

Mahmood Ali Ayub and Hideo Hashimoto. *The Economics of Tin Mining in Bolivia.* Washington, D.C.: World Bank. 1985.

The Bolivian economy is a textbook case of the distortions produced by an enclave of mineral production, mainly tin, and its political life has largely focused on the problem of ensuring that the mining industry plays a constructive role in national economic development. Bolivia was not able to force the private owners of the major mines to make such a contribution and as a result their properties were nationalized in the Revolution of 1952, and have since been operated by a State-owned corporation, COMIBOL. Although the mines had long been starved of fresh investment, the political economy of the Revolution further stripped resources from the mining sector in order to diversify the economy, and the economic crisis that was then generated forced serious attention on the technical operation of the industry. Over the past thirty years there have been several attempts to rehabilitate the nationalized mining industry, drawing on the expertise of foreign technical staff, and on foreign private and public capital which have generated a large number of studies and much internal political controversy. This book by two World Bank economists is the first attempt to provide a comprehensive account of the issues facing those responsible for formulating a policy for Bolivian mining which is based on some reliable statistics. It is theoretically and historically informed, and, most importantly, though sensitive to the intensely political nature of the problem, has no political axe of its own to grind.

Within the confines of 70 pages it provides a masterful account, elegantly written, and has a great deal to say to all those who have been concerned about Bolivian mining, whether from a scholarly, political, or technical point of view. There are also some lessons of interest to students of development problems generally.

While the market for tin has not substantially expanded since the 1950s, the price of tin has increased, especially by comparison with that of other non-ferrous metals. In an erratic but generally buoyant market, Bolivian producers were able to expand production, with easy access to foreign credit during the years of the petroleum boom, but since the late 1970s production has rapidly declined and it is the crisis thus generated that provides the focus of this study. It was published a bare six months before the onset of the crisis of the world industry that began with the collapse of price on the London Metal Exchange in October 1985 and which, when eventually resolved, will considerably exacerbate the problems of all producers. This is, therefore, a very timely analysis.

Bolivian tin is produced mainly from narrow veins in hard rock at high altitudes containing several impurities which make smelting and refining comparatively difficult. As a result, Bolivian production has generally been considered highly costly, especially when compared with the South-East Asian production from alluvial deposits which are considerably purer. The authors show that the real comparative costs of production (before payment of royalties and taxes) are also significantly affected by exchange rates. Bolivia has pursued a policy of overvaluation of exchange rates, and when this is taken into account Bolivia ceases to be a genuine high-cost producer; instead, it falls into the middle range with similar costs to those of gravel pump operations in Malaysia and Thailand, the next most important method of tin extraction after lode mining. This is an extremely important finding, and although the method used may exaggerate its precise extent, the point remains that the uncompetitiveness of Bolivian tin in the world market is a function of the exchange-rate policy pursued by the government. It would be most interesting to see to what extent this principle applies beyond the late 1970s; the same issue must be taken into account in other analysis of comparative costs in other industries in other countries. This policy not only serves to disguise the real position of Bolivia in the world economy, but it has also adversely affected the mining operations by reducing income. It is, therefore, a major contributory factor to the current sorry state of Bolivian tin mining.

In looking at the organization of tin production the authors concentrate almost exclusively on COMIBOL. This is unfortunate, since Bolivia, like most other tin producers, has an important small sector, and production here has declined at an even faster rate than for COMIBOL and the Medium private mines. A more systematic comparison with the private mines would allow some assessment of the extent to which future mining developments should be allocated to this sector. COMIBOL is an extraordinary organization; not only is it responsible for mining, but it also supplies food, housing, educational, and health services to its workers in a political context which allows excessive external intervention and in which its workers have had a long tradition of political militancy coupled with a skepticism of the capacity of experts to run the industry satisfactorily. The authors provide a useful catalogue of the organizational and policy weaknesses of COMIBOL, especially its lack of investment and long-term development and exploration policy. Soon after the study was published, a new Government fundamentally reorganized COMIBOL, but sufficient details of the new structure are not as yet available to help determine whether it will be able to implement the recommendations offered here, without which the long-term viability of the State-operated mines is seriously jeopardized.

In their struggle with the large private companies before the Revolution, Bolivians felt that they were at a serious disadvantage because all their tin was shipped as a concentrate to be smelted abroad, mainly in Britain. Since nationalization was designed to accomplish the economic independence of Bolivia, it was

generally felt that this was incomplete without a domestic smelter, and finally a domestic State-owned smelter (ENAF) started production in 1971. Such prestige projects are, of course, common in developing nations, but they may also serve economic goals of increasing the value added domestically, giving greater market flexibility and permitting further forward linkages. The authors are very skeptical about the eventual emergence of a metallurgical industry based on domestic tin. So they concentrate their evaluation on the direct economic performance of ENAF. This has been most disappointing, in part because of some technical problems, but mainly because of organizational factors. In addition, although the smelter was developed during a period of military rule, it recruited an excessively large number of workers and has paid them very generously. As a result of these factors, costs have been very high, and the data offered suggest that the saving in foreign exchange has been very limited, given the high proportion of inputs (fixed and variable) that are imported. The smelter has been a serious burden to a hard-pressed economy, though it has the potential to become a major asset. The political-organizational performance of ENAF seems to have been much worse than that of COMIBOL at any time in its history in spite of the fact that COMIBOL has always had to deal with a very militant trade union movement. The concerns of the authors have not permitted them to deal directly with these broader political factors which explain the problem they are addressing, and, yet, without such an analysis it is not clear whether their sound technical advice can be implemented.

Bolivian tin mining and smelting continue to face severe problems and the authors are not optimistic that their prospects, even if the mistakes of the past are corrected, are very good. Bolivian politics has often been conducted on a short-term basis to the detriment of the long-term development of the country, and politicians have tended to blame external factors. As the price of tin falls and Bolivia's precarious economic position worsens, this tendency will doubtless increase. Even if Bolivia cannot find the political will to correct its past mistakes, this study can nonetheless make a useful contribution by showing precisely where the responsibility for its predicament lies.

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