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Bolivia's Mining Industry in the General Economic Development

By Ulrich Reye, Göttingen

Bolivia comprises an area of about 470,465 square miles in the centre of South America where a population of only about 4.3 million people was living in 1965.¹

The country consists of three separate regions which are completely different in every respect: the "altiplano" (highlands), the mountain valleys, and the eastern lowlands.

The altiplano mainly consists of a high tableland situated, on an average, over 12,500 feet above sea level, which is enclosed by two chains of the main Andes mountain structure. It covers the western part of the country from north and south. The climate is arid and becomes progressively drier to the south from the northern Titicaca Lake basin. Annual average temperatures are relatively low, and the soil of the altiplano is poor and has been further impoverished by intensive farming over the centuries. These conditions combine to make present-day farming difficult and unremunerative in this densely-populated area. However, this area, especially its border districts in the surrounding cordilleras, contain vast ore reserves of non-iron metals, whose exploitation is the main source of Bolivia's foreign currency income.

The second region consists of the valleys leading down from the altiplano and its surrounding mountains to the eastern and north-eastern lowlands, which belong to the tropics. Climatic conditions in the valleys show a continuous transition from a subtropical and moisture-drenched atmosphere to semi-arid, extremely hot conditions, with a "temperate zone" in between.

The third part of the Republic, the eastern lowlands, is also extending from north to south, showing tropical and subtropical conditions with dense tropical rain forests containing valuable timber trees, extensive savannas, and dry districts resembling steppes.

A breakdown of the regional distribution of the Bolivian population results in the following tabulation:

Region	Region's Share in Total National Territory	Region's Share in Total National Population
	(in per cent)	
Altiplano	16	50
Mountain Valleys	14	37
Lowlands	70	13

¹ Secretaría Nacional de Planificación y Coordinación, "Bolivia en Cifras", No. 1, La Paz, August, 1966, p. 1.

From these figures, it is clear that there is great inequality in the distribution of the population but its true extent is even bigger as both soil qualities and climatic conditions frequently are not very favourable in the areas of greatest population density—especially not in the Altiplano. In some of the regions, large parts of the surface are steep mountain flanks (in most of the mountain valleys) and are increasingly subject to erosion, so that frequently only the valley bottoms can be used for farming. On the other hand, the eastern lowlands contain immense areas where both arable farming and cattle raising could be practised under ideal conditions, and yet, most of these districts have remained completely unutilised up to date. Bolivian farming, moreover, is still using some of the most primitive methods, and as no less than about 59% of the working population are listed as farmers², working cultivated soils of which 80% are situated on the altiplano and in the mountain valleys³, it is clear that large parts of these farming districts are overpopulated.

Distribution of Economic Activity

The following table⁴ illustrates the structure of Bolivian production and employment:

Structures of Production and Employment

Sector of the Economy	Percentage Share in Gross National Product, at Market Prices 1965	Percentage Share in Number of Persons Employed 1965
Farming and Stockraising	28.5	58.7
Mining	8.2	3.3
Oil Industry	3.9	0.3
Industry	12.1	6.8
Power Stations and Electricity Distribution	1.5	
Transport	8.5	3.5
Banking and Commerce	13.1	6.4
Construction	5.3	7.0
Service Industries	10.1	10.6
Public Employment	9.3	3.4

Agriculture, employing about 59% of the entire working population in 1965, produced only about 28.5% of the entire inland GNP, showing how abysmally low its productivity must be. The low share of industry in the overall GNP again proves the underdevelopment of this branch of the economy. It is interesting that mining produces only 8.2% of the

² Bolivia en Cifras, loc. cit., p. 1.

³ UNO, CEPAL; "El Desarrollo Económico de Bolivia", Mexico, 1958, pp. 249 passim.

⁴ Secretaría Nacional de Planificación y Coordinación: Bolivia en Cifras, No. 1, La Paz, August 1966, So 1-5.

entire inland GNP, in spite of this sector earning about 90 % of Bolivia's annual foreign currency income.

A satisfactory regional analysis of economic activities is being prevented by the paucity of regional statistical records. About 80 % of the entire agriculturally utilised surface are situated on the altiplano and in the mountain valleys, and there also is concentrated the entire mining activity. Crude oil (and some natural gas) is being produced in the lowlands, and in some of the mountain valleys the refineries are situated. Gross output value of Bolivian industry in 1963 was distributed as follows: about 64 % were concentrated in the capital, La Paz, which lies on the altiplano, 16.5 % in Oruro, also on the altiplano, and 12.7 % in Cochabamba, in one of the mountain valleys. Altogether, industrial activity in Bolivia was located in the following regions⁵:

Region	Region's Percentage Share in Gross Value of Industrial Production (1963)
Altiplano	80.3
Mountain Valleys	15.2
Lowlands	4.5

The figures, however, refer only to registered industrial plants, and listing also the numerous small plants, which generally operate still as trades and craft workshops, would probably narrow the gaps between individual regions.

However that may be, it is true that the Bolivian national economy is preponderantly based on activities going on in the highlands and in the mountain valleys.

Bolivian foreign trade again is characterised by the following two main features: 1. Mining products virtually dominate Bolivian exports; 2. Imports consist to a very high degree of foodstuffs, durable consumer goods, and industrial raw materials. These imports are significant for the hardly diversified industrial production of the country and the poor productivity of Bolivian farming.

From the "twenties" of the present century the share of mining products in overall Bolivian exports has been fluctuating between 90 and 95 %, of which the major part are, and were, tin ores. Apart from tin, Bolivian mines produce also antimony, lead, zinc, silver, tungsten, and gold. Serious efforts to diversify Bolivia's exports have not started before the "fifties", and their results have hitherto been very modest.

A feature of imports is the rising trend of foodstuff deliveries, relative to the total, caused by a severe lagging behind of the country's agricultural production as against rising inland demand. Food processing also is hardly developed.

⁵ Ministerio de Hacienda (Ministry of Finance), Anuario Industrial (Economic Yearbook), 1960-1963.

One-sided Regional Development

The following paragraphs will discuss the causes of Bolivia's one-sided economic development, concentrating economic activities almost exclusively in the country's western highlands on the basis of ore mining as the only worthwhile form of production.

Bolivian mining experienced its vigorous expansion from about the beginning of the present century. Its effect was a transport infrastructure which, up to about twenty years ago, served the requirements of the extractive industry exclusively. The prime example are the railways of the western rail network, whose main lines were built by private companies following considerations of private profitability only. In other words, the mining areas were linked with the Pacific coast by rail, because these routes guaranteed profit yields from transport activities. Roadbuilding also was undertaken only in Bolivia's western regions, mainly linking the towns which grew up through the expansion of mining.

The growth of such a transport system led to a degree of isolation of the eastern lowlands, which had not existed previously in spite of the absence of good traffic arteries. During the nineteenth century, the lowlands had seen some not inconsiderable beginnings of agricultural plantation work in the tropical parts of eastern Bolivia. The crops grown there—cotton, sugar, rice—were transported by packmule along difficult routes to the centres of consumption situated on the altiplano and in the mountain valleys. Up to the turn of the century, Bolivia had been largely self-sufficient in food supplies, but when the western railways were constructed according to the requirements of the mining areas between 1880 and 1930, it became progressively more convenient and also cheaper to import many foodstuffs and commercial crops, especially from the tropics, from abroad. Agricultural development in eastern Bolivia was killed in its promising beginnings, the jungle reclaimed the cleared areas that had been farmed, and even farms in the altiplano and mountain valleys that were remote from the new traffic arteries lost their former importance.

In the initial period, importing basic foodstuffs and raw materials was not problematical, as mining provided sufficient foreign currency for this purpose. The problem as such became noticeable only after a growing population, towns of increasing size, and the start of Bolivian industrialisation were claiming successively larger slices of the foreign earnings to pay for food and raw material imports. The percentage share of food imports in the total import bill thus rose from 10 % (the average between 1925 and 1929) to 19.9 % (1950-1955), and the share of raw material purchases from 24.5 % (1925-1929) to 34.9 % (1950-1955).

Mining is concentrated on the altiplano. It was one of the main influences attracting the population to the altiplano at the expense of the rest of the country, but even before this time, the altiplano had already been the main population centre, for historical and social reasons.

Western Bolivia's towns were, in part, the direct fruits of mining and its earnings. Partly they grew up along the traffic channels serving the mining areas, as entrepôts for imports and exports, and as distribution centres for imported goods, later also as the suitable centres for new industries serving consumption. The economic ties linking these towns to others beyond the borders of the geographical region and with foreign countries are often more important than their exchange of goods and services with other economic centres inside Bolivia.

Weak Impact Upon Industrialisation

When discussing the effects of mining's absolute predominance upon the process of industrialisation, it will be useful to separate the periods up to 1952 and after, when the Bolivian revolution determined economic development. Before 1952, almost all mining enterprises belonged to three privately owned companies, which had grown up during the enormous expansion of tin mining, from the late nineteenth century up to the big world slump of 1929.

But in spite of the enormous importance of mining as the most important source of Bolivia's foreign currency income, mining has hardly contributed to Bolivian industrialisation, for the following reason:

□ Mining created very little demand inside Bolivia, as the mines never employed more than between 2 and 3% of the country's working population. In other words, mining did not stimulate private demand, it did not contribute to the growth of the inland market, and it did not set up any incentives for industrial growth.

Bolivian mining works with a high capital share in its investments. In view of the big supply of cheap labour, this may appear uneconomic, at a first glance. But technical conditions of ore mining demand production methods basing on a high capital outlay, and there is not much scope for substituting cheap labour for capital investments.

□ High Bolivian mining profits, which persisted especially up to 1930, were never invested in other Bolivian industries but transferred abroad or reinvested in mining. One of the main reasons for this may have been the narrowness of the inland market, as farming was based on "latifundia" (huge semi-feudal estates) which were not abolished before 1953, and between 50 and 60% of the population never entered any market (wages of peons and semi-servile leaseholders were almost always paid in kind).

□ Bolivian mining also did not produce any "linkage effects", i.e. the creation of processing units (smelters), of auxiliary industries, e.g. the production of blasting explosives. One of the reasons for the absence of such "linkage" was the insufficient development of Bolivia's energy resources at the time (hydroelectricity, crude oil, natural gas); but the big mining concerns may also have systematically followed the tactical principle to process crude ores in

foreign smelters, in which they held an interest, as their power leverage vis-à-vis the Bolivian Government thus remained stronger.

□ Nor did mining investments themselves have any very useful effects on the Bolivian economy (multiplier effects), as almost all the investment goods were imported from abroad.

Nationalisation of the three big mining companies after the social revolution of 1952 was almost exclusively caused by the growing bitterness felt by Bolivians because this powerful branch of the national economy had profited inland economic development so little.

It was intended to make nationalised mining at last serve the interests of the nation, to make the mines finances a large part of those projects which were to be put into practice under a scheme for redirecting the entire economic policy of the country. From 1952 onwards, Bolivian Governments persistently endeavoured to diversify the structure of production, to modernise and extend farming, and to open up the rich eastern lowlands.

Unfortunately, nationalised mining could not do much to foster economic development: many of the mines that are worked are nearing exhaustion; state management of mining proved inefficient; mining workers showed little inclination to work hard, and their trade unions carried out such an anarchic policy that the whole branch of the economy soon got into the red. Tin and other metal exports declined perilously and currency income shrank. In spite of these adverse developments, part of the needed foreign currency could be mobilised by a supreme effort for financing diversification projects. Big investments in oil for exploration, for laying a pipeline net linking all the regions of the country to oil and gas, the creation of refineries and of a lubricants plant, etc., enabled Bolivia after a few years of this work to become self-sufficient in refinery products and to start exports.

From 1960 onwards, nationalised mining has been on the way back to healthy production and exports. An important contribution to this recovery was made jointly by the Federal Republic of Germany, the Bank for Inter-American Development, and the US which together have made available about US \$ 40 million through a so-called "triangular" operation.

The Bolivian Government would like to commission a German firm to build a tin smelter at Oruro, the first step for true vertical integration between mining and processing industries. The Bolivian Ten-Year Plan also provides for the creation of a number of auxiliary industries, e.g. the manufacture of mining explosives.

Known undeveloped tin ore reserves and the efforts of the Bolivian Government to use the latent development incentives of Bolivian mining for evolving a more diversified national economy permit of a moderate degree of optimism regarding the future part

that mining may play in the overall development of Bolivia.

In retrospect, it is obvious that one-sided mining development has gravely distorted the regional economic structure, almost never promoting industrialisation. On the contrary, mining grew in complete isolation from other branches of the economy, orientated towards foreign markets.

Only two advantages of mining development can be quoted here:

- ☐ Mining earned sufficient foreign currency to finance imports of investment goods and raw materials needed by other industries;
- ☐ After its nationalisation, the mining industry was able to make a limited contribution to Bolivian economic diversification.

Balance of Eight Years of Economic Planning in Indonesia

By Maruli H. Panggabean, Cologne

It was on July 5, 1959, that President Sukarno promulgated his by now much abused decree concerning a planned economy. With its publication democracy in Indonesia practically came to an end at least for the time being, for this decree excluded the people from participation in political decisions and social control in the affairs of state. In the beginning of this period there was admittedly still much talk about social control, but this was nothing but propaganda, for the data required for the exercise of a suitable control were unavailable. Today, almost all politicians in Indonesia admit that they had no idea how bad conditions were in the Indonesian economy a few years ago.

President Sukarno was quite right in declaring in 1959 that the number of political parties in Indonesia was excessive. It had been impossible to form a cabinet without a coalition, which meant that all cabinets were constantly threatened by crises. But when he incorporated in his National Council the so-called "functional groups", i.e. a heterogeneous conglomeration of interests, he did not really change the situation. Admittedly, no cabinet crisis occurred in the eight years of his leadership, but constant cabinet reshuffles and the progressive expansion of the Government (120 ministers) could also not ensure continuity in the execution of political decisions. With the promulgation in 1959 of the decree introducing a planned democracy and a planned economy all concerted political action came to an end, and as the political will disintegrated, the appearance of a mystical leader in the person of President Sukarno was bound to be most opportune. Furthermore, to round off his policy of "divide and rule" he also took into his Government the Indonesian Communist Party to act the part of the Trojan horse of democracy.

In this analysis it is intended to look at the eight years of economic planning in the light of this political development. The main question that arises is how in the face of such manifold interests one has tried to give effect to economic decisions in a continuous and coordinated manner.

State and Private Enterprises

In the economic order of Indonesia economic decisions may be taken by the state as well as by private or cooperative undertakings. Foreign enterprises, which before the second world war had dominated most spheres of economic activities were either nationalised or confiscated in 1957/58.

State enterprises operate mainly in the following sectors: foreign trade, heavy industry, mining, plantations, public utilities, banking, the sugar industry and transport.

Before the second world war private entrepreneurs and merchants were still rare, being in general unable to compete against the bigger and more efficiently run foreign enterprises. Possibilities for expansion and rationalisation were limited by lack of means. It was impossible to finance expansion through savings or hidden reserves, for profits earned by Indonesian firms were small owing to strong foreign competition. Being in general commercial firms or limited partnerships, they were legally barred from access to the capital market, which at that time was in any event still in its infancy.

It was only in the years of 1950 to 1955 that the Indonesian Government began taking measures for the furtherance of Indonesian enterprises. Within the framework of the "BENTENG" (Fortress) policy, which was carried out by the then Minister for Economic Affairs, Mr Sumitro Djojohadikusumo, Indonesian private enterprises were granted facilities in the shape of credits on favourable terms, import licences and political protection against foreign competition. Thanks to these measures Indonesian enterprises increased rapidly in number. There were then some 4000 to 5000. Many of them were neither bona fide nor really enterprises in the true sense of the word. They were entitled to sell the import licences which they had obtained from the Government on fulfilling certain conditions (such as the transfer to the Central Bank of advance payments). For this reason many of these imports licences got into the hands of already well-established Indonesian and foreign private enter-