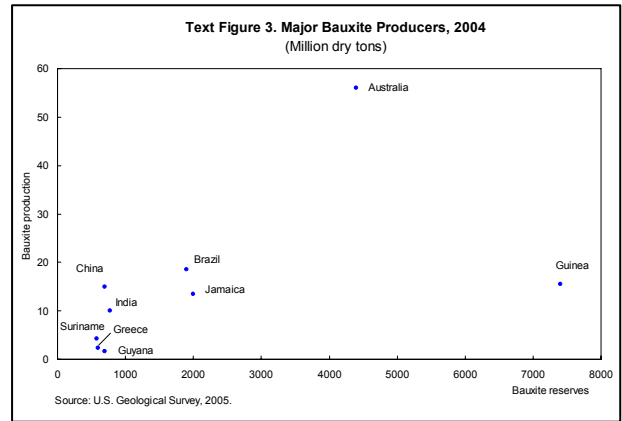
¹ Reported statistics are period averages.

7. **The performance of Guinea's bauxite and alumina sector has been very volatile for years** (Text Figure 1). While the average annual growth rate of real GDP was 3.4 percent and of the mining sector was 3.7 percent, the bauxite and alumina sector grew on average at 2.5 percent only during 1995–2005. Meanwhile, world production was growing at a fairly stable annual rate of 4 percent (Text Figure 2). Since the sector constitutes over 60 percent of total exports, its volatile performance dampened the overall export growth, and real exports grew on average at 1.2 percent annually in 1995–2005.³

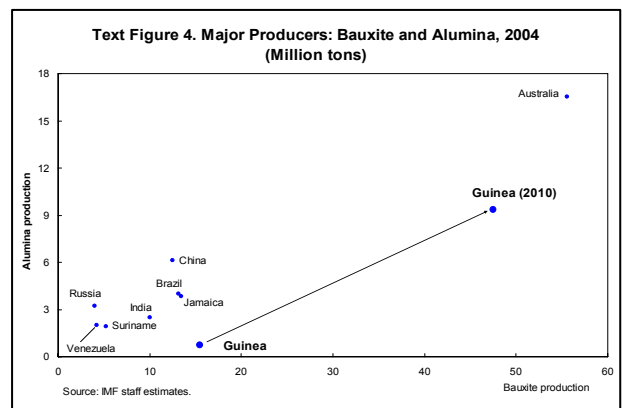


³ Source: World Bank (2007).

8. **Guinea is estimated to have about one-third of the world's bauxite deposits, most of which are high grade and remain unexploited.** A comparison of Guinea's bauxite reserves and production pattern with other major world producers shows that whereas Guinea has the largest known bauxite reserves in the world, its production is at par with countries like China and India that have only one-tenth of its reserves (see Text Figure 3).



9. **Guinea has the lowest alumina to bauxite production ratio of all the major bauxite and alumina producing countries** (Text Figure 4).⁴ The country has only one alumina refinery plant which has a production capacity of about 0.6 million tons, hence, more than 95 percent of the bauxite is exported raw.



10. **An important reason for the poor performance of the sector is insufficient emphasis on local transformation.** Campbell and Clapp (1995) observe that although the Guinean government had encouraged local transformation in the 1960s and 1970s, the emphasis weakened in the 1980s. This may have been because the international aluminum industry was restructured. Multinational companies diversified their bauxite sources and preferred to build alumina plants in locations that had favorable policy conditions, lower production costs (especially for energy), and proximity to large markets. As a result, bauxite-exporting developing countries like Guinea lost their bargaining power, and had to renegotiate pricing and fiscal arrangements with foreign companies at their request.

11. **Power supply constraints and a generally weak investment climate are other possible reasons for low growth in the sector.** Power supply, which is vital to production of alumina and aluminum, is a major constraint in Guinea.⁵ Poor transport infrastructure and lack of human capital and organizational capacity are also serious concerns. The adult literacy rate is only 29 percent; a majority of those employed by mining companies are illiterate. Firms find it

⁴ Only Guyana, which currently does not produce any alumina, has a lower alumina-to-bauxite ratio than Guinea.

⁵ Annual electricity production in Guinea is 320 mw, 40 percent of which is privately generated and consumed by mining companies. The state-owned electric company, Energie de Guinée, faces a range of financial and technical problems, among them payment arrears by large customers such as the state; a shortage of skilled staff; a poorly maintained distribution network; and electricity theft (EIU, 2006). Guinea, known as the “Water Tower of West Africa”, has a tremendous hydroelectric potential (estimated to be about 1000mw).

difficult to obtain reliable engineering and subcontracting services locally. Political uncertainty and security challenges have also hemmed in the bauxite and alumina sector. For example, one large international bauxite-producing firm complained that it regularly faces problems in securing shipments because the rails are blocked by ordinary citizens who demand compensation to release goods.⁶

12. Guinea's bauxite and alumina industry is dominated by three producers: Alumina Compagnie de Guinée (ACG), Compagnie des Bauxites de Guinée (CBG), and Compagnie des Bauxites de Kindia (CBK). CBK and ACG are controlled by the Russian aluminum giant RUSAL; they export primarily to Russia and Ukraine. CBG is a joint venture between the American aluminum firm Alcoa Inc., the Canadian aluminum firm Alcan Inc., and the government of Guinea.⁷ Its main export markets are North America and Europe (see Box 1 for details).

13. In recent years, a number of large investment initiatives have been proposed to increase bauxite and alumina production in Guinea. These include construction of six new alumina refineries and extension of ACG's existing alumina refinery. The total investment generated by these projects is estimated at about US\$20 billion (see Appendix I for details). Rough estimates show that by 2010 the output of bauxite and alumina would increase almost five-fold for bauxite and ten-fold for alumina if these projects are implemented on time (see Text Figure 4).⁸ As a result, exports and the tax revenue generated by this sector are expected to rise significantly.

14. The surge in global demand for aluminum is the main reason for the renewed interest of multinational companies in Guinea. World alumina and aluminum demand is expected to increase by at least 4 percent annually in the medium term, driven mainly by the boom in construction, transportation, and manufacturing in China.⁹ Guinea is expected to play a critical role in meeting this demand because of its unexploited bauxite reserves. International mining companies seem keen to invest heavily in Guinea and enhance its refining capacity. All planned alumina refineries will be built near bauxite reserves to avoid the high costs of transporting bauxite to alumina refineries elsewhere. Investing firms plan to overcome the infrastructural and energy constraints by investing locally in power generation, rail transport, and shipment and storage facilities.

⁶ Strikes and social unrest in the second half of 2006 temporarily interrupted production at the Compagnie des Bauxites de Guinée (CBG). Production stopped again in early 2007 due to country-wide labor strikes. CBG lost 631,000 tons of output during the strike; producing at only 25 percent of capacity, Compagnie des Bauxites de Kindia (CBK) lost 210,000 tons and Alumina Compagnie de Guinée (ACG) lost 36,000 tons, of output. Their rail network and locomotives were also damaged.

⁷ The multinational mining group Rio Tinto recently bought Alcan Inc. for US\$38.1 billion. The take over has created the world's largest aluminum company, Rio Tinto Alcan, with its headquarters based in Montréal, Canada. It remains to be seen if the new arrangement will affect the ownership of CBG in some way.

⁸ The estimates are based on the planned output of Global Alumina, 3PL, Dian-Dian, the first stage of the Alcoa/Alcan project, and the planned expansion of the ACG refinery. The ACG input-output ratio is used to derive the estimates and calculate the amount of bauxite that must be produced by each new plant for internal consumption.

⁹ Source: Roskill (2005).

Box 1. Composition of the Bauxite and Alumina Industry in Guinea

The Compagnie des Bauxites de Guinée (CBG), based at Sangaredi, was established in 1963 as a joint venture between the government, which owns 49 percent of the shares, and an international consortium, Halco Mining, which owns the rest. Presently, Halco Mining is owned by Alcoa World Alumina LLC (45 percent), Alcan Inc. (45 percent), and Dadco Investments Ltd. (10 percent). CBG began mining in 1973 and has exclusive rights to bauxite reserves in the Sangaredi Plateau. It also operates a port in Kamsar for drying and shipping bauxite and exports 11 to 14 million metric tons of high-grade bauxite annually to alumina refineries in North America and Europe.

The Compagnie des Bauxites de Kindia (CBK) began its mining operations as Office des Bauxites de Kindia (OBK) in 1974. OBK was created as a wholly state-owned enterprise but was transformed into a limited liability company, Société des Bauxites de Kindia (SBK), in 1992 after it ran into serious financial difficulties. In 2001 SBK was transferred to a Russian conglomerate, RUSAL, for a 25-year term and it has since been operating as CBK. CBK has annual production capacity of 3.1 million tons of bauxite. It supplies over 65 percent of its total bauxite output to the Nikolaev alumina refinery in Ukraine whereas the rest is exported to other locations.

The Alumina Compagnie de Guinée (ACG), also known as Friguia Alumina Refinery, has a long history of mining operations at Fria. It is a vertically integrated company that refines the bauxite it produces into alumina for export. Its mining operations began in 1957 and were controlled by a French firm, Pechiney Ugine, and then by an international consortium, Fria Company (Frialco), in which Pechiney Ugine had a 26.5 percent share. In 1973, Frialco signed an agreement with the government to create a joint venture, Friguia, in which the government stake was 49 percent. When Friguia faced serious financial difficulties, Frialco sold its share to the Government for a symbolic US\$1 in 1998. The government formed ACG as a management company in 2000 to operate Friguia with assistance from Reynolds Metals. The government retained full rights to the refinery and had a 15 percent stake in ACG. However, Reynolds Metals sold its share to RUSAL in December 2002, and in April 2006, RUSAL and the government reached an agreement in which both the Friguia refinery and the government's 15 percent share in ACG were sold to RUSAL. The current estimated annual capacity of the refinery is 640,000 tons of alumina and 1.9 million tons of bauxite.

Sources: Campbell and Clapp (1995), Bermudez-Lugo (2005), and Africa Research Bulletin (2007).

B. Trends in Bauxite and Alumina Prices and Export Revenues

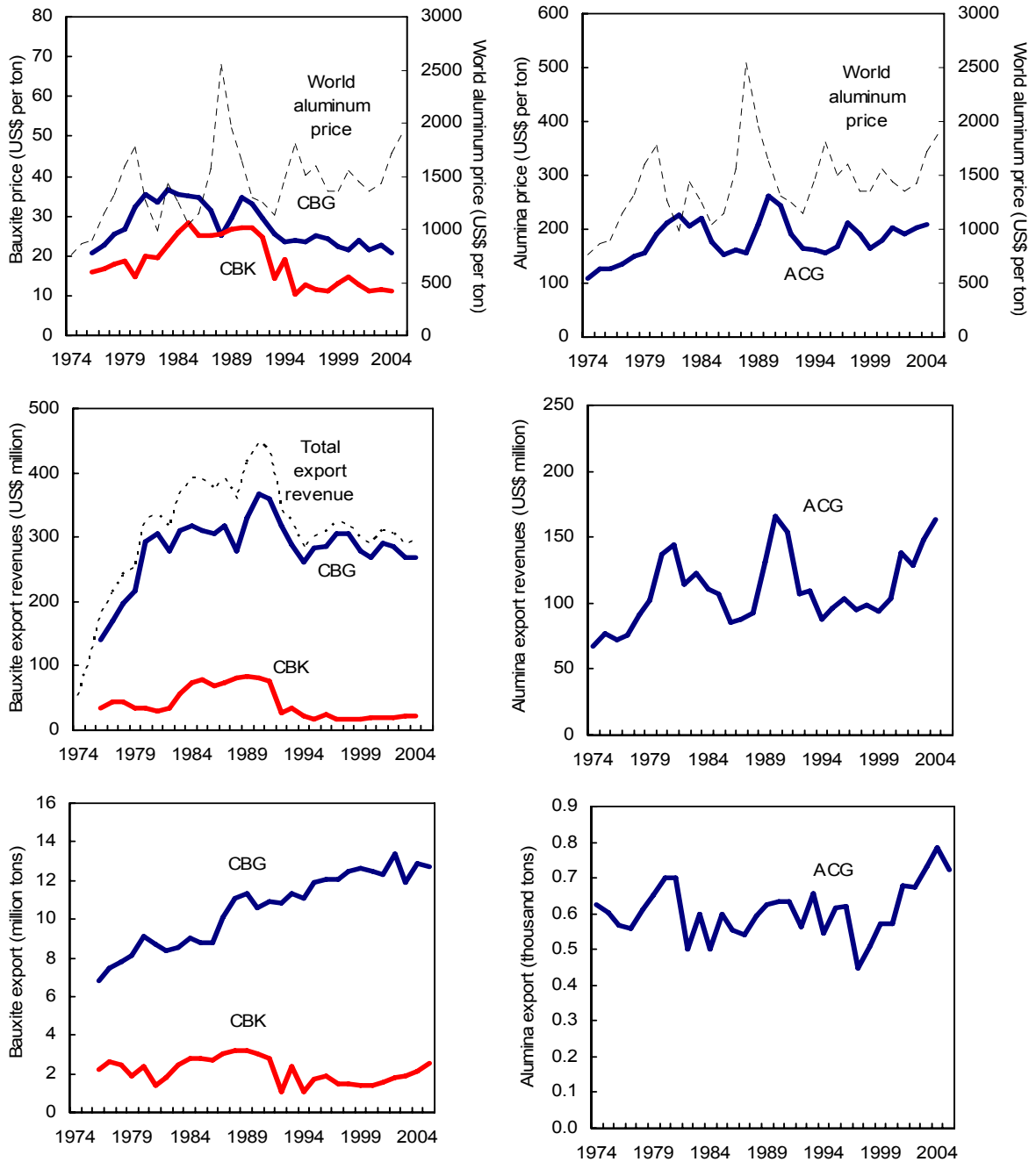
15. **Bauxite prices are only weakly correlated with world aluminum prices** (Text Figure 5).¹⁰ This is an outcome of the way bauxite prices are determined in Guinea. As is the norm worldwide, Guinea's bauxite and alumina producers are vertically integrated in aluminum production chains and sell their output abroad on prenegotiated prices to firms endorsed by their owners. Prices negotiated between mining companies and the government are based on long-term contracts, which typically imply a smaller and slower pass-through of world aluminum price changes.¹¹ Hence, the government does not immediately and fully benefit from any increase in world aluminum prices. This observation is supported by our formal

¹⁰ The world aluminum price is a natural benchmark to assess Guinea's bauxite export prices. This is because the prices of bauxite and alumina are not determined in international markets but are contract determined. Hence, no reference price exists for bauxite. In principle, contracts should take into account the world aluminum price and any movement in world aluminum prices should be reflected in Guinea's export prices of bauxite and alumina.

¹¹ The negotiated prices tend to be complex formulas that may take into account variations in the prices of aluminum and alumina and changes in production costs. Detailed information on individual pricing arrangements in Guinea is not publicly available.

econometric analysis shows that the world aluminum price has no immediate effect on bauxite prices in Guinea (see Appendix II). However, there is a long-run relationship between CBG and world aluminum prices: a 1 percent increase in the latter eventually translates into about an 0.4 percent increase in CBG's prices.

Text Figure 5. Guinea: Prices and Export Revenues for Bauxite and Alumina, 1974–2004



Sources: Guinean authorities, IMF (2006).

