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INDUSTRIAL DEVELOPMENT STRATEGY AND POLICIES: THE EXPERIENCE OF BOLIVIA 1/

by

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1/ The views and opinions expressed in this paper are those of the author and do not necessarily reflect the views of the Secretariat of UNIDO.

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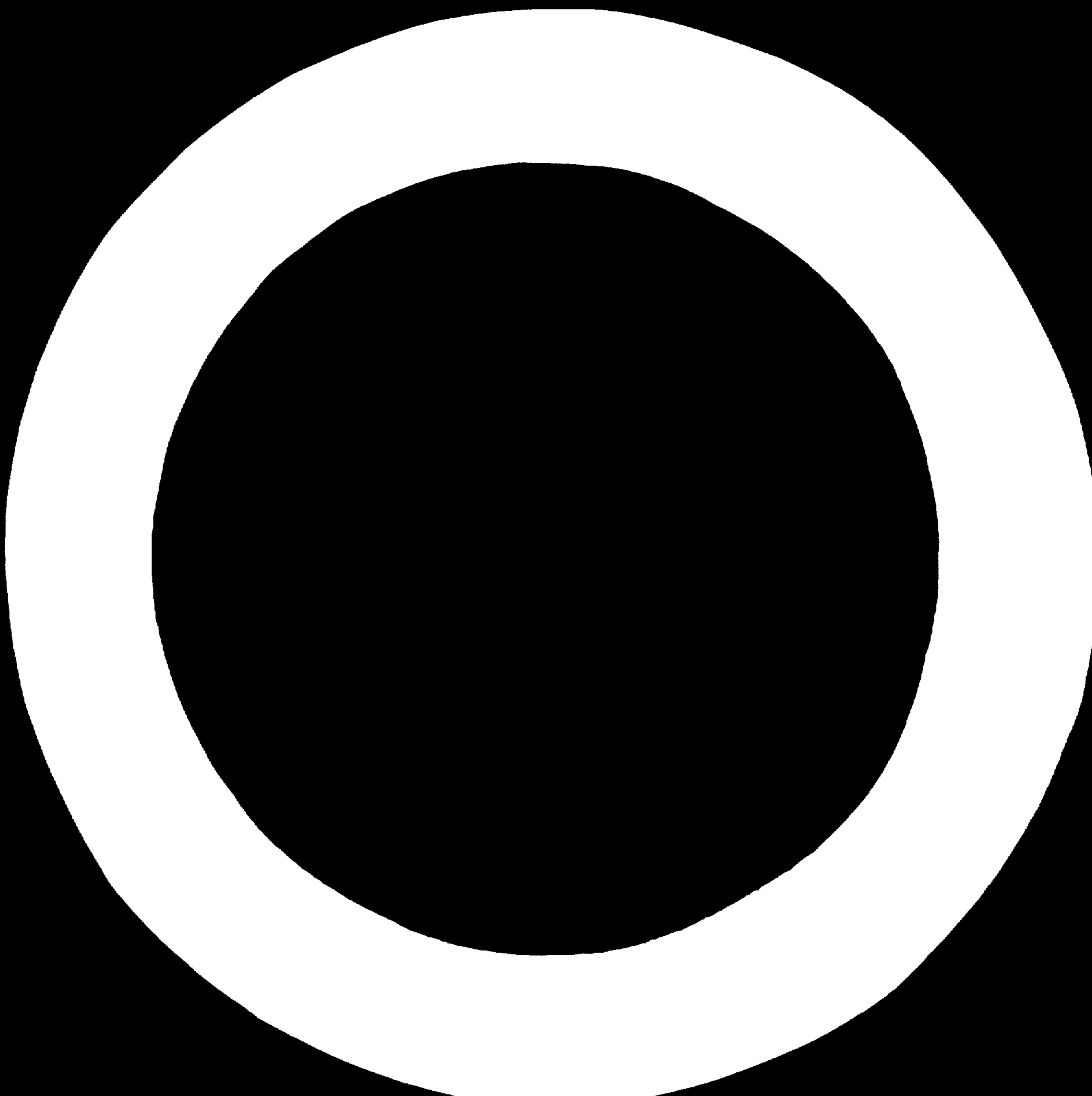

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INTRODUCTION

This paper has been prepared at the request of UNIDO. The outline provided by Mr. Line has proved an extremely useful guide.

The outline has been adhered to in all respects. Where necessary, statistical tables have been included to support the views expressed in the text. They are to be found at the end, in annex A.

The figures in brackets relate to the references which appear in annex B.

The author wishes to thank UNIDO for giving him the opportunity to prepare this paper. The questions raised in the outline have made it necessary to think about and investigate many problems and will encourage further study of them in the future.

SUMMARY

The small size of the market in Bolivia, the country's difficult geography and the fact that it is land-locked have been and remain the chief obstacles to its industrial development. Industry has been set up mainly on the basis of domestic savings, because Bolivia has benefited much less than other Latin American countries from foreign investment and immigration.

Industry has shown a great ability to adapt to the difficult conditions prevailing in the country. Because of the small size of the market, it has had to make its way by producing the few items of mass consumption, using domestic resources. The proportion of domestic inputs in larger-scale industry is one to one.

Various sectors of industry (sugar, footwear, beverages, cement and textiles) have a value added of $10 million or more, and their impact on the economy is still greater, because they stimulate the production of raw materials.

Further industrial progress will require radical action in agriculture, because the quality and quantity of inputs (cotton, wool, hides and skins, milk, etc.) need to be improved.

Artisanal or cottage industry accounts for [illegible]0 per cent of the total labour force in manufacturing. It will continue to play an important role in employment for a long time to come. Nevertheless, studies need to be made in this sector in order to improve processes, training and other aspects. It enjoys a special position which enables it to compete and even to export its products.

Industry as a whole needs assistance in training its work force, particularly with regard to markets and designs.

Bolivia's entry into the Andean Pact and the Investment Law of 1972 have led to special incentives for new capital. Bolivia enjoys preferential treatment under the Pact and has been assigned certain goods to manufacture which it either produces already or will be able to produce within the short or medium term.

I. PRE-CONDITIONS FOR INDUSTRIALIZATION

A. The market

The Bolivian market is extremely limited, not only because of the actual size of the population (5,331,000), but also because of the low *per capita* income.

Although it is not the purpose of this study to consider the various factors which place the country at a relative disadvantage in pursuing development goals, it is necessary to note some of them. One of the most important is the fact that Bolivia is land-locked, which is an enormous obstacle in its dealings with the outside world. The rugged terrain in the most densely populated area, at a height of 3,000 to 4,000 metres above sea level, and the ethnic composition of the population, culturally uprooted and disorientated, are other disadvantages which the Bolivian economy has to face in its development.

Taken together, these factors form something like a concealed cost that any economic activity in Bolivia has to pay, and this has to be borne in mind in any development strategy.

Despite these disadvantages, the Bolivian economy has been able to adjust to the situation to a certain extent. Unlike other countries, it is doing so with very little help from abroad, since neither immigration nor foreign investment has played more than a marginal role so far.

Mining, producing practically the only goods that can bear the enormous cost of transport, has been developed mainly by Bolivian miners. Foreign investment is likewise uncommon in industry, and even where the industrialists are not themselves Bolivian, the investment generally comes from domestic sources.

The opportunities opened up by the Andean Pact Agreement are the key to the future development of Bolivian industry, provided that the country can specialize in products whose unit value is substantial in relation to the transport costs. This policy is also essential to avoid competition within the common market itself in the simpler lines of production.

B. Transport

As has already been said, the physical difficulties represent a considerable obstacle for the Bolivian transport system to overcome. The cost of establishing the infrastructure is accordingly very high, as is the cost of operating the system.

Up until 1940, transport policy was dominated by the need to export minerals. It was this that led to the construction of the present railway lines connecting Bolivia with the Pacific coast. Since the main urban centres are situated in the mining area, they were also connected, but the large eastern and northern regions were left without any links at all. Only from 1940 onwards did the country start to take the development of its road system seriously.

The logical preference in favour of rail transport for minerals meant that any idea of a proper roads policy, particularly for the agricultural areas, was lost sight of.2/

Transport problems continue to be an obstacle to the country's industrialization, to integration of the market and to participation in the sub-region. Since at the present stage primary comodities play a major role in industrial development, those problems are particularly important. For example, the cost of transporting tree trunks to the saw mill and then to the markets, amounts to $100 per thousand square feet. The tanning industry has to send the salt by aeroplane to Beni, and then transport the hides, also by aeroplane, to La Paz or Cochabamba.

C. Power and water

In 1950 it was felt that the limited supply of power and water had been an obstaole to greater development in other sectors. The shortage of power led to strict rationing in the towns where industrial plants were located. In various places, moreover, the installed capacity was insufficient. Legislation on power and water was lacking, there were no competent authorities to regulate their use and the power systems were not uniform, particularly as regards frequencies and voltages.

In 1952, out of a total of a little more than 80,000 kw of installed capacity in Bolivia, 20,000 kw was produced by private generators, not counting those used in mining.

2/ The Cochabamba - Santa Cruz highway was built after bitter controversy, because the general preference was for continuing the railway line.

The water supply in the main centres was also inadequate or non-existent. In La Paz, Oruro, Cochabamba, Potosí and Sucre, the systems were antiquated and only supplied a fraction of the urban area.

Over the period 1960-1970 total installed capacity almost doubled, as did the output of electric power. Supply frequencies and voltages were made uniform (with some exceptions) and interconnexion of the network was started with a 115-kV line 150 km long. Over the period in question, the consumption of electric power grew at a cumulative rate of 6 per cent per year. By 1975, installed capacity will be increased by about 130,000 kw, and approximately 400 km of interconnexion lines will be set up.

In the administrative sphere, appropriate regulatory and supervisory bodies have been set up, an electricity code has been introduced and a water act is shortly to be passed.

Another important development in recent years is that liquid gas has come into use - mainly for domestic consumption, but a contract has already been signed for a study on laying a pipeline to Oruro so that the gas can be used in metallurgical processes.

As far as the supply of drinking water is concerned, much less progress has been made. La Paz is working on the second stage of a master plan designed to overcome the domestic and industrial shortage. Oruro has finished a first stage and Santa Cruz has dealt with the problems of the town itself and smaller places in the department. In Cochabamba and Potosí, on the other hand, very little has been done. Sucre has built a new mains system, but has not solved the intake problems satisfactorily, and Tarija needs a new project.

D. Industrial sites

The industrial areas grew up spontaneously at first. Later they were set aside exclusively for industrial purposes. These areas have not been the subject of proper studies and regulations, mainly because Bolivian industry did not to start with present the problems that can be expected in the future. Nevertheless, the towns that seem to have the best chances of industrial development are dealing with the problem. In La Paz, for example, the Alto zone offers suitable conditions and will have an abundant supply of water from Tuni-Condoriri; in Santa Cruz plans have been drawn up for the industrial area; in Cochabamba the main difficulty is the water supply; and in Oruro communications are the main thing that needs to be improved.

There are no industrial estates in Bolivia, and a relatively high proportion of enterprises will have to be relocated. There will obviously have to be co-ordination among municipal and departmental authorities in order to make a thorough study of the problems connected with the location of the industries assigned to Bolivia within the Andean Group.3/

The present distribution of industry, as far as enterprises with more than 25 employees are concerned, is as follows:

Location	Percentage
La Paz	49
Cochabamba	22
Santa Cruz	13
Oruro	8
Sucre	5
Other towns	5

E. Local raw materials

The problem with supplies of local raw materials for industry is the weakness of the agricultural sector. Naturally, the situation has developed considerably since 1950.

In 1954 the proportion of imported to domestic inputs in industry was 3 to 1.4/ It is now 2 to 1, and in larger-scale industry it is about equal.

Despite the shortcomings that may exist in the supply of local raw materials, they play a major role in the country's industrial development. In value added terms, the industries that us a greater proportion o local raw materials are the leaders. Those whose annual value added amounts to $10 million or more include sugar refining, textiles, footwear and brewing, which together account for a substantial proportion of the sector's total output.

Industrial surveys have not brought to light any complaints about interruptions in the supply of imported inputs or special restrictions on their entry, although in the case of small-scale enterprises, delays in filling orders cause a certain amount of trouble.

3/ The State provides industry with sites (chap. VI.C).

4/ See table 1.

Comments are, on the other hand, made about local materials, mainly as regards their quality. For example, Bolivian cotton is a short fibre with low resistance and is not well cleaned. The leather is of poor quality: it is not uniform, it has marks and scratches and the drying is not well done.

Overcoming these difficulties is a complex task and means going to the root of the whole system of agro-industrial resources. It involves the selection of new varieties, genetic improvements and better methods of cultivation, irrigation, improvements in plant health, etc.

In the case of leather, the poor quality is due to poor feeding, certain parasites which scar the animals' hides (ticks), skinning techniques, and, of course, the breed.

What needs to be done immediately is to establish quality standards and to encourage the organization of enterprises with the responsibility for supplying such inputs and the capacity to do so.

Among the important measures that have been taken is, for example, the setting up of COMBOFLA, which has established quality grades and prices for wool.

F. Human skills

Given the general conditions prevailing in the country, it is obvious that the shortage of human skills at all levels has been a very important obstacle to industrial progress, and it can be said that as far as this aspect is concerned the changes that have occurred between 1950 and the present have certainly not altered the essence of the problem.

In countries which have a great deal of immigration, human skills are available among people with experience of modern technological processes, who can be absorbed into the productive system. The State has sought to deal with this problem by establishing university departments of industry and technical institutes, which train large numbers of young people, but industry simply does not employ them.

According to the studies of industry in Bolivia made by Arthur D. Little Inc., the method universally adopted by Bolivian enterprises to supply themselves with skilled labour is on-the-job training in their own plants. Occasionally training is given abroad. The personnel thus trained are offered sufficient advantages to keep them in the enterprise's employment. Bolivian workers are able and learn quickly.

The level at which the shortage is most often found, according to the same study, is middle management. Executives are usually qualified and experienced, but the personnel employed at the middle level lack the necessary technical know-how, with the result that the plant is not properly used and the products are of a lower quality than they could be. (1)

Inquiries at enterprises have revealed certain shortages; examples are operators of high-speed equipment and technical personnel for special processes. While the value of such inquiries is open to question, they shed some light on the matter, and a summary of the results is given in table 4.

G. Available financing

In the years before 1950 Bolivian industry was financed mainly from domestic savings, with the exception of the cement industry, part of the leather goods industry, some pharmaceutical lines and other branches of less importance.

About 60 per cent of the industry in existence in 1950 had been established during the 1920s, the period during which Bolivia entered the world market as one of the leading producers of tin.

Up to 1930 Bolivian mining grew rapidly, achieving an output in the last years of the period which has not been surpassed since. From 1920 onwards, part of the profits from mining went into industrial investment.

Table No. 1 shows trends in exports from 1925 to 1955. (2)

After the great crisis, various factors combined to act as a check on the national economy. They resulted in part from the world crisis itself, from the emergence of new competitors on the international market and, finally, from the war with Paraguay between 1932 and 1935, which set off an inflationary process with grave consequences for the country.

This phenomenon, which is characteristic of Bolivia's economy, seems to show that even at that time the opportunities for mining to stimulate a spontaneous process of economic development had been exhausted.

From 1911 to 1930 mining was in a position to provide a substantial economic reserve and a surplus of currency. The fact that the State's share of both was small and the absence of a proper economic policy meant that Bolivia lost an opportunity which today can be seen to have been unique.

After 1930 the level of investment in industry was lower. An ECLA study based on imports of capital goods shows the rate of industrial investment in machinery and equipment up to 1955. (3) In view of the nature of Bolivian industry, it is possible that total investment, i.e. including civil engineering, may be two and a half times greater than shown in table 2.

In 1954 the banks were authorized to expand their portfolios by 30 per cent above the limits applicable until that date, so that they could make industrial loans for periods of up to eight years. It was also stipulated that during the first two years 40 per cent of banks' portfolios was to be converted into loans for the same purpose. However, the arrangements for approving and checking the use of such loans were inefficient, some years later it was argued that the loans had been used for speculative purposes, and this policy was ended.

It is necessary to digress a little here in order to explain that in 1952 Bolivia had a revolution, which set itself and achieved three goals: large-scale mining, which was responsible for about 80 per cent of the country's mining output, was nationalized; an agrarian reform was introduced, abolishing large estates; and all citizens over 18 were given the vote, even if illiterate.

At the same time, steps were taken, with the bank loans mentioned above, to create something like an indigenous middle class, in order to put life into the market economy.

The main aim was to transform the backward Bolivian economy into a modern one, breaking the bonds that were undoubtedly responsible for centuries of under-development.5/

H. Entrepreneurial initiative

The main sources of initiative in starting new manufacturing enterprises were the following: the existing cottage industries, which established the existence of markets and the feasibility of processes;6/ the import and export trade, which opened people's eyes to the possibility of imitating imported foreign products; people from abroad and Bolivians who had lived abroad and had contact with manufacturing processes in other countries.

Mining and the import trade to which it gave rise have been the main source of inspiration and resources for industrial entrepreneurs. Specific branches have generally come into being when the supply of certain imported articles ran into difficulties, either because of the shortage of currency or because the producer countries were unable to supply them.

5/ The fact that the final goals of this revolution have not been achieved is due mainly to the following reasons:

1. The peasant's traditional relationship with the big landowner was not the only obstacle to progress; there was also nature itself, i.e. geographical conditions on the high plateau, which are not favourable for creating wealth;
2. Owning the mines does not mean anything if the prices on the world market are low. After the revolution, tin prices fell so low that the State had to subsidize mining during the most critical years;
3. The force of inertia is too strong in a backward society and affects even those who are responsible for the process of development;
4. The combination of adverse circumstances pushed inflation to extreme limits, as can be seen from the cost-of-living index for those years (table 3).

6/ Cottage industries had been in existence, accumulating skills and experience, since the colonial period. José Maria Dalence reports the existence of 17,683 such establishments in 1838. They included cotton and wool weavers, producers of tocuyo (a cotton fabric of medium coarseness), bakers, liquor producers, cane millers, carpenters, smiths, tailors, dyers and gold and silversmiths.

Although no studies have been made on the concentration of industrial ownership, the fact that Bolivian industry is in its early stages means that large industrial concentrations have not come into being; rather, it can be said that ownership is too scattered. Cases of a single industrial enterprise controlling a substantial portion of the market are rare; they include one enterprise which is a subsidiary of a large foreign firm and two others which use modern processes. There are examples of enterprises producing the same item which show an extraordinary disparity in their productivity but which have nevertheless coexisted over a long period.

Capitalists are undoubtedly a small group in Bolivia. It often happens that one entrepreneur has interests in various activities at the same time (mining, banks, agriculture and industry). The natural consequence is that power is concentrated in the hands of a limited number of entrepreneurs.

II. INDUSTRIALIZATION ACHIEVEMENTS IN THE PERIOD 1950-1972

A. A brief review

Table 5 shows that new industries in Bolivia continue to be based on the consumer market. There is no evidence that they are moving over to the production of capital goods.

Resource-based industries have been playing a more active role in recent years, and mainly the following: sugar refining, textiles, dairy products, leather and footwear, meat and meat products, and tin and zinc casting.

An expansion of agro-industry requires considerable investment in the infrastructure, drainage and irrigation. The country is endeavouring to produce substitutes for food imports, particularly oils, wheat and wheat flour.

Exports of manufactured goods are still very limited; sugar, coffee, leather and cotton are the main items. Bolivia's exports of these items were worth $2.1 million in 1971, representing 1.5 per cent of the country's manufacturing output.

There cannot yet be said to have been any significant progress in the participation of Bolivian entrepreneurs in the Andean common market. This is a direct result of the actual agreements that were adopted and the adjustment that industry has to make in order to supply the wider market. The Investment Law was adopted in December 1971 and the lists of Bolivian products that would enjoy complete exemption became known at more or less the same time. Although the reaction has been slow, various firms are taking advantage of the new Investment Law and deciding to enter the common market. Some of them are already exporting, mainly coffee, tinned fruit and whisky.

The main agreement governing Bolivia's share of industrial exports is the Subregional Integration Agreement (also known as the Andean Pact), signed by Bolivia, Chile, Colombia, Ecuador and Peru in Bogotá on 26 May 1969.

The general aims of the Agreement are: "To secure the balanced and harmonious development of the region, development which will lead to a fair distribution of the benefits derived from integration of the member countries and thus reduce the existing gaps between them".

The Agreement makes provision for various kinds of machinery and measures to achieve this objective, including (a) harmonization of economic and social policies; (b) joint programming and intensification of the process of subregional industrialization; (c) a common external tariff, to be achieved in a manner and according to a time-table which have already been approved; (d) programmes designed to speed up agricultural development; (e) preferential treatment for Bolivia and Ecuador. (3)

The benefit to all members who have signed the Agreement is further participation in the Andean market, a market which is considerably wider than the present one. For example, the consumption of steel sheet in Bolivia seems to be about 60,000 tons, whereas in the Andean market as a whole it is 1.3 million tons, or 20 times as much.

In addition to the advantages common to all members, there are a series of clauses which favour Bolivia in particular, some of which may be called transitional and others permanent. For example, the periods allowed for abolishing tariffs are greater in the case of Bolivia, and the country has been allocated a list of exports which will be completely free of duty (decision 29), with effect from 1 January 1971. The list mainly includes agro-industrial items which the country is in a position to produce or is already producing for the domestic market.

It has also been allocated a sizeable share of the list of goods not produced in the region, including products of the chemical, metal, metalworking and engineering industries, which it has been allowed periods of between five and seven and a half years to produce. These products have been totally exempted from duties and restrictions with effect from 28 February 1971, and the other Andean countries have undertaken not to take measures of any kind which could frustrate these policies.

The list in question includes industries of great importance for the country, which apart from providing new and major sources of employment will lead to increased exports to the Andean region and to the rest of the world worth some $35 to 40 million. The investment necessary is estimated at between $15 and 20 million. (4)

B. Statistical indicators of industrial development progress

According to the national accounts, manufacturing (including cottage industry) contributed about 13 per cent of the gross domestic product (GDP) during the period 1950-1971; there were fluctuations around this level, but no steady improvement. According to the same statistics, the highest level was reached in 1964, with 16.4 per cent. The sector's present share is about 14 per cent (see tables 6 and 7).

The fact already stated in section C that the GDP did not grow for ten years (up to 1962) actually means that the industrial sector stagnated during the same period.

The important role played by mining in the financing of capital goods has already been mentioned. The value of mineral exports in 1960 was only half what it had been in 1952, and until petroleum production led to an improvement, the availability of currency was a serious curb on industrial expansion.

From 1962 onwards, there was a marked recovery and the average annual rate of growth in GDP between 1962 and 1971 was 5.68 per cent. The industrial sector grew somewhat faster.

The procedure for calculating the national accounts and the value added for different sectors in Bolivia results in fairly reasonable approximations, in keeping with the quality and quantity of information that can be obtained and processed in the country. It should be said that some of the methods used need to be improved and that the statistics need to be systematized, because every time one consults official sources of information one gets unpleasant surprises. For example, the changes in the base year for calculating GDP at constant prices have been unnecessarily frequent, with the result that the percentage figures for different sectors show substantial differences. Or again, the corresponding changes have not been made in old classifications to bring them into line with new ones, and this creates confusion (e.g. petroleum refining used to come under petroleum, but is now under industry). There have also been frequent changes in what the services sector covers. No explanation is given of the methodology adopted, etc.[1]

In Bolivia economic analysis necessarily starts from a multitude of fragments of information, which have to be evaluated according to the user's own judgement. It is very difficult to use information cold, to draw conclusions from it without first collating it and reducing it or expanding it to the required extent.

One can talk with some assurance about industrial employment in 1950 and in the recent period (1967-1970), since in those years there was either a census (1950) or a survey (study on human resources in 1967, study on opportunities for industry in 1970). (5

Table 9, giving estimated employment by branch of activity, represents the nearest approximation to the truth that can be achieved in Bolivia at present.

By combining the information available one can arrive at the following conclusions: in 1950, there were 1,109 industrial enterprises, while in 1967 the number of enterprises registered was only 873. This indicates that there has been some concentration of industry and that the most inefficient enterprises have had to close their doors.

The survey made in 1967 showed that the number of industrial enterprises and cottage industry units together amounted to 2,600.

It should be explained that even a careful survey would not catch a large number of small enterprises operating in rural areas or on a seasonal basis (e.g. at Christmas, carnivals, fairs, etc.). Another difficulty has to do with determining the number of persons employed per enterprise, because apart from the permanent staff, there are also temporary workers. Some of these are auxiliary workers (e.g. in sawmills and tanneries) and some of them have special hiring arrangements (e.g. chestnut peelers). There are also certain kinds of co-operatives whose members work at home and deliver the products to the head of the co-operative (in La Paz there is a leading leather goods factory which uses this system).

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[1] Sometimes misuse of apparently accurate figures complicates and distorts the work: for example, when the ECLA group calculated the GDP for Bolivia it used only one deflator - the family-shopping-basket price index for the town of La Paz, because that was the only one which had been systematically studied. Today the Secretariat of the Council for Economic Affairs and Planning uses as many deflators as there are sectors and the choice of deflator depends on personal judgement.

On the basis of the information available, table 8 gives the relevant figures, which are to be regarded as estimates.

III. THE STRATEGY OF INDUSTRIALIZATION, 1950-1972

A. Selection of priority industries

During the period 1950-1962 there was no plan. In the 1940s, a mission led by Mr. Bohan drew up a plan, which is a model of its kind - simple, consistent and practical. (5)

After 1950 there were two favourable developments: first, progress in international technical assistance (establishment of the Inter-American Development Bank, the United Nations assistance programme, studies by the Economic Commission for Latin America, etc.) and, secondly, the bold economic policy adopted by the Bolivian Government, which was anxious to organize economic research on a systematic basis so that it could then draw up a plan.

Against this background the country's first planning unit was organized, with the advice of experts from ECLA, the Bureau of Technical Assistance Operations and the Food and Agriculture Organization (FAO). This unit did preparatory work up to 1958 and then set about drawing up a plan to cover the 10-year period 1962-1971.

The 10-year plan was based on certain conditions whose chances of fulfilment were very uncertain: for example, that international finance amounting to something more than $300 million would be available at the right time for the projects in the investment programme; that machinery for channelling domestic savings would be set up; that the political situation and institutional framework would be sufficiently stable, etc.

Up to 1964, the differences between the objectives of the plan and those of the Government, on the one hand, and the priorities accepted by the international financial agencies (AID, IDRB, IDB, United Nations) were still substantial.

The quantitative targets under the 10-year plan are given in table 10. The investment actually made during the period 1962-1971 was about $8 million a year. Table 11 shows the financing of investment by means of bank loans to the private sector. To these sums should be added about $2 million a year for profits re-invested (for the rates of exchange, see table 12).8/

The plan laid down general guidelines and started off a process of planning which was a most important step forward for Bolivia. In 1964 political changes occurred which led to the formal abandonment of the 10-year plan.

Over the last 10 years a system for the identification and promotion of projects has been developed. The priorities are established in the form of lists, and they are reasonably well complied with as regards the sectors in which investment is made, but not so satisfactorily as regards such aspects as adherence to schedules, performance and follow-up.

The institutional evaluation procedures are based mainly on the following criteria: (a) return expected; (b) currency savings; (c) employment; (d) addition to GDP.

The institutional arrangements are not clear and there is not enough co-ordination.

B. Implementation of industrial projects

Although the Government's economic policy was implicit in the 10-year plan and the projects to be undertaken by the public sector were later specified, co-ordination and relations with the private sector were very poor, if not non-existent. That was because of the distrust of economic planning which the private sector showed, and continues to show.

The Government's policy in the development plan, not only for the industrial sector, but also for the mobilization of domestic savings and for credit and taxation, needed to be spelt out and put into effect. Progress was slow and painful. In any particular situation there are generally many different interests involved and there is no unity of approach.

8/ The amount of resources called for under the 10-year plan for all sectors was not much greater than the amount that was actually spent. The plan provided for $300 million in foreign loans, and in fact the country contracted debts for a similar amount, but the funds could not be used in accordance with the priorities laid down in the plan and the foreign loans were provided on conditions which meant that a large proportion of the sums in question returned to the country of origin. In some cases the cost of projects was up to 60 or even 100 per cent more than had been estimated by the foreign firms of consultants, etc.

Changes of policy were too frequent during this period and they were accompanied by measures which thwarted the aims of the plan. The role played by the legislature, as a deliberative body through which a national consensus could be reached on the plan, was more or less negative.

The main impetus for industrialization came from the local private sector. Since 1962, the State has promoted some industries in which private investors had shown no interest.

The Government's involvement in the industrial sector cannot be described as successful. There have been examples of unnecessary competition with the private sector, inefficiency and negligence, and faulty application of the criteria for project selection.

Foreign investment in industry has not played a leading role, either before or after 1950, including investment by bilateral donors.

C. Promoting exports of manufactured goods

During the 1960s various measures were taken to ensure that selling manufactured goods was made attractive for businessmen.

The institutional measures, however, are only part of the problem. Foreign markets are such that the main difficulty is usually the quality of the product. Naturally, the "institutional measures" are also intended to deal with this situation, but only in the long term.

The establishment of the National Export Institute and the adoption of the Investment Promotion Law, which includes incentives for sales abroad, were important steps. Another important aspect is the existence of special bodies for marketing manufactured goods.

In addition, the way has been opened for negotiating entry into new markets. Bolivia's foreign trade has been diversified to some extent, and together with the other Latin American countries it adopted a plan of action in the Viña del Mar consensus with a view to gaining access to the United States market for exports of manufactured goods.

Although there are some loopholes through which action could be taken along these lines, Bolivia has not shown enough skill in taking advantage of them, and the lack of continuity and improvisation in conducting negotiations means that useful efforts undertaken in the past get bogged down. One fault that needs to be remedied is the constant changes made in the staff responsible for negotiating international agreements and the absolute disregard shown for considerations of economy in this connexion.

As has been said above, with Bolivia's entry into the Andean Pact, an exceptionally favourable situation for promoting exports has arisen, and despite some mistakes, mainly due to initial inexperience and lack of continuity, the work being done in this field at the technical level is adequate, though not enough.

D. Promoting employment

There is no adequate basis of comparison for assessing the real advantages from the employer's point of view of using labour-intensive techniques. Of course, the installed capital per worker in Bolivia's cottage industry is less than a hundred dollars, but by the very nature of cottage industry it cannot provide guidelines for a future industrial development plan. The low capital intensity, resulting from a lack of appropriate technology, is of necessity associated with extremely poor productivity, apart from the sacrifice of quality it implies in many cases.

Government measures for increasing employment in the industrial sector are basically aimed at improving cottage industry, which in fact absorbs the majority of the labour force in the manufacturing sector (70 per cent). It has a comparative advantage which enables it to compete and even export some of its products.

In the modern sector of industry the capital intensity is necessarily high. There seems to be no possibility of a double option: on the one hand to absorb the technology of industrialized countries and on the other to use labour-intensive methods.

E. Location of industries in new centres and rural areas

At the present stage it is inevitable that the bigger and more complex industries should grow up where the best infrastructure facilities are to be found. The cost of such facilities - accommodation for workers, water, power, roads, communications and available labour makes it advisable for efforts towards a basic infrastructure to be concentrated on a small number of "industrial poles".

Where possible, industries have been located in less developed areas, so as to distribute the benefits of industrialization. The Investment Law offers far greater incentives for investment in Beni, Pando, Tarija and other less developed areas (See chapter VI C, paragraph g).

F. Development of manufacturing technology

The Government has only recently become involved in this field and the positive results can be summarized as follows:

A study of the opportunities in existing industry, covering 167 firms considered to be the country's leading ones, has provided a basis for assessing the situation and determining the main problems facing industry, *inter alia*, those related to the use of technology.

A study on the transfer of technology is being carried out in collaboration with OAS. A standards and technology department has been set up and is operating efficiently within the Ministry of Industry and Trade.

Assistance is being provided through the Government and in collaboration with international organizations to improve the leather and textile industries.

Nevertheless large gaps do exist. Foreign technical assistance is misused, and the country cannot be blamed entirely for this. There are no regulations governing either the type of technology obtained or the fees paid. Nor are there any regulations regarding design and the responsibilities of consultants and executants.

G. Training of local labour and management

The work of technical institutes, universities and vocational training centres has only made a slight contribution towards solving the problem of training local labour and management.

The reason for this is not that so little training has been given, but that people leaving such institutes are faced with a lack of actual opportunities in industry.

Some people feel that it would be a good idea to compel industry to employ certain categories of trained staff, but such a move might be dangerous and still not get to the root of the problem.

The setting up of a training department within the Ministry of Labour is one step towards tackling the problem, but there are still no concrete and positive results.

IV. INDUSTRIAL POLICIES AND MEASURES 1950 - 1972

A. Soundness of projects

The procedures followed to ensure the technical and commercial soundness of industrial projects in the public sector are in some cases dubious. Even though it has become "almost" the general practice to make a technical and economic feasibility study first, cases are by no means rare in which it is clear that such studies lacked validity. For example, an over-sized chemicals factory, not in a position to offer products at competititve prices and with a striking number of design defects. Or another factory for processing non-metallic ores which had problems with the supply of local materials and had to try and solve them after construction had been completed.

Among the reasons for this situation is the failure to recognize the authority of the technical organizations responsible for final decisions on projects. In matters connected with financing, contracts, etc. for projects, the public sponsors are usually represented by a high-ranking person who can give his approval even though queries are raised in the technical report. Projects still tend to be discussed in emotional terms, with vague references to "wishes", "concerns" and "inspirations". Procedures for mobilizing public funds are very laborious.

B. Tariffs and taxes

Industry is protected by tariffs on imported goods that might offer competition. No serious problems seem to have arisen under the present system. The Study of Existing Industry mentions one case only, that of synthetic fibres, which carry a 100 per cent tariff, to the detriment of firms which use them as a raw material. This tariff, however, in turn protects the cotton and wool textile industry, which is decidedly more important, and forces industry to produce substitutes for imported synthetic fibres.

The degree of tariff protection for many industries is absolute (imports of similar goods prohibited), e.g. for cement, lubricants, sugar, cigarettes and matches. In other cases, such as textiles, footwear, etc., protection is strong.

There are two problems which are particularly significant in Bolivia; these are the tax system and smuggling.

As far as the former is concerned, basic changes (8) are needed to correct certain anomalies: farming, which accounts for 16 per cent or more of the GDP, makes no tax contribution, and contributions from the building industry are minimal; the contributions made by the mining and State petroleum industries bear no relation at all to the size of those industries or the status of firms in the public sector. For reasons such as these, the pressure of taxation falls on industry and commerce.9/ Given that there is also smuggling, it is understandable that tariff protection is neutralized to a certain extent by the double effect of high taxes and unforeseen competition, which cuts down industry's already narrow market.

C. Investment Law

This Law (9) was passed on 16 December 1971. It defines the scope of the private, mixed and State sectors.

It establishes the following benefits for investors:

(a) Exemption from customs duties and supplementary taxation on imports of machinery, equipment and vehicles for production purposes;

(b) Similar exemption for raw materials not produced locally;

(c) Reimbursement of import duties on imported raw materials and other materials incorporated into export products, when the preceding benefits have not been granted;

(d) Exemption of exports of manufactured goods from domestic production and sales taxes, from departmental and municipal taxes, and from university surtaxes;

(e) Very high rates of depreciation, for example: building and construction, 10 per cent perannum; material and equipment, 25 per cent, etc.;

(f) Ten-year exemption from taxes on new buildings belonging to firms benefiting from the law;

(g) In the departments of Beni, Pando and Tarija and other less developed areas, exemption (subject to express authorization) from taxes on profits and total income from the investment for ten years;

(h) Industrial sites provided by the State;

(i) Grants of public land for farming enterprises;

(j) Either on request or on its own initiative, the National Investment Institute (INI) may apply to the Ministry of Finance for a revision of tariffs on imported products similar to those produced in the country, on the strength of a technical and economic study.

9/ No contribution is made by the cottage industry sector, either, and a considerable section of commerce is very averse to paying taxes.

V. INSTITUTIONS AND INDUSTRIALIZATION, 1950 - 1972

Up until 1972 the Ministry of Planning (now the Secretariat of the National Council for Economic Affairs and Planning) was mainly responsible for preparing plans and strategies. The Ministry of Industry and Trade is currently responsible for preparing the Industrial Plan, advised by the Secretariat of the National Council for Economic Affairs and Planning (CONEPLAN). Final approval for the plans is given by the Government on the strength of CONEPLAN's report.

There are a number of bodies responsible for industrial projects in the public sector: the Ministry of Industry and Trade (Bolivian Development Corporation), the Ministry of Mining and Metallurgy (National Smelting Company (ENAF), Iron and Steel (SIDERSA), principally) and the Ministry of Defence.

The National Investment Institute, coming under the Ministry of Industry and Trade, is the agency responsible for implementing investment incentives or getting them implemented.

The main other organizations are the following:

Bolivian Development Corporation: operates as a development bank, administers a number of lines of credit and advises on the preparation of projects (comes under the Ministry of Industry and Trade);

Directorate of Standards and Technology;

National Institute for Export Promotion;

State Bank (loans for industry);

A number of specific marketing organizations (sugar and sugar cane, rice, coffee, wool).

Co-ordination is a problem, on account of the complexity and number of organizations. The Ministry of Industry and Trade is however empowered to impose a line of conduct in basic matters. In more serious situations the Secretariat of the National Council for Economic Affairs and Planning may intervene.

ANNEX A

Table 1. Imported and domestic supplies to industry (1954)
(in millions of US dollars)

	Domestic production	Imports	Total
Consumer goods	19.2	21.8	41.0
Non-durable consumer goods	18.0	17.6	33.6
Durable consumer goods	1.2	4.2	5.4
Intermediate products	4.3	28.9	33.2
Building materials	0.8	4.5	5.3
Machinery, equipment and accessories	1.4	21.1	22.5
Total	25.7	76.3	102.0

Table 1(a). Bolivia's imports and exports (1925-1950)
(in 1950 dollars)

Year	Imports	Exports
1925	52,536	92,752
1926	55,124	89,745
1927	52,627	98,469
1928	56,785	102,330
1929	64,001	113,493
1930	53,772	94,696
1931	27,763	77,786
1932	23,804	54,606
1933	30,871	44,769
1934	43,879	61,954
1935	49,698	66,929
1936	47,744	73,442
1937	56,311	75,752
1938	68,456	73,464
1939	68,020	78,701
1940	78,022	101,711
1941	83,791	112,108
1942	79,938	106,688
1943	85,474	114,799
1944	77,560	108,634
1945	63,700	112,977
1946	70,968	101,118
1947	70,757	93,332
1948	76,512	107,618
1949	80,504	98,664
1950	55,843	93,258

Table 1(b). Bolivia's imports and exports (1950-1971)
(in thousands of current US dollars)

Year	Imports: Total	Imports: Manufactured goods	Exports: Total	Exports: Manufactured goods
1950	33,843	43,500	93,258	400
1955	82,300	-	102,300	-
1960	71,400	66,000	67,300	500
1962	96,926		76,123	
1963	103,274		86,404	
1964	102,693		113,837	
1965	126,271		131,836	
1966	138,426		150,436	
1967	130,946		166,325	
1968	152,846		172,636	
1969	163,010		200,420	
1970	158,529	71,403	231,319	1,484
1971	171,283	77,546	212,253	1,016

Table 2. Estimated capital invested by the manufacturing industry in production machinery and equipment

(in thousands of 1950 dollars)

Year	Gross investment	Depreciation	Net investment	Existing capital
1925	2,088	313	1,775	12,220
1926	2,585	367	2,218	14,438
1927	1,433	433	1,000	15,438
1928	4,778	464	4,314	19,732
1929	6,729	592	6,137	25,869
1930	4,888	777	4,111	30,000
1931	2,033	900	1,133	31,133
1932	1,661	954	727	31,860
1933	1,621	956	665	32,525
1934	575	976	- 401	32,124
1935	618	964	- 346	31,778
1936	1,359	953	406	32,184
1937	1,991	966	1,025	33,209
1938	2,773	996	1,777	34,986
1939	2,546	1,050	1,498	36,484
1940	2,915	1,095	1,820	38,304
1941	1,583	1,149	434	38,738
1942	1,704	1,162	542	39,280
1943	1,954	1,178	776	40,056
1944	1,531	1,202	329	40,385
1945	1,109	1,212	- 103	40,282
1946	1,934	1,208	726	41,008
1947	2,085	1,230	855	41,863
1948	3,922	1,256	2,666	44,529
1949	4,436	1,336	3,100	47,629
1950	2,147	1,429	718	46,347
1951	2,991	1,450	1,541	49,888
1952	3,833	1,497	2,336	52,224
1953	2,100	1,567	533	52,757
1954	1,451	1,583	- 132	52,625
1955	2,191	1,579	612	53,237

Table 3. Cost-of-living index in La Paz

Year	Index	Year	Index
1931	100	1952	5,664
1936	214	1953	11,412
1937	598	1954	25,613
1938	519	1955	46,102
1939	733	1956	128,518
1940	865	1957	276,482
1941	1,156	1958	285,058
1942	1,505	1959	342,934
1943	1,630	1960	379,627
1944	1,747	Change in base year	
1945	1,911	Year	Index
1946	2,179	1966	100
1947	2,768	1967	108
1948	2,663	1968	117
1949	2,924	1969	122
1950	3,426	1970	123
1951	4,563		

Table 4. Branches of activity in which recruiting problems have been encountered (1966)

Activity	Number of firms
1. Mechanics and machinery repairers	19
2. Electrical fitters, installers and repairers of electronic equipment	14
3. Salesmen and sales promoters	13
4. Electrical, electronic and mechanical specialists	11
5. Economists	9
6. Engineers and specialists	9
7. Tool manufacturers and machine tool operators	8
8. Workers employed in the preparation of foods, beverages and tobacco	6
9. Spinners, weavers, knitters and dyers	3

SOURCE: Survey carried out by the Human Resources Research Centre of Ohio State University.

Table 5. List of 25 major industries established since 1950

Activity	Date of establishment	Capital invested (Pesos 1970)	Annual sales (1970)	Cost of imported supplies
Tin ore smelting	1971	144,000,000	355,199,800	-
Sugar and alcohol	1951	103,653,889	106,622,240	-
Sugar and alcohol	1956	81,846,999	64,151,104	-
Sugar and alcohol	1968	72,000,000	13,140,000	-
Sugar and alcohol by-products	1951	35,191,882	55,513,193	-
Lubricants and motor and industrial oils	1957	31,470,000	41,707,289	-
Tyres and inner tubes in general	1966	27,395,292	1,286,817	1,123,703
Alcoholic beverages	1969	11,883,000	1,068,000	934,140
Milk products	1953	9,755,034	16,186,547	-
Textiles	1969	9,600,000	9,200,000	-
Cotton spinning and carding	1959	8,934,819	11,496,750	3,234,800
Metal coachwork in general	1966	8,529,621	8,600,000	3,460,000
Iron for building industry	1969	6,275,131	4,715,176	3,607,993
Bicycles	1969	1,818,000	510,703	275,240
Sulphuric and hydrochloric acids	1968	2,963,294	1,755,892	233,954
Tin and lead ingots	1970	2,823,180	2,798,689	90,000
Oxygen, carbon dioxide and nitrogen	1967	3,551,200	200,000	-
Soaps in general	1963	5,421,565	5,278,168	3,425,000
Wood and furniture	1969	752,603	2,427,667	364,236
Edible oils	1968	4,551,673	6,345,361	2,335,925
Cement	1959	3,563,600	-	-
Oats, wheat flour and balanced feeds	1968	6,392,638	28,507,933	22,383,723
Wire and nails	1970	300,000	-	-
Wood	1968	3,492,191	2,951,863	-
Matches	1969	13,221,698	6,435,580	201,861

Table 6. Composition of gross domestic product
(in 1958 Bolivian pesos)

	Sector	1952	1960	1970	1971	Growth rate 1960–1970	Growth rate 1970–1971
1.	Agriculture	992	1,084	971	1,010	-1.2	4.0
2.	Mining	562	287	660	630	8.7	4.7
3.	Oil	30	138	135	198	-0.2	46.6
4.	Manufacturing	356	409	835	859	7.4	2.8
5.	Building	107	141	250	260	5.9	4.0
6.	Power	[illegible]	[illegible]	109	116	[illegible]	7.4
7.	Transport and communications	228	296	494	510	5.3	3.2
8.	Trade and finance	463	454	872	887	6.7	1.7
9.	Government	525	274	514	547	6.5	6.4
10.	House ownership	102	122	509	530	15.4	4.1
11.	Other services	200	240	640	667	10.3	4.2
	GDP (1958 Bolivian pesos)	3,709	3,494	5,986	6,214	5.5	3.8

Table 7. Industry's share of gross domestic product
(at constant prices)

	Sector	1950	1952	1954	1958	1960	1962	1964	1966	1968	1971
1	Agriculture	32.	28	28	32	31	30	20	27	19	16
2.	Mining	24	25	22	9	8	9	9	9	9	10
3.	Oil	1	1	2	4	4	4	4	5	4	3.
4.	Manufacturing	14	14	16	12	12	12	12	13	13	14
5.	Building and public works	1	1	1	4	4	4	4	5	4	4
6.	Power	-	-	-	2	1	1	2	1	2	2
7.	Transport and communications	5	6	7	9	8	8	8	8	8	8
8.	Trade and finance	10	11	11	13	13	13	13	12	15	14
9.	Government	4	6	3	8	8	9	9	10	8	9
10.	House ownership	4	4	5	4	4	3	3	3	8	9
11.	Other services	5	4	5	3	7	7	7	7	10	11
	GDP = 100	100.-	100.-	100.-	100.-	100.-	100.-	100.-	100.-	100.-	100.-

Table 8. Number of industrial enterprises and persons employed (1967)

Firms employing over 100 persons	
Number of firms	44
Total employed	11,000
Firms employing between 10 and 100 persons	
Number of firms	370
Total employed	22,000
Firms employing less than 10 persons	
Number of firms	2,136
Total employed	8,000
Outworkers, people employed in co-operatives rural cottage workers and others	
Total employed	104,000
Total number of persons employed in industry and cottage industry	145,000

Table 9. Employment by branch of economic activity (1950-73)

Branch of activity	1950	1967	1972	1973
MANUFACTURING	109,591	146,000	175,800	182,656
Food, beverages and tobacco	14,334	26,390	31,995	33,242
Textile industries and products	26,663	27,050	32,795	34,074
Footwear and other articles	33,570	39,600	48,011	49,883
Wood industry and paper products	12,193	16,675	20,218	21,007
Printing, publishing	1,620	2,900	3,516	3,653
Leather	1,638	2,465	2,989	3,106
Rubber and similar products	3,024	5,075	6,153	6,393
Chemical products and substances	1,747	2,030	2,461	2,557
Basic metal industries	10,331	13,050	13,823	16,440
Electrical machinery and accessories	961	1,950	2,364	2,456
Transport of equipment	1,512	3,465	4,201	4,365
Miscellaneous manufacturing	2,076	4,350	5,274	5,480
AGRICULTURE	973,959	1,205,000	1,317,000	1,340,706
BUILDING	24,436	40,000	50,500	52,924
MINING AND OIL	43,441	55,000	57,500	58,305
COMMERCE AND BANKS	57,112	110,000	136,000	141,848
SERVICES AND GOVERNMENT	120,964	205,000	243,600	252,144
TRANSPORT	21,279	50,000	56,000	57,288
TOTAL EMPLOYMENT	1,350,782	1,810,000	2,036,400	2,085,871

Table 10. Quantitative targets of the 10-year Plan (1962-71)[10]
(1958 prices)

1. Global targets

GDP growth rate = 8.3

Gross annual investment US$130 million

External financing US$376 million

2. Industrial targets

Import substitution

First 5 years: US$8 million

Second 5 years: US$17 million

Industrial sector's percentage of GDP: 14.3 per cent (in 1971)

Industrial growth rate

Food industry 10.1 per cent

Non-food industry 6.7 per cent

Capital invested in industry

From US$100 million in 1962
To US$155 million in 1971

Value added by industry
(in millions of 1958 bolivianos)

In 1958 - 380,000
In 1972 - 1,000,000

10/ In round figures.

Table 11. Financing of investment in the industrial sector
(in millions of current pesos)

Industry	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	Average
Public sector	0.9	26.5	10.4	25.7	18.8	3.3	3.8	28.1	18.6	95.6	11.2	16.6	21.6
Private sector													
Industry	10.6	60.2	31.2	65.6	9.5	35.2	20.2	58.0	60.3	68.1	56.4	175.9	54.2
Cottage industry	-	-	-	0.6	0.8	1.5	3.4	2.1	0.1	4.2	4.7	3.6	2.3
Total	11.5	86.7	41.6	91.9	29.10	40.0	27.40	88.2	79.0	167.9	72.3	196.1	77.6

Table 12. Rates of exchange on the free market and par rates a/

(national currency/US dollars)

Year	Unit of Bolivian currency/US$
	b/
1938	30.14
1939	42.97
1940	49.30
1941	61.60
1942	71.16
1943	70.76
1944	74.65
1945	77.94
1946	82.28
1947	87.40
1948	85.36
1949	93.52
1950	123.05
1951	147.90
1952	176.11
1953	176.91
1954	974.85
1955	1,563.96
1956	1,928.77
1957	8,800.00
1958	9,500.00
1959	12.00 b/
1960	12.00
1961	12.00
1962	12.00
1963	12.00
1964	12.00
1965	12.00
1966	12.00
1967	12.00
1968	12.00
1969	12.00
1970	12.00
1971	12.00
1972	20.00 (from October 1972)

a/ The par rate was used in cases where various rates of exchange existed.

b/ Up until 1958 the monetary unit is the boliviano(B$); from 1958 onwards it is the Bolivian peso($b.)
1$b = 1000B$

ANNEX B

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