TABLE OF CONTENTS

ACKNOWLEDGEMENTS

To all those who have helped me in gathering data and information to draw up this report, I am profoundly grateful.

This applies in the first place to the personnel of the Bolivian Government and its autonomous or semi-autonomous agencies who at all times seem to display an endless patience in supplying the many foreign visitors coming to Bolivia with pertinent information. In this connection, special mention should be made of the Central Bank, the Mining Corporation, the Bolivian Development Corporation, Yacimientos Petroliferos Fiscales Bolivianos, the Ministries of Agriculture, Economy and Finance, the National Bureau of Statistics, and the representatives of both Commerce and Industry.

It applies to the present Chief of the United States Operations Mission to Bolivia, Mr. Ross Moore, and to his predecessor, Mr. Oscar Powell, who have shown profound interest in this type of work, as well as to the American Ambassador, Mr. Gerald A. Drew, under whom it was my privilege to serve a tour of duty in Bolivia.

It applies to Mr. Oropeza Castillo, Chief of Mission, and those members of the United Nations Mission of Technical Assistance to Bolivia with whom I exchanged views and information on a number of subjects, and who were always more than willing to be of assistance.

To Mr. M. Valderrama A. who worked with me from the very beginning on this report, I am much obliged for his assistance, patience and dedication in doing some of the basic research. The same is true for Mr. R. Kempf-Mercado who helped prepare those parts of the report which refer to Bolivia's foreign debt and to the country's national accounts, and for Mrs. Yeakel who most effectively filled the role of both secretary and administrative assistant.

I am grateful also to a number of capable Bolivians who are so dedicated to the betterment of their unique country and whose quiet work frequently does not seem to receive the recognition it deserves.

For technical data on the future prospects of the mining industry - the key to Bolivia's immediate problem - I relied heavily on the Mission of Ford, Bacon and Davis, Inc., who are now preparing a full report on this subject.

Finally, I would like to dedicate these pages to Juan Mamani, Bolivia's John Doe, the little Indian of the high plains who, once a worshipper of the sun, was put to work deep down in the earth in dark and dusty mines to create so much of the wealth which unfortunately never was of much help to his at-one-time so proud race; Juan Mamani, who was once the personal property of the Inca, to become the slave of the conquistadores and thereafter the beast of burden in the mines; to this amazing little Juan Mamani who, after centuries of all this, still can smile!

BACKGROUND OF THE STAFF

Mr. C. H. ZONDAG holds advanced degrees in international law, economics, industrial and social psychology from various leading universities. For a number of years he was associated with the international petroleum industry, working for two of the largest United States oil companies in the fields of both foreign production and refining. From 1950 to 1954 he was connected with the World Bank in Washington, D. C., as a Loan Officer in the Latin American area. In August 1954 he joined the staff of the International Cooperation Administration (then Foreign Operations Administration) as Economic Advisor to the United States Operations Mission to Bolivia. During his stay in La Paz, he was appointed Acting Professor of economics and business administration at the Engineering School of the University of San Andrés. Mr. Zondag's principal publications have been in the fields of international law, petroleum, and Latin American economic affairs. He is a resident of Washington, D. C.

Mr. M. VALDERRAMA was graduated as a Public Accountant in Santiago, Chile, and holds degrees in law and political science from the University of San Andrés, La Paz. After graduation, he went to New York to do post graduate work at Columbia University. In 1946 he entered the Bolivian Diplomatic service, attending both the Conferences of Petropolis and Bogotá, as secretary of the official Bolivian delegation. He also served as Second Secretary at the Bolivian Embassy in Buenos Aires, and became secretary to the Minister of Foreign Affairs. From 1952 to 1955 he practiced the legal profession in La Paz, in which latter year he became a local staff member of the United States Operations Mission to Bolivia, working as an economist in the office of the Mission's Economic Advisor. Mr. Valderrama is a native of Tupiza, Bolivia.

Mr. R. KEMPF-MERCADO is a graduate of the School of Economics of the University of La Paz, and of the Interamerican Training Center for Economic and Financial Statistics at Santiago, Chile. For a number of years he was connected with Yacimientos Petroliferos Fiscales Bolivianos, the Bolivian Government oil agency, filling various positions in the accounting and auditing departments. In 1951 he was appointed Acting Professor of Statistics at the School for Financial and Economic Studies of the University of San Andrés at La Paz. In the spring of 1956 he joined the local staff of the United States Operations Mission to Bolivia as a part-time economist. Mr. Kempf is a native of Santa Cruz, Bolivia.

BASIC STATISTICS

1950 Population (census):	3,019,031	Area: 411,127 square miles	
Persons Actually Counted:	2,704,165	Currency Unit: Boliviano	
Indians:	1,703,371	Official rate of exchange: Bs. 190 per US$1.00	
Non-Indians:	1,000,794		
1955 Population (estimated)	3,198,000	Free rate of exchange as of June 30, 1956, Bs. 6,975 per US$1.00	
		Estimated parity rate as of June 30, 1956, Bs. 4,000 per US$1.00	

Trade Statistics (In Millions of US Dollars)

	1950	1951	1952	1953	1954	1955
Exports	94.1	150.6	142.1	124.5	103.7	102.4
Imports	55.8	85.8	92.6	68.0	65.5	84.4
Mineral Exports	90.9	145.7	137.8	121.3	100.6	97.8
Other Exports	3.2	4.9	4.3	3.2	3.1	4.6

Central Bank Gold & Foreign Exchange Reserves (net)(In Thousands of US Dollars)

1951	1952	1953	1954	1955	1956 (June)
30,052	28,625	12,494	714	(-)20,456	(-)11,349

External Public Debt (as of December 31, 1955): Total US$304.5 million

1955 Gross Domestic Product (estimated): US$223,746,000

1955 Per Capita National Income: US$58

Money Circulation (In Millions of Bs.) (End of Period)

	1950	1951	1952	1953	1954	1955	(June) 1956
Currency & Deposits	5525	6895	10597	20557	35009	73113	124800
Cost of Living Index (End of Period)	3972	5041	6596	16640	33212	56091	102970

CONVERSION FACTORS

LENGTH

1 centimeter (cm.) - 0.39 inches
1 meter (m.) - 3.28 feet
1 kilometer (km.) - 0.62 miles

AREA

1 hectare - 2.47 acres
1 square kilometer (km2) - 0.39 square miles

VOLUME

1 cu.meter (m.3) - 35.31 cu.feet
1 cu. meter(m.3) - 6.29 Amer. barrels
1 American barrel - 0.159 cu.meter

CAPACITY

1 liter - 2.113 pints
1 liter - 1.057 quarts
1 gallon - 3.785 liters

WEIGHT

1 gram - 0.035 ounces avoirdupois
1 Kilogram (kg) - 2.205 pounds avoirdupois
1 quintal (Spanish) - 46 kilograms

SUMMARY OF THE BOLIVIAN SITUATION

At face, Bolivia's problem is a simple one. Stated in the most elementary terms it is a problem of about one million people - the urban population of the country - who cannot be fed in spite of the fact that sufficient resources to do so are immediately available.

From 1952 until June 1956, Bolivia's Central Bank reserves went down some $40 million. In addition, Bolivia has received during the past three years, a little in excess of $61 million of United States aid. During the same period the free exchange rate of the boliviano went up from Bs. 190 to Bs. 7,000 to the dollar. In spite of all this the country is still hungry.

What is the explanation for this strange phenomenon? Why is it that Bolivia, one of the best endowed countries in the world insofar as natural resources are concerned, is unable to provide its relatively few citizens with the necessities of life? The answer to this question can be summarized in one sentence. It is a problem of social change, a problem of having to pay for sins committed earlier.

This basic factor explains all the others including the economic problem. For centuries the Bolivian economy was based at least in part on slave labor. Marginal farms kept on producing because no wages had to be paid to the Indians. With the introduction of a number of social reforms all this changed. Large numbers of Indians who had always contributed their labor to the economy without receiving their share, suddenly started making demands.

For many years mining constituted Bolivia's principal source of income. During the last fifteen years, little was done to encourage the further growth of this industry through the creation of an attractive investment climate. Thus the big companies saw the handwriting on the wall and began to cut down on exploration; likewise, the small miner found it less and less interesting to invest in new prospects. So mining became a diminishing prospect.

All along agriculture, which at one time supplied the basic needs of the country, was neglected because it was easier to import food with foreign exchange produced by the mines than to grow it in Bolivia.

With a background of creeping discontentment among the Indians because of the abuses on the land and a bitter feeling stirred up against the big three mining companies, the present government came into power in 1952. Being committed to agrarian reform as well as to the nationalization of the mines, it was forced to knock down - at least temporarily - the two most important pillars of the Bolivian economy, namely, mining and market-directed agriculture. On top of this it abolished the army and gave its guns to the uneducated masses. All this created no small amount of problems.

To cope with some of these problems, an economic diversification plan was started in 1952 through the development of Bolivia's petroleum resources and of the agricultural potential in the Santa Cruz area. Although the basic reasoning on this plan was not unsound, both the timing

and the manner of implementationwere somewhat unfortunate since it obviously would take a long time to develop these resources while Bolivia was in need of more immediate solutions to solve a problem which was largely left by previous governments. Thus there came about a certain misdirection of investment which the country could ill afford and which became one of the principal factors in the inflation as time went by.

A system of excessive government controls and a monetary policy which tended to discourage private investment contributed further to Bolivia's woes, throwing the whole burden of economic development on the government which - in spite of its heroic efforts - could not possibly begin to accomplish this huge task. As a result of this, the government found itself engaged in the construction of a sugar mill, a cement plant, a dried milk factory and similar activities which typically belong to the realm of private enterprise, and none of which, so far, has been much of a success. Apart from this, it owned already three banks, an airline, an oil company, several railroads, some insurance agencies, and last but not least the nationalized mines.

For political reasons it was necessary to maintain the classic policy of a cheap dollar which permitted the importation and subsequent distribution of basic foodstuffs at a very low cost. While this policy initially tended to keep the price of foodstuffs down, as the gap between the official rate of exchange and the black market rate became larger and larger, it contributed to the rapid growth of ever-increasing shipments of contraband to neighboring countries.

At the same time, the continuation of a policy of agricultural imports at a low rate of exchange provided hardly any incentive to domestic producer of these products, who, in addition, was forced to sell at controlled low prices.

Forcing the exporter to hand his export dollars to the Central Bank at equally artificially low rates of exchange killed whatever incentive he had to increase his exports to other countries and thus create new dollar income for Bolivia.

Finally, the policy of the cheap dollar contributed to the growth of basically unsound industry which will not be able to survive free competition when it comes.

The ever-increasing inflation coupled with proportionately higher wage increases for the working classes, resulted in the gradual elimination of the few intellectuals and middle class people who, in a country like Bolivia, are one of the few groupswho could give direction to the country as a whole. In addition to this, the inflation, coupled with a system of distribution quota for the privileged few, took away a good deal of incentives to work since greater profits could be made by standing in line for a few hours and reselling thereafter in the black market than by doing a day's honest work.

To put it briefly, in the economic sphere the problem has been that overall policies were never in accord with the principal aims of the development program thus frustrating most efforts towards the implementation of the latter.

The most disconcerting fact of all this, however, is that the worst is still to come. For several years the mines have been worked without putting much back into them in the way of improvements, as a result of which income derived from minerals - about 90% of Bolivia's dollar income - may drop severely within the next five years. It is true that a part of the income received from mining was put to work in expanding the government-owned petroleum industry. So far this has eliminated annual imports of petroleum products which normally would amount to some $6 million a year and is even beginning to create a few exports. However, for oil to take over the present role of mining will take a lot more time and large investments which only the international petroleum industry will be able to make. Thus, as a result of present policies mining is rapidly going down while oil has not yet arrived. Furthermore, it should not be forgotten that during the past four years the normal replacement needs of the Bolivian economy have not been covered. Putting these replacement needs conservatively at some $6 million a year, an investment of some $24 million would be needed at some future time to keep the country going.

Meanwhile, Bolivia must live. Since the drop in tin production has been to some extent offset by higher prices for tin, it is obvious what would happen if tin prices should go down in the future, regardless of a further drop in production.

In the agricultural sector, far too much emphasis has been placed on the Santa Cruz project as the solution for Bolivia's present problems. First of all, it should be noted that Santa Cruz by its nature can only produce certain crops such as rice and sugar while other crops such as wheat and potatoes will have to be grown in other areas of Bolivia. Second, one has to see how the tropical soils of Santa Cruz will stand up in the future without large imports of fertilizer, the cost of which would be prohibitive. Third, transportation costs from Santa Cruz to La Paz will, at least for some time, make it difficult to sell these crops at a realistic price on the high plains where the principal consumers are now located. Fourth, production costs in Santa Cruz will remain relatively high for some time to come. Fifth, in the future the development of other regions located more closely to the centers of consumption is likely to bring a product to the market which will seriously compete with the Santa Cruz project.

This does not mean that the Santa Cruz project is necessarily unsound. On the contrary, Santa Cruz will be able to supply certain areas of Bolivia, Cochabamba, Sucre and Tarija with basic crops and in addition to this it is likely to develop some agricultural export specialties which may carry the area. However, this would obviously lower the overall priority of the Santa Cruz project.

Because of land reform and of a lack of basic law and order on the land, the traditionally established market-directed agriculture of the highlands and the valleys was neglected, thus aggravating again Bolivia's immediate problems. While the Indian may be living somewhat better off the former owners' lands than he used to off his own, he is not producing for any market.

It should by now be clear that the solution for Bolivia cannot be ever-increasing amounts of outside help, but that what the country needs

above all is an overall change in philosophy.

Bolivia can help itself to a large extent. It has more resources than many other countries which today are prospering. Its main deficiency at present is a deficiency in its type and numbers of population, a lack of public administration, and a lack of the right philosophy to deal with its problems.

To cope with some of these problems on a short term basis there is only one way out, namely, to give proper incentives to private foreign investment so that those resources which are now dormant, such as petroleum and gold mining, can be developed by those who have the necessary capital and know-how to do this.

In agriculture the problem could be solved by restoring law, justice, and order on the land and by giving more incentive prices to the domestic producer. If only a small part of the present amounts spent on food imports would be used to pay a more attractive price to the producer, Bolivia would have agricultural surplusses in a relatively short time.

To survive its immediate problem, Bolivia needs to go back to the traditional pillars of its economy, namely, high plains agriculture and private mining. While the prospects for the large mines are admittedly quite poor, there is still a large potential to be developed in the private mining industry. While agriculture on the high plains is admittedly a declining prospect, it is still immediately available. Only by making the right use of these immediately available resources will Bolivia be able to overcome its near term problems and once this is done it can - and must - think further about the solution of its longer term problems through the development of additional resources.

To do all this will call for a free economy because only a free economy can stop the present drain caused by the activities of speculators and runners of contraband. Only a free economy can force people to work again instead of making a few pennies by standing in a line. Only a free economy will create confidence in the foreign investor which, once established, will result in the Bolivian investor bringing back vast amounts of capital now hoarded abroad.

The change-over to a free economy will be quite painful for certain people. It may cause a sizable (temporary) unemployment problem. It will be rough on a number of industries, some of which will be forced to close down. It will be even harder on those privileged groups which have a vested interest in the continuation of the present situation. This is exactly the crux of the matter because one could well ask why, if the solution of these problems is so simple, the change has not been made long ago. The answer to this is that a number of people who are directly interested in this type of controlled economy which can provide certain benefits to those who have the inside run and who are actually in the minority, have to a large extent political control of the country. While many of these people see quite clearly that the present road can only lead to the country's ultimate ruin in five years, it is still another thing to ask them to make a change which could mean personal ruin in five days. To do this would call for a moral courage which few individuals possess.

From a purely technical point of view the solution is relatively simple. Bolivia's inflation can be stopped. Its budget could be balanced in a free economy. The curtailment of some present dollar expenditures would cause no undue hardship since the amounts in question are largely expenditures for long range projects which can be deferred with relative ease. On the other hand, the establishment of a free economy could result in a substantial recovery of certain imported commodities which are now lost as contraband, while it would at the same time tend to help the domestic production of foodstuffs. Likewise, it could do a good deal to boost mineral exports and to increase some exports of agricultural products, which are now leaving the country clandestinely.

Bolivia's record as a debtor is not as black as some people believe. The country is servicing its loans received from the Export-Import Bank It is paying an indemnity to the ex-owners of the nationalized mines. It has been amortizing its recently contracted European credit in spite of the rather dubious nature of some of these credits By making at least some payment to the foreign bondholders, Bolivia could easily face up again to the financial community. The bondholders have proven to be quite reasonable people in other instances in Latin America. They certainly do not want Bolivia's last pound of flesh. With this obstacle out of the way and with the necessary measures taken to put its house in order, Bolivia could earnestly approach the World Bank, of which it is a member, for a small loan. Such a loan, no matter how small, would immediately increase the interest of those foreign investors who are already watching the Bolivian situation with increasing interest.

If Bolivia can manage to put its national interest above the demands of internal politics, the future can again be bright. Bolivia's social problem is one that will get better as time progresses while its resources are of a kind that do not run away. Furthermore, in its past history, Bolivia has faced far bigger crises than the present one from which it always emerged stronger and politically more united than it was before. Therefore, with a variation on the well known Brazilian saying, we might well conclude that God must be a Bolivian since He never seems to forget the country in the end.

I. INTRODUCTION

Bolivia, The Unknown

Even in 1956 there still exists an amazing amount of "myth" about Bolivia where revolutions are supposed to occur every week, where the tourist orders an oxygen tank before breakfast, where tin is still the uncrowned King, and where the vicuña quietly spends its days providing warm coats for cold but elegant gentlemen in Paris and New York!

There is first the myth that one can travel almost nowhere in the country. Yet on a per capita basis Bolivia operates more railroad track than Brazil. There is the myth that the country has no water or sewerage facilities. Yet nearly all of its major cities, La Paz, Oruro, Cochabamba, Sucre, Potosí and Tarija, have such facilities, which average would be hard to beat by some other Latin American countries. There is the myth that almost all Bolivians lack education; yet according to the 1950 census, Bolivia has 12,409 university graduates, a good many of whom have studied abroad. There is the myth that Bolivia has a revolution twice a year. Yet the country has not had one for four years now, with other similar periods in Bolivian history to prove the same fact. There is the myth that Bolivia has only mines and nothing else. Yet agriculture counts for a very substantial part of the gross national product. There is the myth that the development of the Santa Cruz area is going to cure all Bolivia's troubles by 1958; yet 1958 is getting closer and Bolivia's troubles are increasing, not decreasing.

To correct some of these myths is at least one of the objectives of this study. It goes without saying that this report constitutes nothing more than an economic study which is completely removed from the realm of practical politics. It is the view of a foreign observer who is generally sympathetic to Bolivia's serious problems and who finds his task made lighter by the eloquence of the actual figures which in many cases hardly need further interpretation.

Bolivia has been studied by a number of experts and it is still being studied every day. So far, many reports have been either on very specialized subjects or else have been in descriptive terms rather than dealing in facts and figures. The Keenleyside Report constitutes an exception in this respect, and it is still one of the best of the more recent sources on Bolivia, together with the much older Bohan Report. Yet the Keenleyside Report was more of a survey than an economic report. It is hoped, therefore, that the present report will be of use to those who are professionally interested in Bolivia, such as Bolivian and United States Government officials, personnel of the International Agencies such as the United Nations, the World Bank, the Monetary Fund, as well as selected private investors who undoubtedly will become more and more interested in Bolivia as opportunities elsewhere become scarcer.

Since Bolivia's problem is largely a social problem, a number of references have been made to this where it affects the economic appraisal. However, the social problem and what can be done about it will be the object of a later study.

SOUTH AMERICA

Accommodating Different Readers

The report goes into much detail in certain places, such as calculating simple transportation costs, costs of agricultural production, and the like. This was necessary since frequently in the past these problems have been discussed in rather broad terms without looking into the figures. Likewise, some detailed references have been made now and then to certain administrative situations in order to illustrate a particular problem. This was also necessary since in Bolivia many relatively simple problems bog down at the lower levels of administration, which is sometimes not fully understood abroad. For example, to say that the lack of labor discipline in the Bolivian mines constitutes a major problem is a rather meaningless statement. This statement takes on particular importance if we can show that in a certain large mine about one-fourth of the labor force is constantly idle because they claim to be ill even if the doctors cannot find any specific defects.

There are a number of details which may not be of interest to the general reader. However, since so little is known about Bolivia, it was felt that these should not be omitted since they might prove valuable information to those who happen to be interested in a specific problem. To make the report more readable for those interested primarily in the overall picture, most of this material has been placed in a Statistical Supplement and in the Appendix. There is one type of detail, however, which should be especially mentioned here, namely, the material treated in the "Annex" which is attached to several chapters It is felt that this annex contains material which should be read by anyone who really wants to get the "feel" of the Bolivian situation However, since a number of readers may not have the time to do this, these parts have been summarized to the extent possible in the general text.

Lack of Adequate Statistics

Bolivia's statistics are notoriously deficient. Nevertheless, by combining and comparing statistics from various sources as well as by comparing similar situations in similar countries some close approximations can be obtained. In many cases ratios may be more valuable to work with in Bolivia than actual figures which - especially in the financial sphere - are subject to daily changes in accordance with the galloping inflation, while ratios have had a tendency to remain fairly constant.

With the exception of the chapter, "General Characteristics" (of the Country) and the section on petroleum where international usage was followed, for several reasons the metric system was preferred in giving weights and measures all through this report. For those who are interested in a conversion in specific cases, a conversion table may be found, together with Bolivia's basic statistics, at the beginning of the report.

In view of the general distortion of all economic data because of the various exchange rates, an attempt was made to analyze the Bolivian economy at a parity rate. To establish this rate on a proper basis was impossible, both because of lack of personnel as well as because of lack of reliable price indices and other data On the basis of a comparison

of such indices as well as by talking to people in commerce and industry, the parity rate as of June 30, 1956 was estimated to be around Bs. 4,000 to the dollar, which figure has been used all through this report. It should be noted from the start, however, that under present conditions an exchange rate of Bs. 4,000 to the dollar might be too low to boost the production of minerals effectively which is the crux of the Bolivian problem. All that can be said is that in any free economy the rate of exchange of the boliviano is not likely to find its level at much below Bs. 4,000 to the dollar and as such it would appear to be a good rate to use for an overall study 1/. June 30, 1956 was also chosen as the cut-off date for all statistical information. Small differences between the text and the Statistical Supplement, and between the latter and some of the official sources, are due to the rounding of figures.

Highlights of the Report

The main purpose of this report is to show Bolivia's problem in its historical and social perspective and to back this up - where possible - with data. Thus, Chapter II states the problem briefly and stresses those historical, sociological and moral factors which must be taken into consideration for a correct economic appraisal of the Bolivian situation. It tries to show that more than anything else Bolivia's problem is a social problem, a problem of the type, composition, and numbers of population coupled with a difficult geography. In one sentence: A problem of social change.

In Chapter III it is shown how a lack of financial and monetary policy and the absence of a really strong government brought about the present financial chaos. In this chapter, detailed references are made to the extent of the inflation, the lack of production and the deficiencies in overall administration. This chapter tries to point out that certain people, including some privileged pressure groups, appear to have an interest in maintaining a status quo which could ultimately ruin Bolivia.

The fiscal system is discussed with a reference to its specific administrative weaknesses showing how government revenue from taxation and customs duties gradually withered away to be replaced by fiscal income derived from the manipulation of differential exchange rates which in turn affected the incentive to produce.

A brief reference is made to Bolivia's banking and credit systems, after which follows an appraisal of the present financial and monetary policies. This appraisal tries to show that the only solution for Bolivia's problem is to change from the present cobweb of controls into a relatively free economy, letting the exchange rate find its proper level at least for some time. It is further shown that such a step - while certainly most painful - may not have such dire results for the Bolivian population as a whole as many people seem to fear, since so many persons are already forced to obtain most of their necessities at black market prices.

The effects of a new policy of relative economic freedom upon the principal sectors of the economy, such as mining, agriculture and industry,

---

1/ For procedure followed, see Appendix I.

are discussed on the basis of an assumed parity rate of Bs. 4,000 to the dollar. It is shown that while the problem of mining is more or less a problem of what exchange rate the mines will receive, the problem in industry may be more complicated while Santa Cruz agriculture would be likely to benefit to some extent from the proposed change. Although a changeover to a free economy will undoubtedly be quite rough on certain groups, it is also likely to produce new sources of income which are now dormant. Furthermore it will tend to curb the present extensive contraband activities and reduce demand to more realistic levels.

Insofar as the scanty statistics permit to make a projection, the effects of a possible stabilization of the currency are discussed in rather specific terms. It is shown that from a purely technical point of view the budget could be balanced with relative ease.

Great stress is laid on the fact that no stabilization measures can have any effect unless the government has the courage and strength to correct the basic factors leading to the present lack of production which are the absence of basic law and order, a serious lack of labor discipline, a deficient economic philosophy and last but not least "moral disarmament".

Chapter IV deals with Bolivia's external position, showing clearly the present problem of large agricultural imports which could be produced within the country. Bolivia's ever declining monetary reserves are analyzed in some detail as are its foreign exchange budgets for the past three years. This chapter tries to show that certain imports can be curtailed with hardly any effect on the economy and that with adequate incentives, exports could be increased substantially. It also tries to show that the dollar problem is to a large extent caused by overspending. Current trade agreements with neighboring countries, and the effect of certain forms of European credit, are discussed with respect to their impact on the balance of payments. Finally, the rather complicated picture of Bolivia's external debt is studied in detail.

In Chapter V the factors of production are discussed with specific reference to agriculture, mining, petroleum, power, industry, transportation and forestry. This chapter starts with a discussion of the problem of public administration which - although only an activity which supports the productive effort of the country - is considered crucial to the solution of Bolivia's problem. Keenleyside's basic suggestion to the effect that foreign experts should be placed in each Ministry is analyzed again in the light of present day circumstances.

The section on agriculture tries to show that Bolivia's problem at present is not so much a lack of land but a deficiency in using the land which is available, bringing us back again to the social problem. In this connection, the effects of the agrarian reform are discussed in some detail. The absence of law and order on the land is stressed all through this section. After this follows a discussion of how the land reform came to eliminate that part of the agricultural production which used to reach the city markets which, in turn, has created one of the biggest political problems in today's Bolivia.

A major problem in boosting agricultural production has been the low controlled prices paid to the producer. At one time, under an in-

centive price structure, agricultural production increased rapidly. More recent policies have favored the foreign producer over the domestic one since large amounts of food were imported for dollars while as little as possible was paid to the Bolivian farmer.

The prospects of the Santa Cruz project are analyzed in some detail showing that so far its immediate effects on the Bolivian economy have been overestimated. The Santa Cruz project will not make much difference to Bolivia during the next three years which are critical. It is a long range project. By nature it can never produce all the agricultural products which Bolivia needs. Production costs are relatively elevated and transportation costs to the large consumer areas in Bolivia will remain high for some time to come. Therefore, the logical markets for Santa Cruz are likely to be Cochabamba, Sucre and Tarija rather than the high plains where - at least at present - some Santa Cruz products could not compete with the imported product unless they were protected either by a tariff or by a subsidy.

Perhaps the future of Santa Cruz can be summed up best in one sentence: Great hopes surrounded by uncertainty. Only time can tell how the light Santa Cruz soils will stand up without fertilizer, and how markets will develop.

Under the impact of American aid, development in Santa Cruz has been rather fast which has attracted a type of farmer-speculator who is bound to disappear. The period of sobering up has already started and in some cases there is outright disillusionment.

This does not mean that the Santa Cruz project is unsound, however. It only means that sound development will take much more time than has been anticipated generally, and that a new type of hard-working farmer, running a family farm, is likely to emerge in the future. In time, Santa Cruz could certainly develop certain export specialties which will make it possible for the area to carry itself.

It is pointed out that in view of the uncertainties involved in the Santa Cruz project, further investment of public funds should be slow. During the past few years the area has received an investment of several millions of dollars worth of agricultural machinery through Point IV which should give it a good start. Instead of putting everything into Santa Cruz, increased attention should be given to boosting agricultural production in those areas such as the high plains and the valleys which traditionally have provided Bolivia with its basic diet and which will have to carry the burden for some time to come anyway.

The agricultural section of Chapter V ends with some specific suggestions which might help in solving Bolivia's agricultural problem.

The mining section of Chapter V discusses the future of Bolivia's mining industry, trying to show that the lack of incentives to the producer, the lack of reinvestment and exploration during the past five years, and the gradual decline in the ore content of the major mines of the Mining Corporation will face Bolivia with ever-increasing balance of payments problems in the next few years unless something drastic is dome about this problem. In this connection the present difficulties

of the Mining Corporation are given some consideration, showing among its major problems a lack of labor discipline, political interference, lack of organization and management, lack of reserves, lack of adequate investment, and a number of social problems such as the existence of the cheap commissary and the forced operation of "social mines" which are practically depleted for the sole purpose of creating employment. This section draws heavily on the findings of the firm of Ford, Bacon and Davis, Inc., which recently made an extensive study of the Bolivian mining industry. It brings up again the economic importance of the mines for Bolivia and explains that the overall drop in productivity in the mines of the Mining Corporation during the past few years has been about 18%.

The problem of the private mines during the past few years is being stressed all the time, showing both the negative influence of the policies of the Mining Bank and of controlled low prices on production. As a result of this, according to a calculation made by the Ford, Bacon and Davis engineers, there are now only a few private mines left that can still make a profit. The point is being made, however, that since the problem of the private mines is more or less a direct result of excessive controls and taxation, and not one of a lack of capability or initiative on the part of the operators themselves, this problem could be remedied in a relatively short time. This is all the more important since the private mines appear to have the best potential to develop new mineral resources for Bolivia. At one time Simon Patiño, then a small private miner, crushed ore with his wife. Yet out of this grew Bolivia's large tin mining industry. In this connection, a number of remedial measures are suggested which could have immediate effects on the output of the Bolivian mining industry.

After considering the feasibility of establishing a tin smelter in Bolivia, this section ends with a discussion of the future of the Bolivian mining industry stressing the fact that although the present picture is quite bleak there are ample indications that Bolivia still has minerals which can take the place of tin, thus bringing about a certain diversification in the mining industry.

Of course, to find new mines will call for substantial amounts of new capital and, therefore, the section mentions the urgent need for the adoption of a new mining code in order to attract private foreign investment. In accordance with the estimate made by Ford, Bacon and Davis, Inc., the overall future capital needs of the Bolivian mining industry for the next five years are put at some $75 million.

The section on petroleum starts with a brief history of Bolivian petroleum development as well as with a discussion of the organization of Yacimientos Petroliferos Fiscales Bolivianos, the government's petroleum agency. After giving the pertinent data on production, refining and transportation, there follows a discussion of the government's oil agency's remarkable record during the past few years which resulted in the elimination of almost all imports of petroleum products. While this development is obviously most gratifying, the fact is stressed that further development of the government-owned petroleum industry is likely to require large investments and to bring less immediate results. Since the more recent spectacular successes of YPFB were to some extent possible because a lot of ground work had already been prepared, in the form of the construction

of pipelines and refineries, a few additional investments vindicated some of the past ones making the whole investment pay off in a spectacular way by supplying all of Bolivia's petroleum needs. It is obvious that the next step of building YPFB into a big concern with exports in all directions would be another story.

There is another, much more important point to be considered in this picture. Since petroleum development was largely financed with funds which were taken from the mines, in which hardly anything was reinvested, there exists a very real danger that within a few years the mining industry may face a further collapse while oil as a replacement for mining has not yet arrived. For this reason additional investment of public funds in the further expansion of the national petroleum industry should be deferred which should be all the more easy since increasing amounts of private foreign capital appear now to be available for this purpose.

After an ample discussion of the three main sectors of the Bolivian economy which right now are causing trouble, to wit, public administration, mining, and agriculture, there follows a discussion of the more "quiet" sectors of the economy such as power, industry, transportation and forestry.

The part dealing with railroads stresses the urgent need for increased maintenance of the Bolivian railroads which at present constitute about the only transportation system which is able to haul relatively large loads. If this system is allowed to break down, Bolivia will be saddled with a whole array of new troubles. In this connection the railroads' present rate structure is analyzed to some extent showing some incredible anomalies which urgently need correction.

The public roads part of the transportation section refers briefly to some of the new construction projects which are now under way. What is far more important in Bolivia, however, is better maintenance of the existing roads so that agricultural products can find a market. Some traffic counts are given for Bolivia's principal roads and the need for additional imports of trucks is discussed with an eye to the future.

After this, there follows a discussion of air transportation with special reference to Lloyd Aereo Boliviano's (LAB) role in the Bolivian economy showing that by following certain suggestions LAB's contribution to the Bolivian economy could be greatly increased.

Chapter V ends by trying to bring out the immense potential of Bolivia's forest resources which so far has been barely touched. It strongly advocates the need for better conservation methods so that this resource will not be destroyed in the future.

Chapter VI is concerned with the problem of consumption. It points out that if Bolivia is to raise its standard of living, both production and consumption must be increased substantially. The chapter clearly states that the actual unbalance between production and consumption is only of recent origin, since until tin production started the two were substantially in balance.

The relative inadequacy of the diet of the Bolivian population is

shown on the basis of some specific sample studies. A few details on the Bolivian standard of living show how those groups who normally should give direction to the country, i.e., the middle class and the intellectuals, have been affected most by the recent social changes which could have serious implications for the future.

Although this point is now more of historical interest because of the coming stabilization program, the scope of contraband and black market activities with neighboring countries is given some attention in view of the effect which these activities have had on the Bolivian economy during the past few years.

The chapter ends with a brief reference to Bolivia's realistic food needs in the immediate future.

In Chapter VII the Bolivian investment climate is analyzed with reference to the principal obstacles which face the private investor, such as excessive government controls, lack of labor discipline, high relative labor costs, price control, excessive social laws which cannot be paid for as long as productivity remains as low as it is today, a confused tax picture, lack of political stability and foreign exchange problems. Some attention is given to the problem of high production costs as well as to the administrative and legal difficulties in setting up a Bolivian corporation.

The misdirection of investment resulting from the financial policies followed during the past few years is discussed in some detail showing excessive public investment in certain projects (sugar mills, cement plants, etc.) which are typically in the realm of private enterprise. Thus, the burden of economic development falls completely on only a few government officials without adequate assistance who cannot do all this. By giving more adequate incentives and by allowing more room for private investment, the government would not only lower the burden on itself, but it would also provide a tax base from which it could then finance those public projects such as health, sanitation and road construction which a government is supposed to undertake.

After a discussion of the principal projects of the Bolivian Development Corporation, now under construction and their relative merits, as well as of some other public investment projects, there follows an estimate of recent public and private investment. From all indications it appears that public investment made and actually paid for during the last four years amounted to some $50 million which figure excludes such investments as the $4.7 million for the paving of the Cochabamba-Santa Cruz highway and some European credit purchases which are still to be amortized, as well as some still unpaid petroleum investment. Insofar as an estimate of recent private investment is concerned, it would appear that during the last four years private investment has amounted to some $3 to 4 million a year. The chapter ends with a discussion of a few more recent private investment proposals as well as of the need for a Development Bank.

Chapter VIII discusses the United States aid program in Bolivia in its various aspects which is considered necessary in view of the impact which this rather large scale aid program must have on the Bolivian economy. It is pointed out that United States aid given to Bolivia since 1954 now

amounts to some $60.1 million, whereas the technical assistance program amounts to some $3 million a year.

Chapter IX tries to establish some estimate as to Bolivia's gross national product as well as of its national income during 1955 which figures come to $223 and $186 million respectively. The figures mentioned in this chapter were arrived at in agreement with the ECLA economic study group which came to Bolivia this fall in order to make a study of the Bolivian economy. Since the figures used in this report should be considered as provisional, it is hoped that this group in time will be able to draw up a better estimate of Bolivia's national accounts.

Chapter X establishes some criteria for planning. It shows the present problems of planning, as well as what groups are actually engaged in planning In giving some specific suggestions, this chapter first mentions the need for a reorganized Planning Board as well as for better statistics and a different approach to planning. Overall policy requirements are stressed a good deal after which follow a number of suggestions with respect to specific sectors of the economy such as the need for an attractive mining code and a geological survey as well as for improved transportation in mining areas, the need to cut down public financed petroleum investment and the need to take certain steps in agriculture as described earlier in this report.

In the final chapter entitled "Conclusion," there is a restatement of the problem showing that the 1952 revolution has caused a basic change in the social structure of Bolivia, as a result of which the Indian masses have now become a political factor which will have to be reckoned with in the future. It is pointed out that from an economic point of view the revolution has been rather costly since it has shaken the very foundations of the country, namely, mining and agriculture. Therefore, the immediate prospects are quite dark and the worst is still to come.

In less than three years Bolivia has received some $60 million worth of United States aid, while during the past few years Central Bank reserves went from $30 million to a deficit of $11.3 million which comes to another $41 million. In addition to this, the country contracted a substantial amount of European credit which will have to be repaid in the near future. Yet the country's situation is about the same as, or worse than, it was before. From these figures it should be obvious that money alone is not the answer to Bolivia's problem. What is needed much more is an overall change in economic philosophy which will call for some politically unpleasant admissions.

It is pointed out that time is running out for the solution of the economic problem which now requires the most vigorous methods. It is also pointed out that once Bolivia can solve its political problems, the country still has the economic potential for a relatively quick recovery.

Bolivia's situation is then compared with the case of a person who has cancer. He knows he faces the painful operation which monetary stabilization undoubtedly will be - yet he has no alternative. It is also compared with the case of the neurotic patient who becomes more dependent all the time as more help is being extended to him.

Bolivia's present plight is largely a matter of confidence. Once

this returns to the country, the future can be bright again. Perhaps one of the things to keep in mind is that in its history Bolivia has faced more serious crises than the present one. Yet after each crisis, it always emerged stronger and politically more united than before. Although admittedly an intangible aspect, this should give us some hope for the future.

Basic Defects

This study has one basic defect in that it constitutes the work of only a few people while usually this type of study is prepared by a larger group of experts. Therefore, lack of help to check a number of details as well as a lack of help of specialists on certain subjects may have resulted in some errors and inconsistencies. Correcting some of these defects, which are believed to be minor, would have involved a disproportionate amount of time at a moment when basic information on Bolivia is needed rather urgently.

Some people may find another defect in the fact that the report is rather frank and critical in places. This was considered necessary for two reasons. First of all, it constitutes a basic tool for all those who have to deal with the Bolivian problem and thus it must state the facts. Secondly, frankness is far from unusual in today's Bolivia. It is to the credit of the MNR party that it has a rather unique way of discussing its problems quite frankly. For instance, some of the most critical statements made in this report are based on public auto-criticism of Bolivian officials from the President down. Since in Latin American politics there exists frequently a tendency to "blame others" for errors made, this attitude of the Bolivian Government was found to be most refreshing and constructive.

Responsibilities

The report contains no material of any kind that is classified or confidential. It is based only on public sources of information, public statements made by responsible officials or material that was given without any restriction. The views expressed are those of the author. They do not necessarily represent the position of the United States Government or of any Bolivians who may have made a contribution to this report.

II. GENERAL CHARACTERISTICS

The Problem

In spite of the constant emphasis on Bolivia's economic problem, Bolivia's problem is essentially a social one. It is a matter of the type, composition and lack of population; a matter of jealousy, internecine strife and palace revolutions inherited from colonial Spain; a matter of communications because of an extremely difficult geography which in turn resulted in rather strong regionalistic tendencies, and a problem of social change. To attack this problem is not easy. It calls for an enlightened and long range approach in health, education, public administration, political organization and communications. In other words, it calls for "growing up," which requires time.

Both the present political and economic problems - while serious - are merely a result of the social problem, which makes the Bolivians live beyond their means. Politically the government's hands are tied since it has to walk a tightrope between increasing productivity, which calls for rather harsh methods, and maintaining its popularity, which calls for promising more and demanding less. In a country where the general desire for self-improvement and better living are at a minimum, while the desire for leisure-time is at a premium, the political pressures are obvious. With the army reduced to less than a nominal force and the miners (50,000 of them) virtually turned into a modern version of ancient Rome's "praetorian guard" and with a strong regionalism in several parts of the country, the government's alternatives become somewhat limited.

The economic situation merely reflects the social and political problem. For many years the governments of Bolivia have relied on the mining industry as their only source of income. Agriculture was completely neglected so that the country's food imports now amount to some $25.9 1/ million a year. With a general lack of discipline on one side and an ambitious social program on the other, production has decreased sharply while consumption demands are steadily increasing resulting in ever-accelerating inflationary pressures.

As we shall see hereafter, such problems are by no means new in Bolivian history. What is new is that in 1956 the social revolution can no longer be ignored. For two thousand years the highland Indians continued to live in what may be termed a biblical society which suddenly - like their Arab companions on the other side of the globe - they no longer appear to accept. At the same time the world is facing the greatest ideological struggle in its history between Western civilization and Asiatic despotism with 1,600,000,000 people in the under-developed countries sitting on the fence waiting to see which camp they'll find it most advantageous to join. Thus, once isolated Bolivia suddenly becomes a problem of international concern.

1/ Average for the period 1951-1955

Early Historical Background

To understand the present problems of Bolivia, one needs a good deal of historical perspective since both the hand of colonial Spain as well as that of the Inca are still noticeable in many aspects of contemporary Bolivian life. The Indian's subsistence agriculture, his extremely rigid behavior, his ultra-conservatism, may well be the result of centuries of oppression by the Inca rulers who at one time operated the most perfect communistic state the world has ever known, consisting of only a few leaders and a great many followers. From cradle to grave everything was provided for, with austerity and discipline as the main keynote. The fact that either stealing or lying was punished by death is even today reflected in the extreme honesty in some of the rural parts of the Indian population on the highlands.

Upon conquering the all-embracing Inca super-state, the Spaniards - whose main interests were gold, silver and religion which they managed to blend in the most unique way - found it most convenient to maintain the status quo of a somewhat enlightened slave system, at least insofar as this was compatible with their own Christian backgrounds. While keeping much of the old, they unfortunately added a number of innovations which account for much of the bureaucracy, lack of coordination and instability of government which has been causing so much trouble to Bolivia. For instance, it is interesting to note that many of today's economic or financial measures, such as a rigid control of the economy, government monopolies, exchange rate manipulations, certain forms of taxation, lack of delegation of authority, were also practiced by colonial Spain. Many of today's fiscal measures could well be the rudiments of a consistent and clever system which was used by the Spaniards to milk the colonies dry without appearing too overt about it. The principal aim - getting as much gold or silver in the shortest possible time - called for a continuation of much of the harsh treatment of the Inca without paying too much attention to the social benefits provided by him. For an Indian population already beaten down for centuries, without arms, without organization, there was hardly anything else to do but to obey and to produce wealth...always for others.

Practically the only wealth which Bolivia had readily available in those days was in the form of minerals, the exploitation of which - combined with slave labor - gave "excellent returns." Even today, a Bolivian miner's life expectancy is not much over 35 years. A high percentage of them are affected by silicosis and tuberculosis. Frequently he has to work at an altitude of 15,000 feet. Like most miners, the Bolivian miner as well as the Indian in general thinks only of today. Vast quantities of alcohol help to make life look pleasant at certain moments, while chewing immense amounts of coca leaves is a convenient means to dull the pains of everyday existence.

Naturally, even in colonial days, the abuses of the Indians by their white masters did not go entirely unnoticed in the mother country. Protective laws were more than once promulgated, mainly at the request of the Church; yet they were equally cleverly evaded in every day practice. A certain "veneration for the law" accompanied by an extreme non-compliance with its provisions is still plaguing Bolivia today. A deep-seated contempt on the part of the Spaniards for the Cholo - the mixture of Indian and white which was generally brought about without the blessings

of the Church and hence objected to - contributed to a further cleavage between masters and slaves which is reflected in a number of serious revolts of native groups in the past (Tupac Amaru and Tupac Catari) as well as in today's racial problems which are coming more and more into the open.

Bolivian History Repeats Itself

Bolivian history provides the most remarkable confirmation of the French saying that history repeats itself. All of Bolivia's present day woes can be found in striking similarity in earlier periods of its history. A rudimentary form of agrarian reform - a big issue in today's Bolivia - was introduced as early as 1824 by Simon Bolivar himself whose primary intention was to make available more land to individuals as well as to establish a system of agricultural wages instead of forced labor 1/. It was given up after two years of trial. A few years later there was a new attempt to make the Indians "masters of the land" until President Ballivián completely vitiated the measure through a clever taxation device. Even the present emphasis on attaining self-sufficiency in the field of agriculture is nothing new. Around 1840 Bolivia was quite self-sufficient in agricultural production 2/.

The appeal of the present government to the "Masses" was tried as early as 1848 by President Belzu. It quickly resulted in the rise of a number of demagogues which in time brought about a complete administrative breakdown and economic ruin. Conditions were so disastrous that Bolivia was about to disappear from the map. The country had a little over one million inhabitants living in the most frightful state of poverty. A once prosperous agriculture broke down completely because the Indians were in control of the land and were unwilling or unable to carry on more than a subsistence agriculture. Similar ups and downs took place in the field of minerals. The disappearance of silver as a source of income at the end of the last century caused great economic stress to Bolivia. However, soon a new mineral appeared to take its place. Tin became Bolivia's new gospel and again the money came rolling in, in fabulous amounts.

Even "projects" in Bolivia are recurrent. In 1912 both President Montes and Simon Patiño decided that the time had come for Bolivia to save foreign exchange by establishing a tin smelter in Bolivia. A commission of technicians was brought from Europe to study the project. Although the commission's report was negative, this was only the beginning of a number of studies on the same subject, all of which indicated that a tin smelter was at least a dubious project for Bolivia. Last year Bolivia paid out $60,000 for another study for the establishment of a tin smelter in the country by the German firm of Krupp-Lurgi, a study which so far has been inconclusive.

The term "Economic Integration of the Indian" which forms part of the present government's program, was first heard during the wave of liberalism in the early part of this century. For the first time there was

---

1/ F. Nielsen Reyes. La Legislación Agraria del Libertador. El Diario, August 6, 1953.

2/ L. Peñaloza - Historia Economica de Bolivia - La Paz 1953.

a certain emphasis on the need for education of the Indian both through schools and military service. During this period, quite a few social overhead projects (railroads, power, roads) were completed, many of which are still in use today. In those days of order, production, and social progress, Bolivia was able to maintain both a favorable balance of payments and of trade. Good things never last, and when the depression of 1929 came Bolivia naturally received its share of economic woes. Today's familiar tune of "low prices of tin" was heard again and again as the explanation of Bolivia's difficulties - with this difference, that in 1930 the tin price at around 30 cents a pound was really low.

Effects of the Chaco War

To make matters worse, Bolivia in 1932 got involved in the Chaco War which put a terrific strain on its already dwindling resources. According to competent observers, the lack of foresight, organization and control, the amount of confusion, corruption and mismanagement during this war exceeded all imagination. Thousands of Indians having but the faintest idea of what it was all about were brought down from the high plains where they fought heroically, to find their death in the tropical "green hell" which their congenital malnutrition and lack of protection found difficult to cope with. In 1935 the ruin was complete. It is difficult to underestimate the impact of the Chaco War on all sectors of Bolivian society, in particular the Indians. It was the beginning of a social problem, of moral disintegration, and of costly political experiments, the combination of which resulted in increasing inflationary pressures. It is during the period just following the Chaco War that much of the potential wealth of Bolivia was mortgaged to have railroads built by Brazil and Argentina. At the same time Standard Oil was expropriated because the government apparently felt that the company was not actively pushing development. Forced delivery of a certain percentage of export dollars, which had also been tried before, was reintroduced while the value of the boliviano kept on declining. The Mining Bank was formed, whose ultimate bureaucracy would result in the ruin of a once profitable private mining industry. The Bolivian Development Corporation was created to diversify the Bolivian economy and a loan was obtained from the Exim Bank to start the Santa Cruz-Cochabamba Highway project.

The Rise of the MNR Party

In 1941 the present government party, the Movimiento Nacionalista Revolucionario (MNR) was formed, both as a result of dissatisfaction with the conduct of the Chaco War, as well as a reaction against increasing strength of communist groups. From the beginning, the "Movimiento" had somewhat of a totalitarian tinge which at times is not uncommon in Latin American countries. Although there understandably existed some dissent on the subject among leading party members, during the early days of the second World War, the MNR was strongly in favor of a policy of neutrality towards the Axis which stands clear on the record. As in Chile and Argentina, German cultural influence has always been relatively strong in Bolivia. A trade agreement of 1908 gave Germany certain advantages in the commercial field. Later on after World War I, there was the German military mission under Colonel Kundt and Captain Roehm. The latter was one of the early followers of Hitler who was shot by the Führer personally in the well-publicized 1934 putsch. In 1943 the first MNR government of President Villarroel came to power. Immediately it was in close sympathy with the government of Presi-

dent Ramirez in the Argentine and at least some of its elements were quite sympathetic to a Nazi victory.

From a point of view of social psychology, it is interesting to note that while the totalitarian regimes in Europe arose as a result of economic insecurity and political frustration of the masses after the first World War, the MNR system was more or less superimposed on an Indian population which hardly knew what it was all about but which was attracted by some of its promises. It should not be forgotten in this connection that almost all over Latin America the "Caudillo" type of government, headed by a strong leader, always has had considerable appeal for the local population. Most of the party's early slogans, such as nationalization of the mines and agrarian reform, made good political hay and were of such a nature that they could appeal to communists, nazis and good Bolivians alike. Hence the rather broad following which the MNR had from the start. When Nazidom appeared to be doomed, the MNR evidently had to wash itself free from the fascist charge. It found a way of doing so by adhering to dialectic Marxism which was to become as popular in the early post-war years as nazism would become unpopular.

When the first government of President Villarroel took over it inherited a number of problems which had been accumulating over the years. Although these problems were well known, apparently not much was done about them by previous governments. It is to the credit of the MNR party that it had the courage to face these problems squarely, particularly insofar as the position of the Indian is concerned.

In 1946 the MNR government fell as a result of a coup by student groups which was backed largely by the populations of the cities. Political support in Bolivia is extremely fickle and so President Villarroel, who had tried so hard to improve the lot of the Indian, found it his tragic fate to hang from a lamp post - a fact which still makes a profound impression on present day political leaders. For a short time there was complete anarchy, after which the government of President Hertzog emerged. During this regime the construction of the pipelines to Cochabamba and Sucre was completed with refineries in both terminals. Likewise another loan was obtained for the completion of the Cochabamba-Santa Cruz Highway.

In 1952 the MNR government returned to power. Being committed to nationalization of the large mines which for many years more or less had ruled the country, it bought itself a big package of economic troubles to start with. In order to broaden the base of popular support, the MNR abolished the army which had been used too often to put pressure on the miners. To make things complete, an agrarian reform was introduced which in the beginning could only mean a serious decline in market-directed agricultural production, while urban reform - a device to expropriate lands containing more than one hectare in urban areas - put the skids under the owner class. Many intellectuals started leaving the country while others were put in jail.

The Breakdown of the Economy

In this general state of affairs, economic conditions deteriorated rapidly. By 1953 famine conditions were actually in sight which prompted the United States to take action. Economic aid was extended to Bolivia

to feed a starving population. As a result of this closer cooperation between Bolivia and the United States, relations between the two countries have improved considerably. Even in 1950 Franz Tamayo, Bolivia's outstanding philosopher, who can be classified as fairly objective, wrote: "The Yankees, our powerful brothers from the North, are shedding their noble blood in the defense of Korea. Noble purpose. After freeing Cuba, they went out to liberate Europe. Yet I have a sad thought. In the case of Bolivia I am afraid that not even a single drop of blood from a Yankee rat would be shed for us." 1/ Little could he suspect that only a few years later the United States would have spent some $50 million of aid to Bolivia with even more to come.

Skeptics have said that the changed attitude of the Bolivian government, which started out quite leftist, is based on pure opportunism to get United States aid and thus stay in power. This appears to be an oversimplification. First of all the Bolivian government needs help. It is in the position of a man who is drowning and who cries for help. Secondly, in Bolivia the Catholic heritage from Spain, which strongly tends to the right, has always been a factor in politics. Thirdly, Bolivia lives in the Western world and thus, in spite of what is said by leftist elements, it cannot help but share at least some of the ideas which are so dear to all Americans from Alaska to Magellanes.

On the record, the present government's policy has gradually been shifting to the right. For example some of the statements made by prominent government officials today are hardly compatible with some of the things the same men said a few years ago. It is not only statements which reflect the changing attitude on the part of the Bolivian government, it is action as well. At present there is at least some interest in attracting private capital. Thus in September 1955, Bolivia introduced the United States Investment Guarantee Program as a result of which some United States investors have already made the first move to come in. Again, some of these moves may have been made under the hard pressure of economic reality; they may have met with reluctance in some quarters since they are contrary to the socialistic philosophy of some of the party's thinkers. Yet the important thing is that the initial move has been made so that from now on private United States capital can at least start its program of selling itself to the Bolivians.

The Social Environment

Bolivia's social structure has baffled a good many observers. Some knowledge of it is essential to understand the general economic situation of the country. In many respects the Indian society - until a few years back - could be compared with the European feudalism of about 1400 A.D. If the Indian felt any right to the land on which he was living, it was only because of his rendering certain services such as road maintenance, share cropping and periodic services in the house of the master, comparable to the feudal services to the Lord of the English manor. The only difference was that in Bolivia, the "Lord" or hacienda owner usually exercised his profession, law, medicine, politics or public administration,

---

1/ German Arciniegas - Entre La Libertad y el Miedo. Editorial del Pacifico SA; Santiago de Chile, 1953;

in the city, leaving the daily administration of his hacienda in the hands of a majordomo.

Until 1945 there existed practically no wages. To keep his plot of land the Indian had to work three or four days a week for the large landowner. In rendering these services he had to bring his own tools; he had to transport the crop to the market place in return for part of it; in addition to this he had to render services in the house of the master in the city, the so-called "pongueaje" for which he had to present himself on a weekly rotating basis. In presenting himself for this service he usually had to bring certain items for the master's home, such as firewood, taquia (llama excrement used for burning) and brooms. In some cases the Indians were obligated to sell to the master eggs, chickens, pigs and other products of their labor at ridiculous prices (the system of camarico or colqueaje). In many regions the Indian women were obligated to serve as cooks, from which duty they could free themselves by bringing potatoes to the master (papa-cocinera). As a general rule the hacienda owner had the right of first approval on any sale of agricultural products by his serfs. Among the Indians themselves existed similar duties of cooperation. The Indians accepted these duties in order not to be deprived of their little plot of land which constituted the utmost disaster, since an Indian without land was subject to the most vile exploitation.

This system has been subject to many modifications by well meaning people who tried to make the life of the Indians more livable. However, it was not abolished officially until a decree was issued in 1945 which forbade the authorities to oblige the Indians to render free services. In practice this decree of President Villarroel was only an expression of a growing feeling of social justice since the Indians had no way to enforce it. The final blow to the system came in 1953 when the decree of the agrarian reform finally abolished the system of personal services.

The Problem of Social Change

It is obvious that this sudden change could only have the most disastrous results for the country's agricultural production. Since many farms were so marginal that they could only be worked under a slave system, many owners stopped working their properties altogether instead of paying wages. Others soon discovered that the Indian would only come to work if he needed money to get drunk. As a result of all this, a most important factor in Bolivian agriculture, the factor of management, was lost. For example, as a result of the rise of potato prices, many Indians sold their seed potatoes early in 1955. To get seed potatoes later on, their only remedy was to steal or buy them from those who had some.

What complicates this problem even more for the future is the Indians' peculiar mental make-up. First of all, most of them are illiterate which makes it difficult to reach them with any other method than actual demonstration, as is done by the Agricultural Servicio. To complicate matters further, only a small minority of them speak Spanish. Their wants and desires are changing only slowly. In many cases clothing and housing differ little from the days of the Spanish conquest. Furniture is practically unknown, and food is limited to only a few items, mostly potatoes. Their Catholic religion is built on the firm foundations of the old Inca cult. On the basis of past experience the Indian is extremely distrustful

and resistant to change. His normal reaction is to act collectively as part of the group which as such makes the decisions.

However, not having known any personal recognition for centuries, he also loves pomp, titles and lawsuits and other things which make him feel important. In order to become a local official or a party boss, to attend a union meeting, to carry on a lawsuit, he may be willing to forget about his farm for a whole year. To become a sergeant in the army fills him with almost infantile pride. In his quest to become "separated from the crowd" he is willing to make immense economic sacrifices. He is often prepared to spend his last resources, his best animals, his entire crop, to give a big feast to the community, complete with music and barrels of alcohol which may last for days, ending in a complete stupor of all present. The case of a prize breeding sheep imported from abroad and given by the authorities to an agricultural community as a reward for their high production is typical. At the height of the party, the animal, once destined to head a long line of high grade progeny, ended up ignominiously in the stomachs of those attending the party.

Regionalism

Among the people who may be termed as literate, there exists a strong regionalism which sometimes borders on hatred for those coming from another region. This problem is only recently being alleviated somewhat as a result of better transportation and the present government's most successful effort to promote internal migration. Of course, many of the faults and qualities of the Indian are reflected also in the population of mixed blood.

Colonial influence accounts sometimes for arbitrary behavior of the authorities as well as for an admiration for personal courage and for strong leaders of the Caudillo type. This in turn attracted people to politics and official government functions rather than to private industry. The above picture clearly explains the interest which the average Bolivian takes in revolutions against any government which does not comply with the promises made. The large number of Indians and people of mixed blood who have nothing to lose and the love for personal courage tend to make any revolution a worthwhile adventure and a welcome change from the drudgery of everyday life.

This mixture of Incaic society, colonialism, robber barons and idealists must now be blended into a modern society. It is a major job and it will take time. To integrate the Indian into a modern society may take less time than in other countries, as for instance Mexico, since the Bolivian Indian would starve without a minimum amount of work. He dies from cold unless he constructs at least a moderately adequate hut. To some extent the Indian of the high plains was always forced to face the facts of life. His present apparent indolence is likely to be much more a result of environmental factors than a lack of basic I.Q. For instance, it has been noticed that as civilization comes closer to them, the level of aspirations of the Indian is gradually changing. Given some incentive, Bolivian mechanics and artisans can work wonders with their hands. In time they may again attain the glory of their Inca ancestors in a completely different setting.

Population

According to the 1950 census 1/, the total population of Bolivia is about three million, the greater part of whom are Quechua and Aymara Indians, with a sprinkling of Guarani Indians on the Paraguayan border. The Quechuas are the largest group, consisting of about one million. They are generally located in the valleys, while the Aymara population, which consists of some 660,000 people, are more concentrated on the high plains. All three groups speak a different language and many of them speak no Spanish at all. Apart from the Indian groups, there is a relatively large group of people with mixed blood - the Cholos - and a small group of white population consisting of old Spanish colonial stock or more recent immigrants from Europe. Although some areas, particularly the valleys, are densely populated, the overall population density is extremely low. It amounts to about three persons per square kilometer as compared with seven for Argentina, Brazil and Peru, and eight for Chile 2/.

During the existence of the Republic there have been six censuses which show the following results:

Year	Population
1831	1,088,768
1835	1,060,777
1854	2,326,126
1882	1,172,156
1900	1,766,451
1950	3,019,031

The first four of these censuses are extremely deficient, particularly the one of 1854. Furthermore, over the years Bolivia has lost a considerable amount of territory to Chile, Peru, Brazil and Paraguay which makes a comparison more difficult.

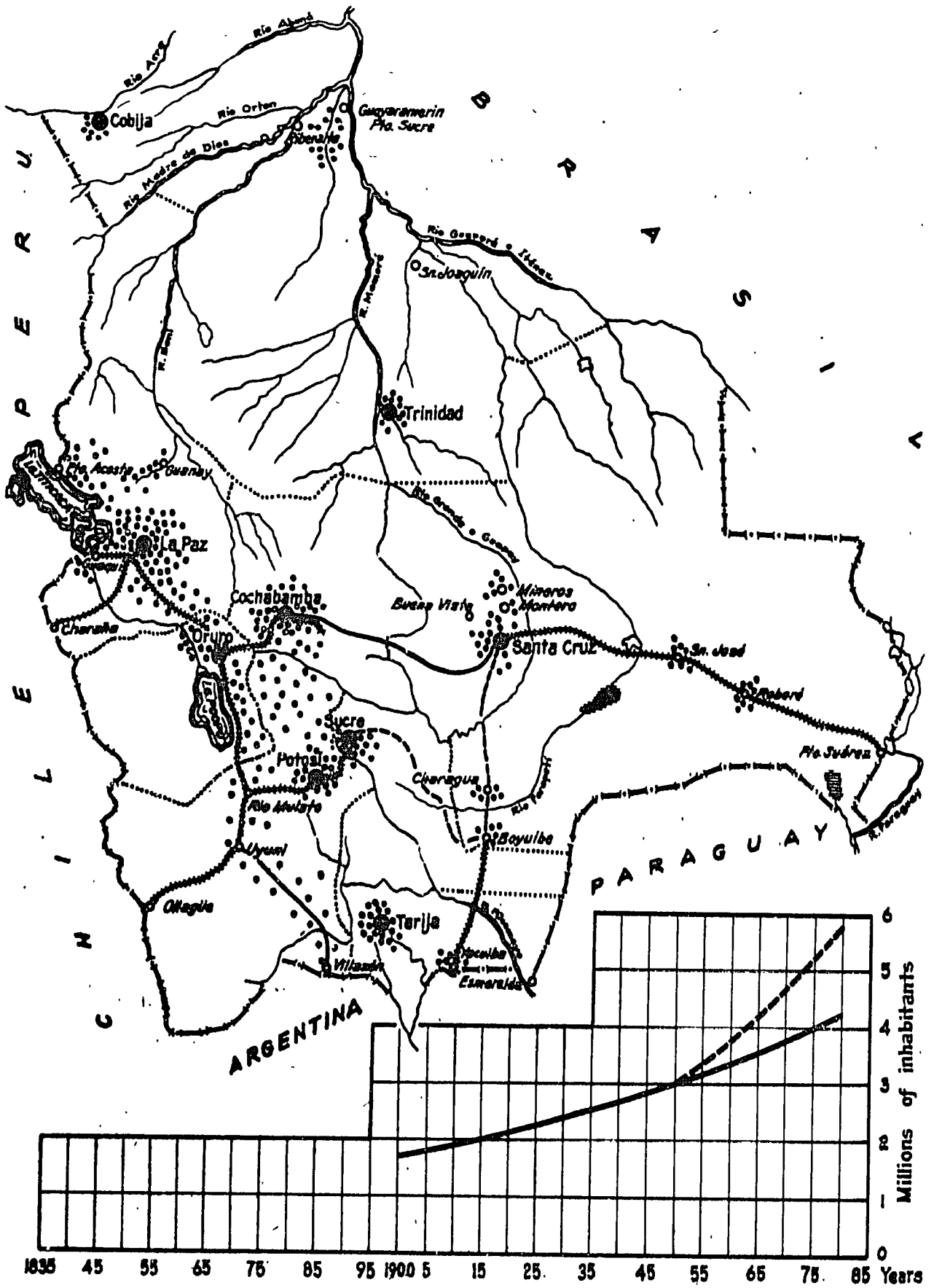
The annual population increase based on the last two censuses amounts to slightly over 1% which projected into the future would give a population of 4.2 million in 1980. However, in view of better sanitary conditions, improved education and other factors, Bolivia's population is expected to increase much faster in the future. Based on the average population increases in Latin America of 2.2% 3/ Bolivia's population by 1970 may well amount to some 4.7 million which will eventually call for a substantial internal migration. Even this estimate may prove to be conservative if and when better sanitary conditions and decreased infant mortality will begin to make their full impact.

According to the 1950 census the urban population of the Republic amounts to 34% as compared with a rural population of 66%. Unfortunately the criterion defining rural and urban population is rather vague. The

---

1/ Direccion General de Estadistica y Censos; Censo Demographico 1950. Editorial Argote, La Paz, 1955.
2/ United Nations; Demographic Yearbook, 1954.
3/ United Nations; Demographic Yearbook, 1954.

POPULATION DISTRIBUTION AND INCREASE



actual 1950 census figure of 3,019,031 inhabitants is composed as follows:

Population actually counted	2,704,165
Population not included (estimated)	227,866
Forest population (estimated)	87,000

On the whole, Bolivia's population is very young as may be seen from the following figures:

Up to 14 years	40%
From 15 to 19 years	10%
From 20 to 59 years	43%
Over 60 years	7%

Although the illiteracy rate at present is over 70%, it is gradually dropping as a result of greater educational facilities. It is interesting in this connection that a recent check made in the soldier's colonization project near Santa Cruz proved that only 20% of the new recruits were illiterate. From an occupational viewpoint, 70% of the population is engaged in agriculture, mostly of a subsistence type, while only 3% is active in mining or industry. Yet it is interesting to note that these 70% are unable to provide the basic food items which the country needs while the 3% are providing practically all of its foreign exchange income.

The Physical Setting

Bolivia occupies the heartland of South America. It has common boundaries with Brazil, Argentina, Paraguay, Chile and Peru. Its area of 411,127 square miles is about equal to the combined areas of France, Spain and Portugal. The country can be divided roughly into three regions, each of which shows marked geographic differences, as follows:

a. The High Plains which consist of a plateau situated at about 11,000 to 14,000 feet above sea level which takes up only about 16% of the country yet contains about 70% of its population. The climate is more or less dry and cold at night with occasional frosts damaging crops.

b. The Valleys which take up about 14% of the total area of the country. They generally start at the edge of the high plains. Since the drop from about 12,000 feet to about 5,000 feet is generally very severe, the area consists of hilly or very steep uplands. Rainfall is abundant while the climate is generally subtropical (16-18° C) depending on the altitude.

c. The Eastern Lowlands which occupy about 70% of the area of Bolivia. These large plains run from the Brazilian border in the north to the Paraguayan and Argentine frontiers in the south. Although they take up the largest area of Bolivia and could provide good possibilities for the development of agriculture, they have hardly any population at present.

The area of the eastern plains can be subdivided into three regions, namely:

a. The Gran Chaco which extends from the Argentine border

north towards Camiri along the Paraguayan border. It consists chiefly of gentle slopes with here and there large valleys. The altitude ranges from 1500 to 2300 feet. Although the climate is subtropical, occasional cold winds from the south can knock down the temperature to as low as 5° C.

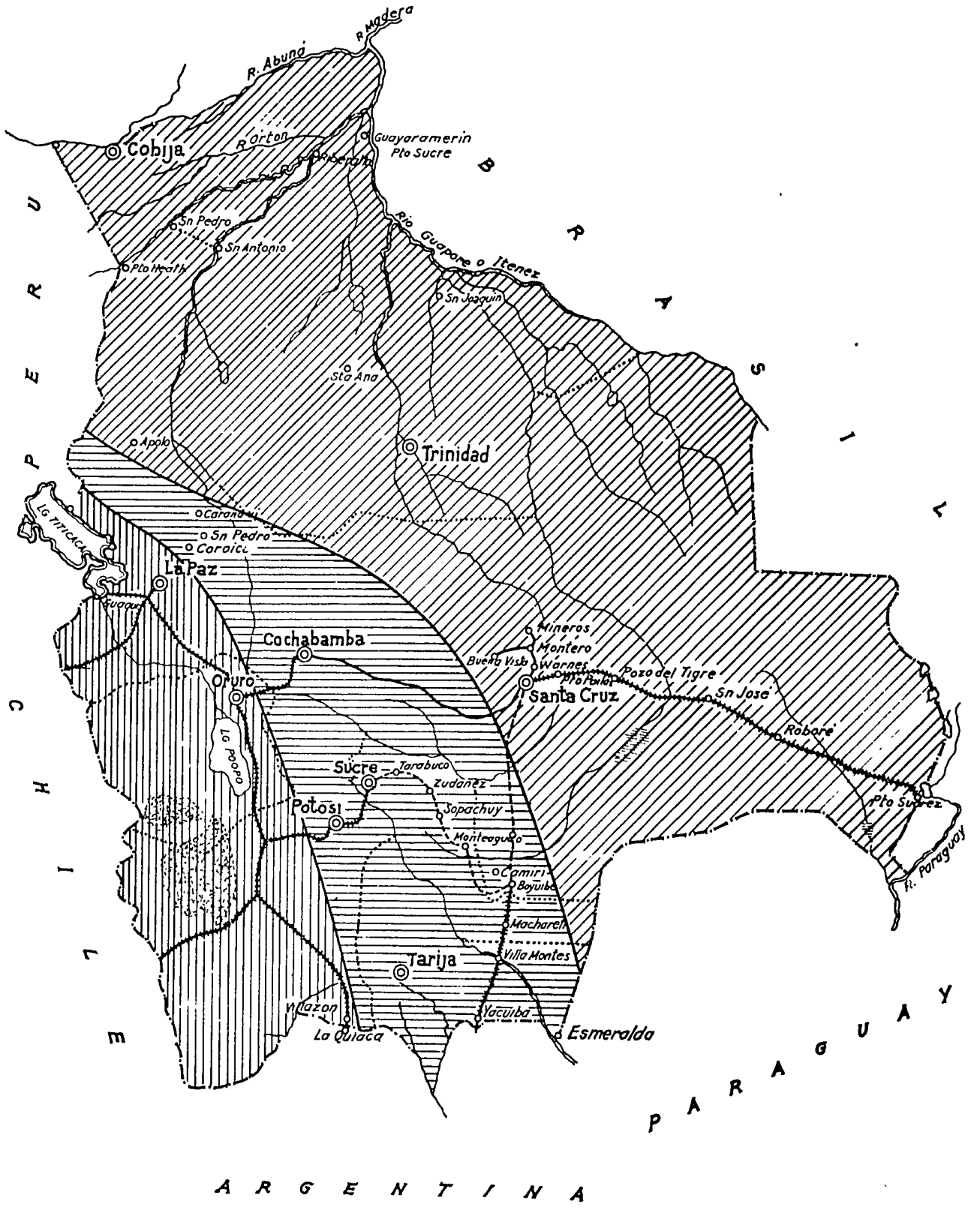
b. Further north lies the Santa Cruz area which is situated at an elevation of about 1000 to 1500 feet above sea level. Its climate is also subtropical with mean annual temperatures of 23° to 24° C. Generally it consists of large plains, half of which are covered by woodland.

c. Still farther north lie the tropical plains of the Beni and Mamoré Rivers which cover practically all of the northern part of Bolivia. Here the elevation ranges from 500 to 1500 feet above sea level. Much of the land is fairly flat and wet over at least a part of the year since the rivers overflow their banks, covering large areas with floods which drain off very slowly. The mean rainfall is high, and the climate is hot and humid (26-27° C).

Resources

Bolivia's natural resources are vast. At least a sample of nearly every mineral can be found within its territory, and for centuries mining has provided almost the only source of income to the country. Recently petroleum has come to the fore as a possible additional source of income. The country's vast agricultural resources are almost completely untapped both insofar as production for the domestic market is concerned as well as for export. Its immense tropical forests contain an additional wealth which has hardly been explored. Although these resources are there, they should not blind the student of Bolivia's economy, for the country is highly deficient in human resources. Both the number and make-up of its population are such that they tend to offset to a large extent the natural resources which the Lord chose to bestow on Bolivia.

MAP OF BOLIVIA

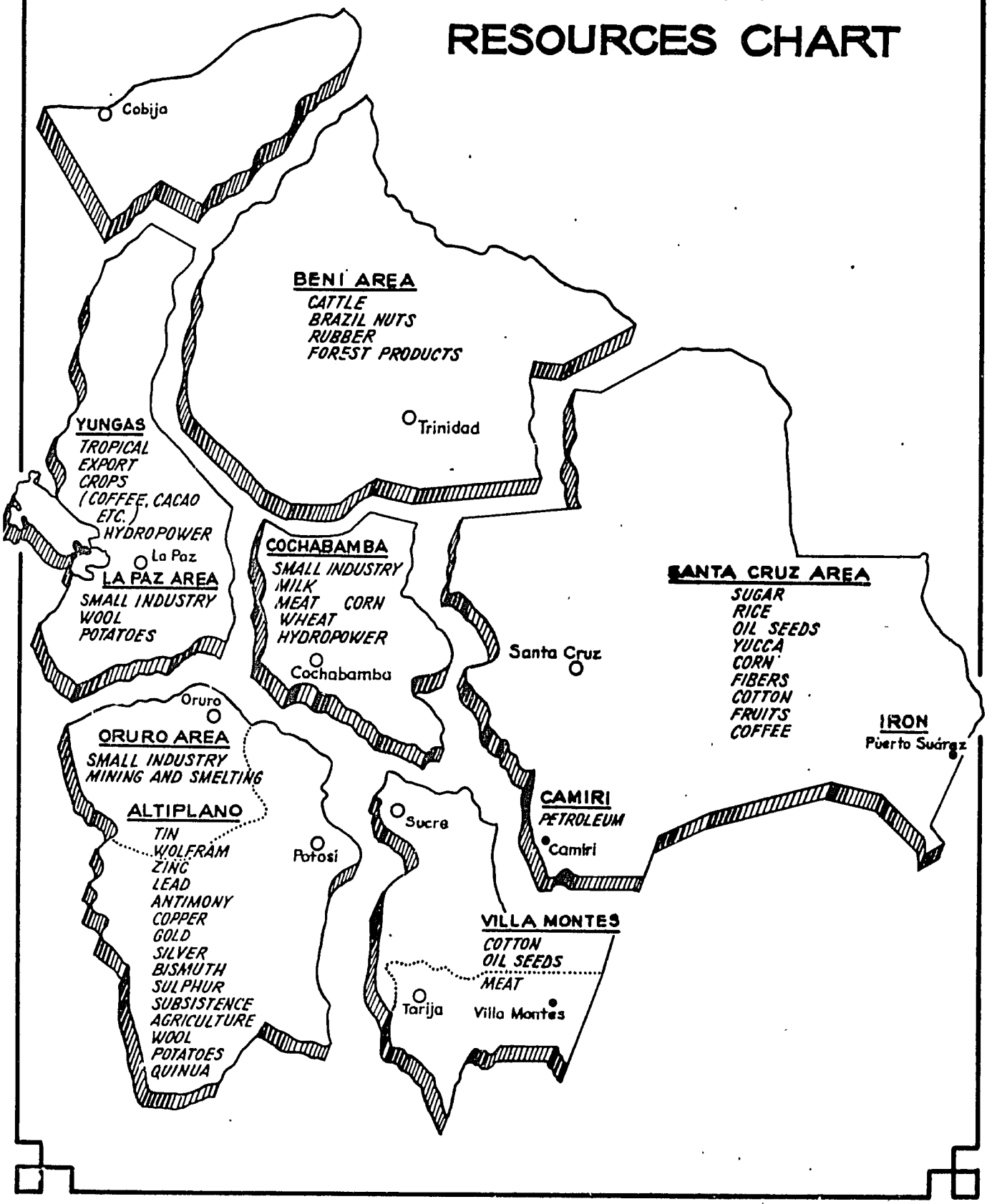


HIGLANDS (OVER 10.000 FEET)

VALLEYS AND INTERMEDIATE ZONES

TROPICAL AND SUB-TROPICAL PLAINS

BOLIVIA
RESOURCES CHART



III. THE FINANCIAL AND MONETARY SITUATION

A Complex Picture

To summarize in a few words what happened in Bolivia in the financial sphere during the past few years would be an impossible task since so many ad-hoc measures were taken to cope with all kinds of problems as they came up. This has resulted in a respectable number of decrees and resolutions which might be difficult to grasp for the general reader since their overall philosophy is frequently contradictory. Some people have even said that to understand all this, one must have lived at least for some time in Bolivia! However, to anyone who really wants to get "the feel" of the Bolivian situation, a more detailed knowledge of these measures would appear to be essential. Therefore this material has been arranged in chronological order in a special annex attached to this chapter.

The Inflation

For those interested in the bird's eye view only, we might say that inflation is far from new to Bolivia since a gradual process of inflation started right after the Chaco War which upset so many social and ethical values in Bolivia. As a matter of fact, the practice of covering government deficits with loans from the Central Bank has been quite common in Bolivia since that time. The present run-away inflation is new, however. It is a direct result of over-spending and of the activities, or rather the lack of them, of both the Mining Corporation and the Mining Bank.

When the MNR government took over in 1952, it first established an export monopoly for minerals by the Mining Bank. In order that this institution could finance the local currency requirements of the private mining industry of the country, which previously had taken care of these requirements by using the proceeds from its own exports, the Central Bank had to give credit, which meant additional printing of paper money. In October of the same year, the big three mining companies were nationalized which put all exportation of minerals by the large mining industry into the hands of the Mining Corporation of Bolivia. Since the original owners naturally withdrew their working capital, the Central Bank had to print more money to finance the operation of the Mining Corporation.

Thus in a short time the combined circulation increased from Bs. 6.7 billion early in 1952 to Bs. 10.5 billion at the end of the same year. The cost of living index for La Paz went up from 5,041 in December 1951 to 6,596 in December of 1952. This was only the beginning of an ever-accelerating inflationary process since the deficits of the Mining Corporation were to increase further, while at the same time market-directed agricultural production was bound to show a substantial decline because of the agrarian reform. An over-ambitious long range development program did the rest.

As a result of all this, total circulation went from Bs. 6.7 billion in 1952 to Bs. 124.8 billion on June 30, 1956. During the same period the free market rate of the dollar went from Bs. 190 to about 7,000 to the dollar, while the cost of living index in La Paz went up from 5,041 in December 1951 to 102,970 on June 30, 1956. Central Bank reserves, which in December 1951 were around $30 million, had changed into a deficit of

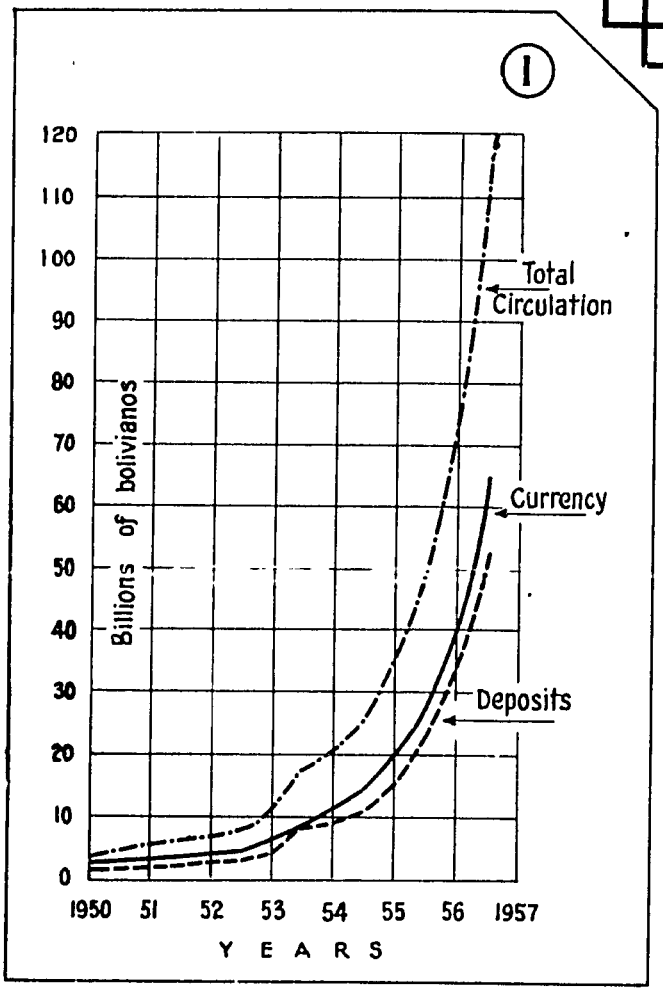
THE INFLATION

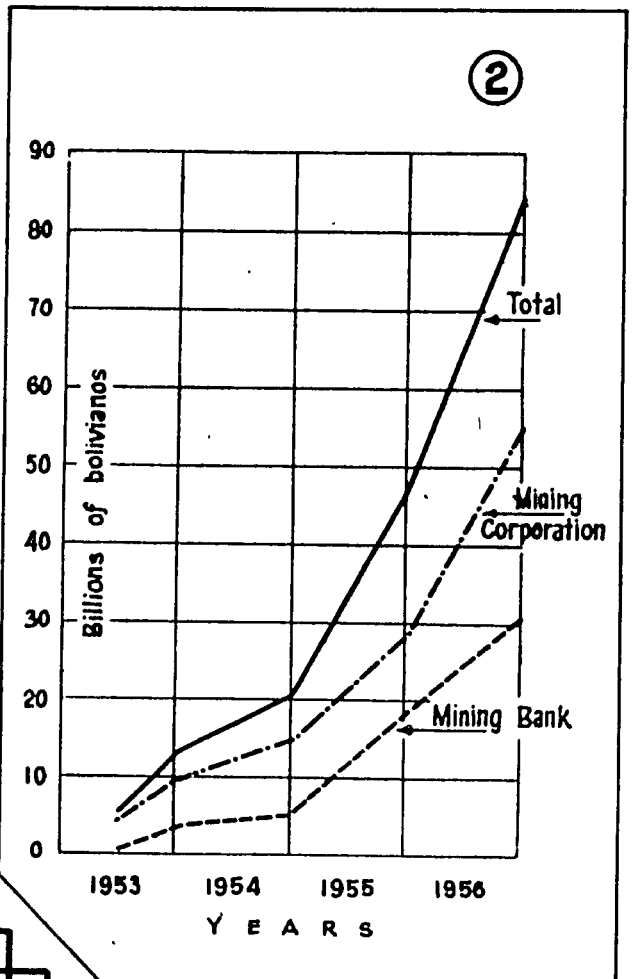
JANUARI 1952 - JUNE 1956

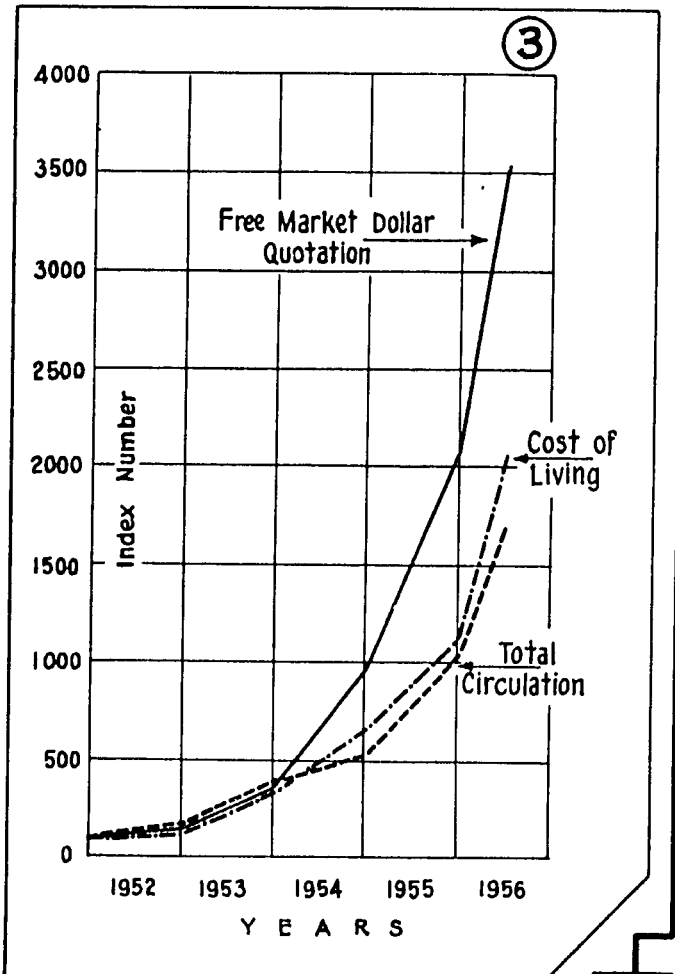
1. INCREASE IN CIRCULATION

2. ADVANCES AND PREMIA TO MINING INDUSTRY

3. COMPARATIVE INDEX FIGURES







some $11.3 million by June 30, 1956. During the same period the country received about $60 million of United States aid mainly in the form of basic foodstuffs.

The Problem of Differential Exchange Rates

Over a number of years part of the difficulty in Bolivia had been the existence of differential exchange rates. For instance in April 1952 there existed the following types of exchange for the dollar: Bs. 60; 60.60; 63.60; 100; 101; 104 and 130. The free market at that time operated at the rate of Bs. 190 to the dollar so that in reality there were eight different types of exchange rates.

Naturally the large difference between imports at the official rate and the existing free rate led to the re-exportation of merchandise which provided large profits to people engaged in all kinds of contraband activities and which became more of a problem as the country grew poorer. In order to increase profits even more, many importers started a system of double invoicing in order to obtain a larger quota of foreign exchange at the official rate for the purchase of merchandise. As a result of this, considerable wealth was accumulated by a few people in a very short time which is said to have resulted in the rapid increase of Bolivian dollar holdings abroad.

The Establishment of the Single Rate

To cope with these problems, it was decided early in 1953 to establish a new rate of Bs. 190 to the dollar which was to be a single rate. This naturally caused a general increase of the price of imported articles, followed later on by an actual increase of the price of domestic products which again resulted in considerable wage increases. It is interesting in this connection, however, that in making these adjustments which have become periodic over the past few years the lower classes received a relatively larger share of the pie than the small middle class and the intellectuals, while the speculators and certain people with political influence represented another group of people which gained relatively more. Thus while the pie decreased in overall size, the relative shares changed substantially.

Another important decision of 1953 was that the Central Bank would distribute foreign exchange in accordance with an annual budget which would be approved in December of each year. At the same time it was prohibited to carry out any more imports with foreign exchange other than at the official rate. Thus, all imports with privately owned foreign exchange and all compensation transactions were cancelled. Naturally both the decrease in offerings of foreign exchange at the official rate and the increasing amount of circulation in the hands of the public resulted in a sharp increase of the rate of exchange for the dollar. While in May 1953 the free market dollar could be bought for Bs. 680, during the last days of December of the same year this rate went up to Bs. 800. Since both merchandise and raw materials became scarcer and scarcer, commerce and industry started investing ever increasing quantities of money in the purchase of dollars at the free market rate of exchange which again put more pressure on the boliviano.

The Return to Differential Exchange Rates

Late in 1953 a new measure was introduced, a so-called surcharge on the CIF value of imported merchandise amounting to 50% on non-essential goods and 100% on those which were still less necessary. Items of primary necessity remained free from this charge.

In the meantime the cost of living index in the city of La Paz kept on increasing. As a result of this, the workers who in May 1953 had received a salary increase of 100% could hardly exist. The middle class was squeezed even more.

The sociological result of this should not be under-estimated since, because of the general impoverishment, part of the middle class had to lower their levels to proletarian standards whereas another group of intellectuals and people of higher education started to leave the country or to engage in other occupations. As a result of this, some professional people who did not emigrate started commercial operations, converting themselves into "importers" and other enterprises many of which related to black market operations. Obviously this was a most dangerous trend in a country like Bolivia where there already exists a dearth of people who can give direction to the country.

Around the middle of 1954 the Ministry of Economy introduced a new mechanism called the application of "revertibles" in order to cope with the problem of contraband which was beginning to reach rather large proportions. These "revertibles" consisted of a charge payable to the Ministry of Economy on merchandise imported at the official rate of exchange to bring their price in line with the world market price. In essence, the application of the "revertible" worked as a sales tax with this difference, that the amount in each case would be determined by the Minister of Economy which could result in substantial advantages to those who were able to obtain a lower "revertible" than others for the same product. Thus the application of "revertibles" in some cases resulted again in large gains for certain people. What made matters worse was that frequently by delaying payment of the "revertibles" for several months the merchant was able to obtain a free loan at the expense of the government.

Rather than considering the "revertible" and CIF surcharges as a customs duty they should, in our opinion, be considered as a means of regulating the rate of exchange. This would appear to be so not only since the Minister of Economy clearly stated this as the purpose of the measures in question, but also since at least the surcharge is to be paid in advance to the Central Bank; i.e., before the import license is granted and not after the merchandise arrives as would be the case if it were a customs duty. Furthermore, the CIF surcharge does not apply generally since people engaged in compensation transactions do not have to pay this charge. Therefore, in this manner, surreptitiously a new system of differential exchange rates was introduced in 1954 which was exactly what the authorities had wanted to avoid. The "revertibles" which did add a good deal to the financial confusion were finally abolished early this year and replaced by a CIF surcharge.

The Cause of the Inflation

As may have been gathered from the above, the Bolivian inflation stems from four causes which are somewhat interrelated. First, there is a general lack of production both in the mines and in market-directed agriculture, while overall spending keeps on increasing through the use of the printing press and credit purchases. Second, the monetary and fiscal policies during the past four years have not been in accord with the overall development plans while, to make matters worse, they have been quite inconsistent. Third, there has been an excessive use of public funds for projects which are either too long-range or which could have been privately financed. Last but not least, administrative inefficiencies have also been a substantial cause in increasing the inflationary process.

It is obvious that the lack of labor discipline in the mines and the general lack of law and order on the land have been one of the [redacted] causes of the lack of production and thus of the inflation. There is another more psychological factor, however, which should be taken into consideration in discussing Bolivia's inflation. Quite a few people in Bolivia are now interested in accelerating the inflation. Among these are the people with sufficient influence to obtain credits, who, as the currency went down were interested in paying with depreciated currency. Furthermore, the importers who received dollar commissions and could make money by delaying the payment of the "revertibles". Then there are the people who received official allocations of goods at the official rate of exchange. Finally, there are the industrialists and people engaged in commerce who had invested part of their savings in dollars who are also interested in more inflation.

Remedial Measures

All through this process the Bolivian Government has been well aware of the danger of the ever-increasing inflationary process and various measures were taken to arrest it, all of which have been relatively ineffective. For example, several times credit was tightened while the previously mentioned CIF surcharges were also conceived - at least in theory - as deflationary steps.

Since the earlier decrees eliminating the compensation transaction gave no incentive to the producer to export and thus were about to kill both agricultural and private mineral exports, a decree of March 31, 1955 tried to restore the system which existed prior to 1952 by again allowing imports with dollar proceeds obtained from exports. Favorable results of this decree began to be felt early in 1956, but unfortunately this system was modified again by a decree of July 21, 1956.

By far the most constructive step taken by Bolivia in dealing with the problem of the inflation was the creation of a Monetary Stabilization Council established by decree of August 4, 1956. The decree provides that the Council shall be headed by the President of the Republic and the Minister of Finance who shall act as its President and Vice-President respectively. Other members of the Council are the Foreign Minister, the Minister of Economy, the Chief of the Planning Commission, the President of the Central Bank, an Executive Director who now is an American contracted by the International Cooperation Administration, and a Secretary General. It is expected that within a few months this Council will be able to make some definite recommendations to put Bolivia's currency on a sounder basis.

Moral Effects of the Inflation

It goes without saying that the year-in, year-out inflation has had a disastrous effect on the integrity of the public officials and of Bolivian society in general. Many public officials now receive salaries which are below the real wages received by a cook in a fairly well-to-do home. In spite of this, a good many of these people are quite dedicated to their jobs.

The average Bolivian is well aware of the fact that the great potential wealth of his country at some time in the future will change from a dream into reality. Perhaps this is one reason why a number of outstanding Bolivians keep working hard in spite of the lack of immediate returns. Furthermore, as was shown in the Chaco War, many Bolivians are quite patriotic and are willing to make great sacrifices for their country. Providing these people with a more stable currency would undoubtedly have great beneficial effects, releasing some of the additional energy and dedication which appear to be there.

The Fiscal Problem

The Bolivian Constitution divides all government income into national, departmental and municipal revenue. These three types of funds must be administered independently and cannot be mixed. The Bolivian Budget Law of 1928, drawn up by the Kemmerer Mission, contains detailed provisions regarding the use of both national and departmental revenue. However, since 1944 it has become customary to allocate the spending of all income for salaries and other recurring expenditures on a monthly basis while investments in public works and similar expenditures of a more incidental nature are dealt with by special order which must be approved by the Controller General.

A 1954 decree established that the respective government agencies would have to draw up their budgets both in national and foreign currency prior to September 30 of each year. In practice this has resulted in the drawing up of two budgets, one in national currency and one in foreign exchange, which latter will be dealt with more extensively in Chapter IV.

A decree of April 1955 reorganized the system of control of income and expenditures of the government through the creation of the Directorates General of Income and of Expenditures. The Directorate General of Income now directs the collection of all fiscal revenue, through customs, the consular service, the autonomous and semi-autonomous agencies, and the like. It also prepares the income side of national and departmental budgets, and reviews all the financing programs of the autonomous and semi-autonomous government agencies. The Directorate General of Expenditures is charged with the paying out of all fiscal funds in accordance with budgetary allocations. The Directorate may propose to the Minister of Finance changes in the budgetary allocation for each budgetary period. Although these changes were made to streamline administrative procedure, they do not seem to have made a great deal of difference in every day practice.

Practice Versus Theory

The above Constitutional and legal provisions constitute the theory. In spite of the respective Constitutional provisions, there has never been a law which specifies clearly which funds constitute national revenue and

which belong to the departments and municipalities. In practice this is causing a great deal of confusion so that the same source of income is frequently used to fill various treasuries. Furthermore, since Congress has not been functioning during the last few years, the provisions regarding the functioning of the legislative power in connection with the budget have not been complied with.

Naturally the general breakdown which the ever-increasing inflation is causing in the country has also had disastrous effects in the sphere of fiscal administration. For instance the legal provisions establishing that the respective ministries must prepare their budgets prior to May of the previous year in which they become effective are hardly ever complied with, since in view of the inflation it is practically impossible to foresee what amounts will be necessary. Taking all this into consideration, one cannot be surprised to see that in practice the national budget is drawn up during the course of the fiscal year while, until the new budget is drawn up, the old one is being used with a number of readjustments.

The 1956 budget was approved at the end of March of this year. Since until then the general reclassification of government employees had not been effected, which had to be carried out as a result of the blanket salary increases granted in February of this year, a global sum was set aside for this purpose under the chapter of general obligations of the government. Thus this chapter now represents about one-third of all government expenditures. This example explains the usual practice of the Executive Power in establishing new allocations after the approval of the budget to back up the additional expenditures which may have become necessary. In the realm of income, the creation of the CIF surcharges in May 1953 and their constant readjustment have produced similar changes. On the other hand the general salary increases resulting from the inflation have been accompanied all the time by modifications in the tax-rate in order to prevent excessive taxation at lower income levels.

What has been said with respect to the national budget applies also to the departmental budgets which are drawn up together with the former. The municipalities have more autonomy in this matter and may establish their taxes or levies through ordinances which until recently, in the absence of a Senate, were approved by the Executive. Here the absence of a law which determines the source of municipal revenue becomes even more conspicuous. For this reason it occurs frequently that the municipalities levy a tax on production, on consumption, on fixed property, and in some cases they have established protective taxes which are directly discriminatory against the rest of the country.

From all indications it would appear that the actual accounting of most government bureaus, autonomous and semi-autonomous government agencies is far behind. For example there is the case of the Bolivian Development Corporation whose books are now only up to date until early in 1955; yet this is one of the more important public institutions in the country. Until June 30 of this year, the Controller General had not finished his balance sheet for 1955.

Although the Constitution and the law establishing the Controller General's office see the latter as a more or less independent authority exercising control over all finances of the State, in practice this office

is very closely related to the Executive Power and therefore it has very little independence. On the other hand, its fiscal activities extend also to other autonomous organizations whose structure in some cases may be almost as complex as that of the central government, such as is the case with the Mining Corporation, the Bolivian Development Corporation, and YPFB, the government oil company. It goes without saying that the Controller General's office does not have the necessary personnel or preparation to handle all these activities.

The lack of definite plans, fixed budgets, constant changes of government personnel and changes in official decrees and regulations affecting taxation create continuous problems for the administration as well as for the taxpayers. As a result of this, it is frequently necessary to go as far as to abandon completely projects under construction or to stop maintenance on existing properties. The case of roads is quite illustrative in this respect. It goes without saying that the low salaries of the public officials charged with the collection of taxes has made it difficult to maintain honesty at certain levels. More recently it has been tried to remedy this situation by giving the tax officials a commission of 4% of all excess collections. A similar provision is now being made with respect to customs agents.

Complexity of Government

The complexity of the Bolivian Government is proverbial. The Keenleyside Report mentioned that in 1950 there existed more than fifty public entities having various degrees of autonomy and independence. During the last few years this situation has been aggravated considerably. Earlier in this chapter, a few of the legal provisions regarding the national budget have been described in a general way. However, the national budget contains only a relatively small part of the funds handled by the State. For example, much more important is the foreign exchange budget which, according to a decree of May 1953, must be prepared by the Central Bank and submitted to the Executive Power before the tenth of December of each year in order to take effect January 1 thereafter. The importance of the foreign exchange budget which will be dealt with in detail in Chapter IV does not require any further explanation.

Furthermore, as we have seen above, the Minister of Economy has, during the last few years, developed another "Treasury," in the form of the application of "revertibles." The income of the Ministry of Economy on account of "revertibles" from August 1, 1955 to June 30, 1956 was Bs. 8.860 million whereas expenditures for the same period came to Bs. 7.505 million. This sum constitutes around 10% of the expenditures of the national budget for 1956 which amounts to Bs. 74.046 million. The funds created by the "revertibles" were administered by the Minister of Economy directly without any budget, and expenditures were generally authorized by means of decrees or resolutions of the Executive Power.

The problem of the "revertibles" was complicated greatly at the end of 1955 when a new decree provided that 50% of the "revertibles" originating in a certain district could be invested in regional public works as decided by local committees charged with the carrying out of certain public works and services. These committees sprang up almost immediately and in some cases not only 50% but 100% of all "revertibles" collected were in-

vested in these local projects. Obviously this decentralization greatly complicated a rational disposal of the funds originating from "revertibles". As mentioned before, early in 1956 the "revertibles" were eliminated and replaced with CIF surcharges.

American aid has also created a sizable fund originating from the sale of United States (surplus) commodities which are donated by the United States to the Bolivian Government, after which their proceeds in local currency are deposited in a counterpart account. What complicates matters here is that the Bolivian Government charges different prices for the same articles to different consumers, at least in certain cases.

Other Operations Outside the Budget

"Revertibles" and counterpart funds constitute only two cases where funds are created and used without reference to the national budget although they are used jointly with budgeted funds. The case of autonomous and semi-autonomous agencies depending from the central government provides even more numerous examples of this practice. Although entities of this type are obliged to present annually a budget to be approved by the Executive Power, the national budget does not show any concern with their results. Therefore, since the nationalization of the mines and the subsequent formation of the Mining Corporation of Bolivia in 1952, the national budget has become of secondary importance. As a matter of fact, even without considering the foreign exchange budget, the expenditures of the Mining Corporation for 1956 come to Bs. 113,991 million, or 54% more than the national budget for 1956. Another enterprise somewhat less big is YPFB, the government oil company, which for 1956 received a foreign exchange allocation of $14.8 million. YPFB has already come to the point where it is establishing subsidiaries such as the lubricating oil plant at Cochabamba which it holds jointly with a North American firm. Another entity to be mentioned in this connection is the Bolivian Development Corporation, whose balance sheets have not been published in years. It is estimated that for 1956 the Corporation is spending over Bs. 5,600 million in the construction of a number of projects and Bs. 700 million in the payment of debts. Recently the Corporation has inaugurated a sugar mill at Guabirá which is quite an enterprise in itself, the actual operation of which will require vast additional amounts of local currency funds.

Apart from the above three enterprises, the State owns three banks, the Central Bank, the Mining Bank and the Agricultural Bank; an airline, Lloyd Aereo Boliviano; several railroads, some factories such as the national factory of sulphuric acid; a match factory which is now under construction, and several insurance agencies such as social security, pensions for the military and for employees of the judicial power, etc. The Red Cross and its dependencies as well as the national lottery also depend from the government insofar as fiscal matters are concerned. Furthermore, universities have a considerable amount of financial autonomy, particularly insofar as the preparation of their budgets of expenditures are concerned. Universities exist in La Paz, Cochabamba, Sucre, Santa Cruz, Tarija, Potosí and Oruro. Then there are the nine departments whose budgets are approved jointly with the national budget, as well as the municipalities of the nine capitals of the departments and the capitals of about one hundred provinces. To complete this picture there are, of course, the government's cooperative undertakings jointly with the United States,

such as the Health, Agricultural, Educational and Road Servicios which must receive funds from the State.

In addition to this, one should not forget that during 1955 the government took it upon itself to pay premia on the export of minerals to the Mining Corporation and to the Mining Bank which were previously financed with direct credits from the Central Bank, and which amounts do not appear in the national budget. During the first six months of 1956 these premia alone amounted to over Bs. 38,300 million which were granted as credit from the Central Bank and charged to the national treasury. If through the present year the payment of these premia should be maintained at the same rate, the amount which the government will owe to the Central Bank will exceed all expenditures foreseen in the national budget for 1956. For this reason it would seem advisable that as long as the present system of premia is maintained that the amounts appear under the budgetary expenditures for each year.

Summary of the Use of Fiscal Funds

To summarize, all government funds are now dealt with through the following channels:

1. National Budget
2. Foreign Exchange Budget
3. Account of "Revertibles"
4. Account of Counterpart Funds
5. Budgets of the Nine Departments
6. Municipal Budgets
7. Budget of the Autonomous, Semi-Autonomous and Fiscal Agencies
8. Cooperative Servicios
9. Credits from the Central Bank not listed in National Budget

The nation's capital investments and expenditures for economic development are derived largely from the following sources:

1. National Budget
2. Foreign Exchange at Official Rate Derived from Mineral Exports
3. Counterpart Funds
4. "Revertibles"
5. Crédits from the Export-Import Bank and European Credits
6. United States Development Aid

1956 Budget - Income (Local Currency)

The larger part of the government's income in local currency is derived from direct and indirect taxes. The 1956 budgeted income, on a percentage basis, is derived from the following sources:

Assets belonging to the nation	0.4%
Services rendered by the nation	1.1%
Direct and Indirect Taxes	88.2%
Sundries	7.5%
Excess of 1955	2.8%
	100 %

The total income budgeted for 1956 is Bs. 72,518,117.913.

The 1956 budget includes a certain amount corresponding to the nation's participation in the dollar auction. This item, together with the "revertibles" and a small additional income from customs duties, amounts to 7.5% of all income. Prior to the nationalization of the mines, the tin mines paid 12% of the gross value of their exports while other mines paid similar percentages which varied in accordance with both the price of the mineral in the international market and the ore content. At that time the budget was based fundamentally on the income from the exportation of minerals which accounted for 66% of the total. To contrast with this, of a total income of more than Bs. 30 thousand million in 1955 only 1,639 million came from export taxes, or about 5%. For 1956 the Mining Corporation expects to export minerals having a gross value of U.S. $80 million on which there will be an export tax of Bs. 1,465 million, or 2.02% of the national budget (local currency) for 1956.

Since the low official exchange rates constituted quite a burden on the mining industry, the export taxes were not increased, as a result of which the income on this account dropped from 66% of the total income to 5% as we have seen above. The CIF surcharge representing 45.5% of all fiscal income has now taken the place of export taxes and this figure will increase even more as a result of the readjustment made in April by which a CIF surcharge will replace the "revertibles".

1956 Budget - Expenditures (Local Currency)

The 1955 budget contained expenditures totaling Bs. 30,282 million with a deficit of some Bs. 960 million. For 1956 the budget estimates expenditures of Bs. 74,046 million with a deficit calculated at Bs. 1,528 million. The 1956 budget is 145% higher than the previous one as a result of the inflation. However, the 1956 budget is slightly abnormal and it cannot be used very well for the purposes of comparison, since the item "Unforeseen Expenditures and Obligations of the State" represents 36.7% of all outgo as compared with 27% in 1955. This is due to the fact that it includes the necessary funds to readjust wages and salaries of public employees in accordance with the new classification system which as yet has not been put into effect.

Dividing the government's 1955 expenditures according to actual use, we obtain the following result:

1955 Expenditures (In Millions of Bs.)

Governmental Services	7,110	8.5%
Social Services	10,039	33.1%
Economic Services	2,511	8.5%
Unforeseen Expenditures & Government Obligations	8,186	27.0%
Special Purposes	2,437	8.0%
	30,283	100%

The above percentages correspond only to the national budget. They do not include any expenditures made through the use of counterpart funds or through the use of "revertibles."

It is interesting to note the increase in the item "Unforeseen Expenditures of the Government" and to compare these with previous data. Expenditures under this heading were 6% of the total in 1950; 12% in 1951; 10.2% in 1952; 22.3% in 1953; 27.2% in 1954, and 27% in 1955. According to the 1956 budget allocation this percentage has now gone up to 36.7%. As has been said before this disproportionate increase in 1956 is due to the fact that within this category sums have been allocated to pay wage and salary increases to all government employees.

The Account of "Revertibles"

According to the information of the Ministry of National Economy, prior to 1953 there existed no accounting of "revertibles." Table XI of the Statistical Supplement contains a reconstruction of this account based on the information published by the Ministry of National Economy and complementary data of the same source. Since the private accounting firm of Price, Waterhouse and Peat reviews the accounting of the Ministry of Economy in this matter, it will be necessary to make corrections when the definite figures are known.

As may be seen, the figures for 1955 cover only a period of seven months while those of 1956 include the five remaining months of 1955 and six months of 1956. This is due to the fact that the Ministry of Economy had adopted in this matter a separate fiscal year which runs from August 1 until July 31 of the following year. Since the Bolivian fiscal year runs from January 1 to December 31, it is obvious that this makes any comparison most difficult. As may be seen from Table XI, the period of August 1955 until June 1956 leaves for the first time a considerable surplus of Bs. 1,355 million on account of "revertibles."

American Aid and the Counterpart Account

United States aid to Bolivia is given in two ways. First of all there are dollar donations for the purchase of equipment and materials destined for economic development of the country, and secondly there are donations for the purchase of food. Some of the equipment and materials mentioned and all of the food is sold for local currency which is deposited as counterpart in an account with the Central Bank. Subsequently these funds are distributed for the purpose of economic development, public works, etc., at the request of the Bolivian Government and in concurrence with the government of the United States. So far three distributions have been made. The funds distributed during the past few years do not correspond to a real value of the dollar since food was generally distributed at very low exchange rates fixed by the Ministry of Economy in order to subsidize certain consumers. If for example American aid for 1956-57 is estimated at $20 million, proceeds at a realistic exchange rate of Bs. 4,000 per dollar would produce a counterpart fund of Bs. 80,000 million which could be employed both for public works as well as for economic development. If the rate of exchange were fixed at only Bs. 1,000 per dollar the counterpart fund would only amount to Bs. 20,000 million.

The Problem of Taxation

In view of the complexity of the problem, this is not the place to make a detailed study of the Bolivian system of taxation. However, it

appears opportune to touch lightly on some of its major problems. Until recently the system of import duties was extremely complicated on account of the number of duties which were in existence as well as because of the surcharges which were applied on these duties, many of them having a special purpose. Fortunately the government recently approved a reform which changed the system of specific tariffs into a system of ad valorem taxation. Since then import duties have been reduced to only seven, as follows: the tariff which is fixed for each type of merchandise with variable percentages, the subsidiary tariff of 20%, the duty of 1 boliviano per kilo of gross weight, the consular tax of 6% ad valorem, the duty for services rendered amounting to 1% ad valorem, the sales tax of 10% ad valorem and the CIF surcharge.

In the matter of internal taxation a good deal of progress has also been made to simplify and systematize several taxes particularly in the field of taxation on alcohol and similar beverages. As a whole, this system as it exists today is still highly deficient, however. From a point of view of income to the nation the principal taxes are the one on alcohol, bringing (in 1956) some Bs. 2,000 million; on beer, Bs. 6,000 million; on corporate profits, Bs. 2,200 million; on the revaluation of capital, Bs. 2,100 million; on internal sales, Bs. 3,000 million; on cigars, cigarettes and tobacco, Bs. 2,000 million; on all kinds of stamps, Bs. 1,000 million. On the other hand the real estate tax brings in about Bs. 350 million; the capital gains tax, Bs. 526 million; the tax on mining dividends, Bs. 10,000; the tax on income from personal services, Bs. 350 million; the tax on income from personal property, Bs. 105 million; the excess profit tax (impuesto global complementario), Bs. 450 million; the excess profit tax on shares, Bs. 30 million; the property transfer tax, Bs. 600 million; the estate tax, Bs. 200 million; the tax on sealed paper, Bs. 250 million. It is obvious from the above that all these taxes must be revised, modernized and simplified in order that they may bring in an income in proportion to the capacity to pay of the taxpayers in accordance with the actual value of the currency. Apparently the more general adoption of a sales tax would be advantageous because of its large income, its easy collection, and its deflationary character.

In general, it appears essential to strengthen and improve both the organization of the customs and the internal revenue. Likewise it would be necessary to adopt a system which would do away with the present system whereby tardy taxpayers benefit from the inflation since by waiting they actually pay in depreciated currency. It would also be necessary to establish a judicial tax system which would guarantee the taxpayer a rapid and impartial solution in all litigation with the government. Actually all tax matters are now being judged by the Ministry of Finance which is an interested party. This is even worse if one considers that the officials who are judging the matter have a personal interest since they receive a certain percentage of excess collections, while in the majority of cases the person denouncing is also an employee of the internal revenue whom the law allows 100% of the amount defrauded.

Real Income from Taxation

At this stage it becomes important to know whether the real income from customs duties and internal taxation has increased progressively or not. In order to make this comparison it would be necessary to consider the governmental revenue on the basis of bolivianos of constant value. Table XII of the Statistical Supplement shows the government's income

from taxation and customs duties since 1939 while Table XIII shows the indices for the same table in bolivianos of constant value.

As will be noted, the income on account of taxes and customs duties has been decreasing constantly since 1941. The index of customs dropped from 114 in 1951 to 52 in 1954. Of course in 1956 it has gone up somewhat as a result of increased collections of CIF surcharges. The index of collections on account of internal taxation went up slowly until it reached a figure of 207 in 1951 after which it dropped to 131 in 1954. In no case did it go down to 100. This means that people have paid, until 1954, taxes which are proportionately higher to those in the base year of 1939, whereas they have paid customs duties which are lower as compared with that year. From this it may be seen that it is quite urgent to readjust the customs duties in order to bring them up at least to the proportion of the base year plus a certain percentage corresponding to the progress of the country as compared with that date.

Table XIV contains the relative figures of government revenue with an indication of their source.

Internal Debt

At this point perhaps a brief reference should be made to the public debt of Bolivia. Here we shall only refer to the internal debt which is relatively small in comparison with the external debt which will be dealt with in Chapter IV. A complete picture of the internal debt of Bolivia as of December 31, 1955 may be found in Table XV of the Statistical Supplement which shows this debt to be about Bs. 71 billion.

The Banking System

Bolivian banking got its start in colonial days with the establishment of national agencies for the purchase of minerals. During the administration of President Santa Cruz, these government purchasing offices were given the name of "banks". Until 1872 these "banking activities" had practically no other purpose than to implement the State monopoly for the purchase and exportation of silver. In 1869 the first real bank, the Banco Boliviano, was established by Henry Meiggs which was authorized to act as a circulation bank. Shortly after this, in 1871, the Banco Nacional which later on absorbed the Banco Boliviano started its operation as a circulation bank. Until the turn of the century the Banco Nacional played an important role in the granting of credit for the development of mineral production. In 1893 the Banco Hipotecario Nacional was founded, followed in 1906 by the Banco Mercantil which was controlled principally by Simon Patiño. In 1911 the Banco de la Nación Boliviana was founded which in 1914 was given the monopoly to issue currency.

The first general banking law was promulgated in 1890. It was succeeded in 1928 by the general banking law drawn up by the Kemmerer Mission which is still in force today. At the same time, in 1928, the Central Bank of Bolivia was created which took the place of the Banco de la Nación Boliviana. After the Chaco War, this bank was turned over entirely to the State and in 1945 it was reorganized completely by a new law. This law established within the Central Bank two departments: one, the Monetary Department, which was given all the functions of a central bank; and

capital and reserves instead of the seven times fixed previously. For the banks established after 1949 this ratio was set at 3½ times. It was established, however, that credits available on the date of the decree as well as those which would become available as a result of the increase in the credit margin would have to be invested in industrial projects. The mortgage banks were obligated to invest all newly available credit in construction and improvements.

Industrial Credit

A decree of July 1954 authorized the private banks as well as the Banking Department of the Central Bank to grant industrial credit for the development of production. This credit could be given for a period of eight years. The decree stipulated that for this purpose the banks may go up to 30% over and above the margin established by the decree of May 1953. In addition, the private banks were obligated to convert within twelve months 20% of the total of their loans outstanding on April 30 of that year into industrial credit and within 24 months another 20% so that in the period of two years from that date 40% of the credit granted by the banks in question as of April 30, 1953 would have to be transformed into industrial credit. The interest rate for industrial loans was fixed at 8% and 10% depending on whether domestic raw materials were used or not.

The commercial banks were authorized to grant credits with deferred amortization so that the borrower would pay only interest in case of the establishment of a new industry which would require a more or less longer period before it would become productive. The provisions regarding industrial credit do not apply to those enterprises which have a capital in excess of 100 million bolivianos in which case credit can only be granted with special permission of the Monetary Department of the Central Bank. This authorization of the Central Bank is also necessary in the case of credits in excess of four million bolivianos.

Mortgage Credit for New Construction

The same decree of July 1954 authorized the mortgage banks to increase their loans outstanding as of April 30, 1953 by 30% in order to make loans for the construction and maintenance of buildings. In the case of a credit in excess of four million bolivianos, granted during the same year to the same person, the authorization of the Central Bank is again necessary. In December 1954 another decree increased the margin of credit which could be granted by all banks by 10% which in February 1955 was again increased by 10% followed by another 10% increase in March 1955, thus making a total of 60%.

Commercial Credit

The commercial banks established since July 1954 may only grant commercial credit up to 10% of the deposits received from the public while the rest must be placed as industrial credit. In October 1955 another decree prescribed that the short term and long term deposits which the private banks and the Banking Department of the Central Bank must maintain in the Monetary Department of the latter must amount to 40% of all deposits (instead of the 20% for short term and 10% for long term deposits which was fixed previously). Two decrees of March and April

the other, the Banking Department, which was given a more or less commercial and industrial function. The originally paid-in capital of the Central Bank was Bs. 50 million, divided into shares which are entirely owned by the State.

In 1936 the Mining Bank was established with contributions from the government, from the Central Bank and from private persons. In 1939 this bank became a state bank with the Bolivian Government as the only share holder. The principal object of the Mining Bank was to give credit to the medium and small sized private mines and to purchase their minerals. In addition to this it provided machinery and equipment, and sold the production of the private mines abroad.

In 1942, the Agricultural Bank was founded which was reorganized in 1954. This bank is also a state bank which is intended to operate as a development bank. Its principal functions are to give rural credit, to promote the organization of cooperatives, to organize the purchase of rice, rubber, Brazil nuts, hides and leather, coffee, lumber and other products as well as to provide the farmers with seed, fertilizer and machinery. One important change in the bank's activity constitutes the recent establishment of a branch to handle supervised credit which was organized in cooperation with Point IV.

In 1942 the Banco Popular del Perú established a subsidiary in La Paz, while in 1954 the Banco Popular Colombo-Boliviano, a subsidiary of the Banco Popular de Colombia, started its activities in this city. Recently the Banco Commercial and Industrial was established as a subsidiary of the firm of Deak and Co. of New York.

Credit

After the reorganization of the Central Bank in 1945 the drastic changes which took place in the Bolivian economy as well as the necessities of the government's monetary policy required a number of new legal measures which were dictated principally in the form of decrees. By decree of 1945 the legal reserves were fixed at 30% of the short-term deposits and at 15% of the long-term deposits. After a number of further changes, another decree of April 8, 1950 fixed these legal reserves at 20% and 10% respectively. In December 1949, the capacity of the banks to receive deposits was fixed at seven times their paid-in capital and reserves.

A decree of May 14, 1953 established as the limit of credit which could be granted by the banks the total amount outstanding on April 30 of that year. New credits could only be made available from the amortization of credits granted prior to this date. The same decree established that all deposits which exceeded the capital and reserves of the commercial banks by seven times would have to be deposited in the Monetary Department of the Central Bank. Furthermore, the reserves of the private banks in the Monetary Department of the Central Bank would have to be at least 20% and 10% respectively for short-term and long-term deposits without taking into consideration their cash position. It was decided further that all loans or discounts made by the private banks to one single firm which were in excess of two million bolivianos would require a special authorization of the Monetary Department of the Central Bank.

A May 1955 decree allowed the Banking Department of the Central Bank, and the private banks which were established prior to December 22, 1949, to receive deposits from the public up to ten times their paid-up

1956 respectively created an annual tax on credit operations as follows:

a. Agricultural credit - 2% annually
b. Industrial credit - 4% annually
c. Commercial and private credit - 8% annually
d. Loans from the Mining Bank - 2% annually
e. Loans to bank employees - 4% annually

These taxes - particularly in the way they are being applied - constitute in reality surcharges over and above the bank interest so that at present the real interest for the borrower is as follows:

Type of Credit	Bank Interest Rate %	Tax %	Total %
Agricultural credit (machinery)	8	2	10
Agricultural credit (supervised)	12	2	14
Agricultural credit (for development)	16½	2	18½
Industrial credit	15	4	19
Commercial & Private credit	21	8	29
Mining Bank loans	6	2	8
Loans to bank employees	16½	4	20½

Banking Policy

Traditionally, the policy of the Bolivian banks has favored those persons who had sufficient property to offer real guarantees while the Central Bank has at times favored certain people for political reasons. In spite of this, however, its new loans as of October 1955 are composed as follows:

	Thousands of Bs.
Loans with personal guarantee	530,882
Loans backed up by mortgages	1,038,284
Loans backed up by other securities	369,754
Total	1,938,920

Of the 1,939 million bolivians granted as new credit by the Central Bank, 1,408 million bolivianos carried real guarantees, or about 72.6%.

The new loans of all the credit institutions of Bolivia during the first ten months of 1955 excluding the Central Bank were as follows:

	Thousands of Bs.
Loans with mortgage guarantees	300,399
Loans guaranteed by third parties	61,570
Loans with other security	89,631
Loans without guarantees	7,063
	458,663

Thus, of a total of Bs. 459 million, 390 million carried real guarantees, or 84.9%. It is obvious that this banking system which favored fundamentally the granting of credit backed up by real guarantees benefitted primarily those people who already had money. In other words, the middle class, including the intellectuals and professions, could usually not obtain credit unless they had sufficient goods or political connections. In a similar manner credit for workers and craftsmen is non-existent. The fact that industrial credit is now being granted for a period of eight years has greatly improved the situation for this sector of the economy.

Financing Economic Development

In spite of the existence of several institutions for this purpose, it is quite difficult to obtain credit for economic development. In the first place, there are a number of administrative problems in obtaining this credit while on the other hand political considerations may at times play an important role in the granting of this type of credit. For this reason the Mining Bank is not playing an adequate role in the financing of the private mining industry; neither does the Agricultural Bank do so with respect to agricultural activities.

It is obvious that the recent policy to foster industrial credit has resulted in an increase in overall industrial credit. The same can be said with respect to credit for construction activities. It should be noted, however, that the criteria to distinguish between industrial and commercial credit are frequently not quite clear so that many applications for commercial credit are really presented as applications for industrial credit. For this reason commercial credit is in reality much larger than it would appear to be at first sight.

Problems of the Banks

The increase in total circulation from Bs. 6.8 billion in December 1951 to Bs. 91 billion in March 1956 forced a corresponding increase of bank deposits, as a result of which bank reserves increased very much above the legal minimum. In May 1953 the legal reserves were increased by another 10% while it was established that cash would not be counted for the purpose of establishing the bank's reserves. On the other hand the capacity of the banks to receive deposits was not increased so that in September of that year the banks could not take up any more deposits from the public. In December 1953 the commercial banks had excess deposits of more than 557 million bolivianos. Since the decree of May 1953 established that all deposits which exceeded seven times the capital and reserves of the bank had to be deposited in the Central Bank, the deposits exceeding the legal limit reached Bs. 65 million in June of that year and Bs. 772 million in December thereafter, that is to say, in six months.

The short term bank credits and particularly the credit facilities offered by the Banking Department of the Central Bank which were largely imposed for political reasons - as a result of which credit to the public went up from Bs. 697 million at the end of 1951 to Bs. 4.3 billion at the end of March 1956 - made more money available for speculative purposes such as purchase of foreign exchange while on the other hand there was a lack of facilities to obtain more healthy and constructive credit.

The portfolio of the commercial banks practically doubled during the first ten months of 1955 (from Bs. 2,514 to Bs. 4,968 million). As a result of this new credit expansion the deposits with the banks increased from Bs. 5,110 to 10,455 million during the first ten months of 1955. In October 1955 the government issued a decree increasing by 40% the legal reserves both for short and long term credit instead of the existing margins of 20% and 10% respectively. This measure was a natural result of the desire to restrict credit and to put the brakes on the general effects of the inflation. On the other hand, in order to channel the credit into a more constructive direction, the decree of May 1955 provided that any new credits which came about by the widening of the banks' capacity to receive deposits would be used for industrial development in the case of commercial banks and for construction in the case of mortgage banks. In addition, instead of the interest rates of 8%, 9% and 10% which existed previously for industrial credit the banks were authorized to use their own discretion in charging interest provided this would be below 12%.

In order that the banks could face a difficult economic situation, they were authorized to buy and keep shares of private corporations, to invest 35% of their capital in realty, etc. However, in spite of all this, the losses of the banks kept mounting. As a result of the decree of October 1955 which increased the legal reserves to 40%, the banks could dispose of each 100 bolivianos of new deposits in the following manner: Bs. 50 for new credit; Bs. 40, legal reserve in the Central Bank; and Bs. 10, in cash. On the other hand, the elimination of any difference between short term and long term deposits resulted in the fact that banks were not interested in receiving long term deposits since on these they have to pay interest varying from 4% to 6%.

The taxes levied in March and April 1956 on bank credit raised the type of interest of all credits as we have seen above. The objective of these taxes was to increase the income of the State as well as to limit the granting of credit. However, it should be noted that bank credit still is comparatively cheap as compared with private credit which is outright usurious. Credits extended by private persons carry a normal interest rate of 10% to 12% monthly and sometimes even more.

Because of the limited capacity of the banks to receive credit as compared with the increase in total circulation, the economic situation of the banks has become more and more serious. As an example, we might cite the case of the Banco Nacional de Bolivia. Its capacity to receive deposits is Bs. 2.5 billion, or ten times its capital and reserves. Of this amount, it must keep legal reserves of Bs. 1 billion and cash amounting to 10% of all deposits or Bs. 255 million. As a result of this it could lend to the public only Bs. 1.3 billion which at the most favorable interest rate for the bank (16½) would provide an annual income on this account alone of Bs. 210 million. Adding other income, the total income of this bank comes to Bs. 296 million. On the other hand, this bank pays around Bs. 500 million in salaries. Adding to this expenditure all its other expenses makes a total of Bs. 709 million 1/. As a result of this, the bank's estimated deficit for 1956 is Bs. 413 million, which amount is

---

1/ El Diario, April 26, 1956.

far in excess of the total of its capital and reserves as of October 31, 1955 which amounted to Bs. 255 million.

Recent Measures to Help the Banks

To alleviate the problem of the banks, the government issued a decree of July 5, 1956 authorizing a revaluation of the fixed assets of the banks. At the same time the banks were authorized to take on deposits up to five times their paid capital and reserves. Deposits in excess of this amount would have to be placed in the Monetary Department of the Central Bank.

The decree also provides that 80% of the banks' portfolio must consist of industrial credit, and 20% of commercial credit. The banks were given 60 days to comply with this latter provision. It was further provided that on account of the revaluation the banks would pay 7% royalty to the State. Although these measures will tend to expand the credit capacity of the banks, the total amounts of capital and reserves in the banks after the revaluation are not known as yet.

The decree fixed the maximum interest which the banks may charge at 21% for commerce and 20% for industry, apart from the taxes on interest which we have seen above. The decree also established in the Monetary Department of the Central Bank a permanent committee to control all credit which is composed of two directors of the Central Bank, and an industrial engineer, which committee will authorize the banks within forty-eight hours to grant credit.

Appraisal of Fiscal and Monetary Policies

Although it is quite evident that Bolivia's present plight is a result of a number of factors which kept operating over the years, including the lack of foresight on the part of earlier governments, it is also true that the country's monetary policy - or rather the lack of it - has been a major handicap to balanced economic development.

From a point of view of monetary policy, Bolivia has been merely drifting along. Most of the time problems are attacked on an incidental basis, leading to an incredible array of patchwork rather than facing the problem squarely. Present monetary policy is in part responsible for the actual lack of production since it cannot possibly provide any incentives. It is also responsible for the vast amounts of contraband leaving the country as well as for the considerable misdirection of investment which is taking place all over Bolivia. In many cases it completely neutralizes the effects of the development program.

Since the lack of production plays such a vital part in the Bolivian inflation, it may be interesting to cite a few figures regarding the overall drop in productivity. For instance, in the field of agriculture on the high plains and in the valleys, the Agricultural Servicio and some other competent observers (FAO) have estimated that since 1952 the decrease in productivity has been as high as 40%. In the mining sector a similar situation prevails. According to a calculation made by the Ford, Bacon and Davis group, overall productivity in the mines of the Mining Corporation has dropped 18% since 1950. Yet, at the same time the

country is spending more while unnecessary government controls and the activities of speculators and runners of contraband also draw away workers from the labor force, who could be engaged in actual production.

The dollar auction, with its extremely limited market, has tended to over-value the dollar, and in doing this it inspired less and less confidence in the national currency which led to increased speculation, thus helping the inflationary process. This over-valuation appears clearly from a comparison of the indices for the increase in circulation and free market dollar quotations which show that while circulation went up 18 times since December 1951, the quotation of the dollar went up 35 times 1/.

Of course, speculation is not the only reason for the sharp increase in the quotation of the dollar. There are other reasons also such as the ever-declining supply of dollars which forced even the Central Bank to dip into its reserves. What has also contributed to the excessive increase in the dollar quotation is the public's psychology which is now thinking in terms of an ever-increasing inflationary spiral. Thus, in buying and selling, people figure not only today's cost but also the price they believe they will have to pay tomorrow.

This situation was aggravated by the fact that since the traditional investment in land became most unattractive because of the agrarian and urban reforms, at present there are few investment possibilities left in Bolivia for the local businessman who, therefore, has to buy dollars. This he does to some extent through the purchase of dollars at the auction, to a larger extent through street transactions, and to an even greater extent through keeping two sets of books on export-import transactions. The recent discovery of a substantial fraud in connection with a typical export transaction of hides and coca is only one of the many cases of this type which occur every day 2/. The fact that these amounts are substantial may easily be seen from the following figures. During 1955 Bolivian imports amounted to some $84 million. If we assume on these imports there is a minimum commission of 10%, which is extremely low, the total would amount to $8.4 million. Granted not all Bolivian imports (foodstuffs, etc., imported directly by the Ministry) are burdened with a 10% commission. On the other hand, many imports carry a much heavier commission which would seem to balance the picture. It hardly needs explanation that the importer's commission generally remains abroad!

One of the chief errors has been to believe that the policy of the cheap dollar would rapidly increase production through the importation of capital goods while in reality this only brought about mass speculation and contraband activities. At best this policy contributed to the establishment of a number of artificial industries which will be unable to survive normal competition.

While favoring the poorer sections of the population, such as the peasants as well as a few small pressure groups such as the speculators,

---

1/ See Table VIII of Statistical Supplement.

2/ La Nación, July 7, 1956.

the miners and some groups of organized labor, this policy is about to wipe out the small middle class of Bolivia which after all is practically the only one which has the necessary education and management ability to give direction to the country.

Undoubtedly, the present policy has contributed to a certain redistribution of wealth which was indispensable for the further economic development of the country. However, it may have redistributed some of Bolivia's wealth into some rather dubious hands and, furthermore, it has also decreased the total wealth of the country so that even some of the above mentioned groups, in spite of a relative gain in position may be worse off than before.

For example, if we take a look at industrial wages, we note that while the cost of living in the city of La Paz increased 20.4 times from December 1951 to June 1956, industrial wages went up only 16.7 times since that date, and salaries, 9.7 times. On the other hand the exchange rate of the dollar, representing to a large degree the speculators' flight capital and the activity of the merchants who are forced to buy dollars all the time after the sale of imported goods in order to protect themselves against the inflation, went up 35.2 times during the same period.

From the few available indications it would seem that agricultural wages have kept up with the inflation. However, this appears to have been of little benefit to the economy since in many cases the peasant prefers subsistence agriculture, being his own boss, to working for some large productive agricultural enterprise. The case of Santa Cruz is instructive in this respect. Agricultural wages in the area have increased some 40 times since 1952; yet the farmer has to mechanize since he cannot obtain the necessary help to cultivate the land.

The Need for a Freer Economy

In today's Bolivia we face the anomaly that through many ingenious devices and controls, it is tried to bring about the effects of a more freely convertible currency without leaving things free. If this is the case, why not admit this necessity quite openly and do something about it, particularly since such a move is inescapable anyway? Any further delay will only increase the unhealthy gap between the official and the free rate of exchange with well-known and disastrous consequences for the Bolivian economy. Granted, this would not solve all of Bolivia's problem since the basic cause is of a social nature. However, it would certainly reduce the present speculation and contraband activities and give more of an incentive to the honest producer. While such a move would expose Bolivia's real poverty more squarely, it would also show the causes for it in a more overt manner so that something could be done about it.

We are far from saying that monetary measures alone can cure all the ills of Bolivia, because they cannot. What monetary measures can do, however, is to create the conditions which must be present before one can begin to think about attacking the lack of production. At present the Point IV effort in agriculture is bound to be rather ineffective as an attempt to increase immediate production; the same is true with respect to any effort to build up sound private industry or mining, since the basic conditions to encourage production are not there.

Price Control No Longer Effective

The present policy has been defended on political grounds inasmuch as it is supposed to keep the prices of basic food items low, thus helping the poorer classes which otherwise might cause trouble. While this may have been true at one time, it is highly questionable as to whether this is still the case.

In view of the importance of this point in connection with any stabilization plan, this problem has been analyzed in somewhat more detail in Chapter VI dealing with consumption. From this it is clear that only a comparatively small number of people are now receiving these commodities at controlled low prices while the rest of the population has to resort to the black market. The people using this black market are largely city people since the rural Indian population is either on a subsistence basis or is engaged in direct barter transactions. What actually happens then is that a relatively small number of people - not more than 400,000 at the most - who are exactly the ones who must be wooed politically, such as the miners, factory workers, political elements, etc., receive a certain quota of basic commodities at low prices which they can dispose of at a large profit to the general public.

To illustrate this further, we may take the case of rice. The price of rice placed at La Paz is about $130 per ton which, at the official rate of exchange, comes to Bs. 24,700. The Ministry of Economy sells this rice to certain groups such as the Mining Corporation for Bs. 66,304 per ton and to other distributors for Bs. 114,000 per ton. The distributor who acquires the rice at Bs. 114,000 per ton is supposed to sell at the official retail price of Bs. 130 a kilo, which comes to Bs. 130,000 a ton, leaving a profit of Bs. 16,000. However, the same rice sold in the black market would bring Bs. 650,000 a ton which leaves a profit of 470%. In this case the loser is the general public which pays an exorbitant price to the middleman who in turn is likely to protect this profit against losses from the inflation by buying foreign currency.

The above figures in themselves would seem to explain the continuous long bread lines in La Paz and other major cities while a large part of the population, which cannot afford to stand in line for hours, buys at the black market. This market has taken on so much of an official character anyway that its prices are used to compile the monthly cost of living index prepared by the Bolivian Bureau of Statistics (Dirección Nacional de Estadística).

We certainly do not underestimate the importance of "political implications" which have led to the present situation. Yet the present policy, based on political considerations, cannot be maintained indefinitely anyway. It is not even buying time since the economy is disintegrating more and more every day, as a result of this policy. Every day some machine, vehicle or vital part breaks down without being replaced. Although this process has now been in full swing for some time, the disastrous results to the Bolivian economy will only become known in three or four years from now.

Political Repercussions of a New Policy

Since so many people seem to shudder at the thought of what would happen if the economy were freed from the present controls, it might be well to analyze the consequences of such a step a little further. Before doing so we should stress, however, that in using the term "free economy" we have in mind only a relative freedom, eliminating those controls which are either useless or harmful. It is obvious that in Bolivia's present situation it would be impossible to do away with all controls overnight. Likewise, in talking about a freely convertible currency finding its own level, it is clear that there will have to be some restrictions to prevent luxury imports.

If such a move were coupled with increased law and order, with a significant improvement in the political climate which in turn would increase confidence, and with a substantial investment from abroad, the (free market) value of the dollar would definitely go down.

A revaluation of United States aid commodities at a more realistic level would make this aid more effective. As a result of a more realistic price level, a number of products which are now being smuggled out of the country would suddenly become available although at higher prices. Speculation would be severely curtailed, thus relieving workers for more productive activities. A new, single rate of exchange which should be allowed to find its own level would naturally result in increased wage demands on the part of the miners, which would offset some of the gains of the mining industry resulting from this move. However, if the mining industry would have losses in a free economy, the need for a reorganization, for closing inefficient mines, and for dismissing surplus labor would also become more apparent, which ultimately would have to result in such adjustments as to put the mines on a paying basis.

Change in Price of Basic Commodities

To be somewhat more specific, if the exchange rate of the boliviano would be allowed to find its own level which is supposed to be around Bs. 4,000 to the dollar on June 30, 1956, the price of imported basic commodities could change as follows:

Commodity	Official Price Now	Black Market Price Now	New Wholesale Price	New Retail Price
Bread	Bs. 30(Unit)	100	138	159
Rice	" 130 Kilo	650	572	658
Flour	Bs.41;67;78;87;130;391 1/	760	603	694
Sugar	Bs. 85 kilo	260	449	517
Meat	" 550 "	800	1,760 2/	3,056
Vegetable Oil	" 440 liter	600	1,705	1,961

The real price of sugar is likely to be higher in a free economy since a tariff might be needed to protect the incipient domestic production of Santa Cruz.

If we assume for the sake of argument that only 50% of the general

1/ Depending on use, such as baking bread, making noodles, pastry, etc.
2/ 1 kilo on the hoof.

public is able to buy at official prices, which percentage seems high as shown in Chapter VI, we may calculate the following average prices for the products in question (taking the average of official and black market prices).

Commodities	Realistic Price Now
Bread	Bs. 65
Flour	447
Rice	390
Sugar	173
Meat	675
Vegetable Oil	500

Converting the prices of these major commodities into an exchange rate, we get the following picture:

Commodity	Import Price in Dollars (Placed at La Paz)	Average Realistic Sales Price	Exchange Rates
Flour	0.137 per kilo	Bs. 447	Bs. 3263
Rice	0.130 " "	390	3000
Sugar	0.102 " "	173	1696
Meat	0.40 " "	675	972
Vegetable Oil	0.422 per liter	500	1185

From the above figures it is clear that a free exchange rate for the boliviano might have less drastic effects on the general public than are sometimes feared since a large part of the Bolivian population is already living at an exchange rate which is far from the present official rate of Bs. 190 to the dollar. Once we start including other items, such as clothing, which are not available at controlled low prices, the situation becomes even more convincing.

On the other hand, it is equally clear from these figures that the consequences of such a move could be quite serious for certain people. Raising the price of bread from a black market price of Bs. 100 to Bs. 159 is no simple matter. Raising it from an official price of Bs. 30 to Bs. 159 is so much worse. The same can be said about meat.

The possible weakness in the above reasoning is that in this report we have assumed the parity rate to be around Bs. 4,000 to the dollar. This was done on the basis of statistical material which was rather inadequate for the purpose of making such a calculation but which constituted the best available. Thus, the actual situation in a free economy could be worse. It certainly could not be better.

Adjustment of Salaries

On the basis of the figures mentioned above, it is obvious that the change would be quite drastic for certain privileged groups who receive basic food items at low prices such as the miners, factory workers, and in general those included in the above-mentioned category of 400,000 people who are most important from a political point of view. As a result the change-over to a free

economy would require considerable wage increases which, in the case of the miners and factory workers, may have to vary from 50 to 100% or perhaps even more. In those cases where the workers would loose the cheap commissary, the wage increase would naturally have to be higher to provide at least some compensation for the loss incurred. Obviously, there would also have to be a wage freeze.

Absorbing the Shock

Although, as we have seen, present prices of certain basic foodstuffs for many non-privileged people are close to or exceed the level which would prevail under a relatively free economy, it should not be forgotten that even a small price increase might cause considerable hardship on a population which is already under severe economic pressure. Therefore, the political implications of this problem should not be underestimated.

For this reason, as - apart from the above pressure groups - no more than one million people would be affected most by the above-mentioned changes since the large masses of Indians living on subsistence agriculture are essentially outside of the money economy anyway, some form of direct assistance insofar as the provision of food is concerned may have to be set up in the cities during the critical period of adjustment.

To meet any emergency, stockpiling of sufficient amounts of United States grant aid commodities in seaports would have to be given serious consideration. To provide the people with purchasing power to buy this food, work projects could be financed with counterpart funds. In other cases, such as those involving sick and elderly people, this food could be distributed with the help of established charitable organizations such as CARE, the National Catholic Welfare Organization, foreign missionaries, and others who are already doing this to some extent, and who would see to it that this food would get into the right hands. Since there might be some disorders and street riots in the period of readjustment, police protection would have to be strengthened substantially.

Effects Upon the Principal Sectors of the Economy

We shall now try to analyze what the introduction of a free rate of exchange finding its level at Bs. 4,000 to the dollar would do to the principal sectors of the Bolivian economy. Here it should be stressed again that this calculation was made as of June 30, 1956. In a short time from now it will be obsolete. Its principal merit lies in the fact that it introduces at least some element of reality in analyzing a certain situation as compared with the present distortions. In other words, while actual figures may change, certain ratios are likely to persist.

First of all, let us consider the Mining Corporation which is still Bolivia's largest source of foreign exchange. At the rate of Bs. 4,000 to

the dollar, the Mining Corporation claims that it could make a profit 1/ and thus would not have to borrow or to receive production premia from the State any longer, provided a) excessive wage demands would be resisted, b) the cheap commissary were replaced by some increase in wages and c) excessive labor would be eliminated. This latter step could be taken much more easily in a free economy since after the first readjustment is made, there should be an increasing demand for more workers in the private mining industry.

Under this system the Mining Corporation would revert to the old practice of the ex-private companies whereby it would pay all its dollar expenditures from its current account. As we shall see in Chapter V, however, it is quite possible that under a free economy the Mining Corporation would turn out to be a rather small concern within the next few years because of the closing of inefficient mines. This could well be the most serious threat to a stable currency in the long run.

In the case of the Mining Bank, the Bs. 4,000 rate would undoubtedly kill a number of marginal mines which should then either be given a direct subsidy or let them be closed. At the same time the new system would stimulate production in the better mines.

Since mining is vital to the economy of the country, the problem would be trying to stabilize the currency at a rate of exchange which would allow the largest number of marginal mines to operate without bringing about at the same time too large internal pressures. From preliminary investigations - most private mines have no adequate cost data - it would appear that as of June 30, 1956 some mines may need a higher rate of exchange than Bs. 4,000 to the dollar.

In agriculture the introduction of a free rate of exchange would tend to favor the mechanized agricultural production of Santa Cruz.

In industry there would be some problems. As we shall see in Chapter V, many industries in Bolivia are inefficient and highly protected. A large part of the raw materials needed by industry are imported and the relative percentage has been increasing as industry expanded. A number of small industries are now used to a system of receiving certain quotas of foreign exchange at low rates of exchange for the importation of raw materials. It is obvious that for those industries both labor and materials costs would tend to rise in a free economy which may result in having to close some of the most inefficient ones. This would be true especially in the case of those "sham industries" which in reality are no industries at all and which were merely set up for the purpose of receiving allocations of raw materials at the official rate of exchange. By receiving a larger allocation than they really bring into the country, they make a profit which generally remains abroad.

On the other hand, the traditional industries such as leather, cement, brewing and a number of others which once operated soundly under a relatively

---

1/ In view of the complete distortion of the Mining Corporation's financial data through the partial use of the Bs. 190 rate of exchange, it is almost impossible to make a meaningful projection of the Corporation's earnings under a free economy.

free economy are likely to benefit from the move after a relatively painful initial adjustment. The problems of most industry will be that during the present inflation there has been little regard for proper cost accounting. Wages have been increased a number of times under strong pressure from the workers so that in a free economy industry may be faced with the problem of a relatively high wage level which is hard to reduce. Both high costs and inefficiency of labor will result in an expensive product which will be hard to sell. While tariff protection may be the answer for some moderately productive industries, it cannot protect the inefficient ones since in this case tariff protection would only encourage smuggling. Markets for certain products such as textiles will shrink considerably as a result of the elimination of contraband traffic. In the case of those industries which did not import raw materials at a low rate of exchange, high labor costs may be offset by lower costs of imported materials. During the period of adjustment almost all industry will be faced with a severe shortage of working capital which will call for large loans from the banks or for the repatriation of certain funds now held abroad.

Since there exists no adequate industrial census in Bolivia, it is almost impossible to predict the effects of a freely convertible currency upon industry. In discussions with local industrialists, the opinion was voiced several times that approximately 10% - 15% of the labor force might become unemployed as a result of such a move. If we calculate the industrial labor force at some 30,000 1/ this would amount to some 3000 - 4500 people, located largely in the cities. For the mines this number may be even higher since in the Mining Corporation alone a force of about 6000 now surplus labor would have to be dismissed, or employed elsewhere.

While this might result in considerable political pressure, it is interesting to note that quite a few industrialists seem to feel that most of these people could be easily absorbed by other industry. Even if most Bolivian workers are unskilled, many of them have at least some rudimentary knowledge about both mining and agriculture. Thus, under the incentive of an attractive mining code, an expanding private mining industry might be able to absorb a number of workers quickly while some new industries are likely to develop in time in a free economy. Furthermore, some people now engaged in some of the above mentioned type of "sham" industry might find it to their advantage to start some really productive enterprise.

Balancing net foreign exchange receipts of both the Mining Bank and the Mining Corporation against the total demand in the country would broaden the market substantially, thus eliminating the present fluctuations of the dollar which are caused by the extremely narrow market at the auction. Since the government would also have to buy free dollars it would have to cut down its development program in addition to making other economies. This could be done since the main development expenditures such as the construction of pipelines and major roads have already been made or could be diverted to private industry as is the case with sugar mills and cement plants which

---

1/ Figure based on "Visión de los Problemas de la Salubridad Obrera en Bolivia" published by the Health Servicio which, because of the criteria used, appears to be somewhat more realistic than the official census figure. This figure excludes the miners.

a government should not finance anyway.

An adequate exchange rate for the dollar would give the government an incentive to cut its operating costs as well as to derive more income from taxation. In this taxation system, import duties could be a main source of revenue while export taxes should be kept at a minimum. Particular attention should be given to the establishment of an extremely low export tax for agricultural commodities so as to stimulate production. In a broader market for foreign exchange, a foreign exchange sales tax might also produce some interesting revenue while a general turnover tax would probably not be too hard to administer in the Bolivian economy. A tax on land might prove a desirable substitute for some of the less favorable features of the present agrarian reform legislation.

What a Balanced Budget Might Look Like

In view of the terrific distortion of the Bolivian economy because of all sorts of controls and hidden subsidies, it is, of course, impossible to foresee all the changes which would take place after the introduction of a completely free rate of exchange. One of the first things to analyze would be to see what the budget might look like in such a situation. Of course, in a free economy the present distinction between the national budget (in local currency) and the foreign exchange budget would lose all importance since the two would merge into one. However, in order to show the effects of a new policy on the present situation more clearly, we shall hereafter try to analyze each one separately. It will, of course, be clear from the start that this projection is completely theoretical since it has no purpose other than to show that from a purely financial point of view Bolivia's problems could be solved.

On the income side, if one takes into account that the 1956 foreign exchange budget calculated US $77 million worth of exports for the Mining Corporation, at an estimated quotation of $0.90 US per pound fine tin, which quotation has generally been higher, one can expect a 1956 income of US $80 million. Combined exports of the Mining Corporation and the Mining Bank may even be somewhat higher because of the present stimulus to increase production for the private mining industry. Therefore, it would seem to be realistic to expect that the private mining industry could yield some US $30 million for 1956. In a free economy, exports of agricultural products which are now going out as contraband could bring in an income of US $5 million instead of the US $3 million estimated presently.

Exports of petroleum might amount to some US $6 million while the government income from consulates, customs, etc., now estimated at US $500,000 would remain at that figure. Adding to this, American aid of some US $20 million Bolivia would have an income of US $141,500,000.

Insofar as expenditures are concerned, the Mining Corporation receives only US $35 million in the budget of 1956 and it would seem reasonable to increase this figure by some US $3.5 million in order to allow room for some badly needed investments. For the same reason one may calculate for the Mining Bank the amount of US $15 million instead of the US $12.8 million now allocated.

The expenditures of the government and municipalities would have to be

reduced from US $5.3 million to US $3 million, and those of the Ministries from US $12.3 to US $7.5 million, which constituted the expenditures of these entities during 1954 and 1955. The imports of the Ministry of Economy (largely food items), Industry and Commerce, which together come to some US $60 million in the 1956 budget, have been reduced in our project to US $52 million on the hypothesis that the re-exportation of contraband would be greatly reduced in a free economy.

YPFB would have to cut its foreign exchange expenditures from US $14.8 to US $10 million, which figure is still higher than the respective figure for 1955, while the Bolivian Development Corporation would receive only US $5 million instead of US $8.6 million. Other allocations would have to be reduced in a similar way as shown below.

It would seem important, however, to introduce a new allocation of US $2 million in order to start, at least, some payment on the external debt which might open the way for Bolivia to obtain new credits abroad.

Reducing the respective allocations of the various agencies will undoubtedly cause some hardship. Yet they are inevitable since the country has no longer any monetary reserves and likewise cannot obtain much credit.

Under a free economy the system of taxation would have to play a decisive role in producing the necessary income for the government. In our project most expenditures have been limited to the most indispensable. Items of economic development, such as the budget for YPFB and the Bolivian Development Corporation have been cut on the basis that some of their projects are relatively long-range and therefore would not contribute sufficiently to the solution of Bolivia's immediate problems. To make up for this, economic development would have to be carried out principally with limited economic aid from the United States, possible credits from the Export-Import Bank, the International Bank, private investment and the increase in exports of minerals, petroleum and agricultural products.

Projected Income and Expenditures (In US Dollars) 1/

Income

Mining Corporation	80,000,000
Mining Bank	30,000,000
Agricultural Exports	5,000,000
YPFB	6,000,000
Government and Others	500,000
American Aid	20,000,000

Expenditures

Mining Corporation

(This table is continued on next page)

1/ The reader who may be interested in this problem should also refer to Table XXXIV giving the actual foreign exchange budgets for the last three years.

Projected Income and Expenditures (In US Dollars) Cont'd from Page 50

Realization Costs	17,500,000	
Exploitation Costs	14,000,000	
Mach. & Equipment	4,000,000	
Indemnization of prev. owners	3,000,000	38,500,000
Mining Bank		
Exploitation Costs	5,000,000	
Realization Costs	7,000,000	
Mach. & Investments	3,000,000	15,000,000
YPFB		10,000,000
Government & Municipalities		3,000,000
Ministry of Economy, Commerce & Industry		52,000,000
Other Ministries		7,500,000
Lloyd Aereo Boliviano		500,000
Railroads		3,000,000
Private Enterprises		3,000,000
Bolivian Development Corporation		5,000,000
External Debt (Amortization and Interest)		2,000,000
European Credit " " "		1,000,000
Others		1,000,000
Total	141,500,000	141,500,000

The above figures do not contain Bolivia's quota to be contributed as a buffer stock under the international tin agreement, since this contribution is of an exceptional nature and, therefore, would have to be financed from special funds. Likewise, no consideration was given to the fact that the price of wolfram will be cut in half since, at this point, it is too early to judge what will be done about this problem.

It goes without saying that the further use of European credit, which will be discussed in more detail in Chapter IV, would have to be eliminated completely because of the disastrous effect of this type of credit on the balance of payments in the near future. In the present projection an amount of US $1 million a year has been set aside for amortization of these credits.

Effects in the Internal Financial Sphere

In the internal financial sphere the adoption of a completely free economy would have the following effects: it would eliminate the responsibility of the State to finance the premia now paid for minerals; it would eliminate the income of the State on account of CIF surcharges; it would eliminate the income on account of "revertibles" (which recently have been replaced by CIF surcharges); it would eliminate the income of the State on account of the dollar auction; it would require an increase in presently budgeted expenditures in order to face new wage and price levels, as well as to purchase the dollars which the State would need at the single rate of exchange, and it would be necessary to find new sources of income to replace those which have been eliminated.

Insofar as expenditures are concerned, the dollar expenditures would go up from Bs. 190 to the dollar to Bs. 4,000, while expenditures in local currency for the payment of salaries and other expenses would go up in proportion to reach the proper level.

From our parity rate calculation (see Appendix 1), it would seem that the Bolivian internal economy is now operating at a rate of exchange of Bs. 3697 to the dollar (approximately). For many people, especially in the middle and higher classes, this rate is probably higher in reality and if this were the case the readjustment would be less painful. Furthermore, one has to take into account that right now prices are exceedingly high because the seller tries to anticipate the effects of the inflation in his price policy. It is obvious that under monetary stabilization some of these prices would tend to go down. Thus, the expenditures of the local currency budget would have to be readjusted in the proportion of 1.08 which coefficient results from the division of Bs. 4,000 by 3,697.

Balancing the Local Currency Budget

As we have seen, the local currency budget comes to Bs. 74,046 billion. If we deduct the equivalent in local currency of the expenditures set aside in dollars in the foreign exchange budget of 1956 or US $17,678,000 which amounts to Bs. 3359 million at the 190 rate, we come to an amount of Bs. 70,687 million to cover all local currency expenditures. An increase in this latter quantity in the proportion of 1.08 would give us the amount of Bs. 76,342 million for expenditures in local currency under parity.

At the same time the total dollar expenditure would have to be readjusted. Instead of the US $17,678,000 of the 1956 foreign exchange budget, we will now take the foreign exchange needs listed in our projected foreign budget mentioned above, or US $12.5 million (Government 3, Ministries 7.5, foreign debt 2). The US $12.5 million at the rate of 4,000 would amount to Bs. 50,000 million. Thus the total expenditures as budgeted would come to Bs. 126,342 million. Insofar as income from the 1956 budget is concerned, which comes to Bs. 72,516 million, we must deduct the income on account of CIF surcharges (Bs. 33,000 million) and the income on account of "revertibles" and the dollar auction (Bs. 5,470 million) so that the total income would be reduced to only Bs. 34,046.

If we increase this total to the proportion of 1.08 in order that the actual purchasing power be maintained, we would have an income of Bs. 36,770 million. With a few adjustments, taxes could yield 25% more, or Bs. 9,193 million, coming to a total of Bs. 45,963 million. According to our projection, the gross value of the mineral exports would come to US $110 million. Calculated at the export tax of 10% of gross value, we would have an income of US $11 million which, at the rate of exchange of Bs. 4,000 to the dollar, would represent Bs. 44,000 million. The combined imports of the Ministry of Economy, Commerce and Industry were projected as amounting to US $52 million. If we apply a scale of duties graduated as to whether the articles imported are of greater or lesser necessity for the country, with an average rate of 15%, we would have an income of US $7,800,000 or Bs. 31,200 million.

The adoption of a general sales tax which would be of a highly deflationary character might yield Bs. 10,000 million. Naturally these are only suggestions since in the realm of taxation alternative solutions may be preferred. However, if the above measures were accepted, the local currency budget would look as follows:

Projected Local Currency Budget (In Millions of Bs.)

Income		
Normal Income	36,770	
Tax Increase of 25%	9,193	
10% on Exports	44,000	
15% on Imports	31,200	
Sales Tax	10,000	
Expenditures		
Expenditures in Local Currency		76,342
" " Dollars		50,000
Total	131,163	126,342
Surplus		4,821

As will be seen from this projection, there would be a budgetary surplus of Bs. 4,821 million which obviously should not be considered as such since this is a mere projection based on assumed parity rate of Bs. 4,000 = $1.00. It only goes to show that with some judicious handling, the local currency budget could be balanced also.

A Balanced Budget - No Miracle

Upon analyzing the above projections, the question will undoubtedly arise as to how it is possible suddenly to balance the budget while at present there is a deficit of some US $48 million as projected. The answer to this is relatively simple.

First of all, United States aid and other commodities, once sold ad realistic prices will no longer leave the country which may mean an additional income of several millions of dollars (see Chapter VI). Secondly, the budget of YPFB which has now reached a stage where it should make no further investments is cut by US $4.8 million while private industry takes over some of the burden involved in petroleum development. Thirdly, further expenditures to be made by the Bolivian Development Corporation will be limited primarily to paying off existing debts while some of its other activities will shift to Point IV. At any rate, no more long-range projects should be continued as long as the present emergency exists. Fourth, investment in sugar mills and cement factories will shift to private industry once real incentives are there. United States development aid will play an active role here. Fifth, United States commodity aid is increased to $20 million to avoid the need for a large stabilization fund. Such a fund is considered of rather low priority at this time, since the causes of Bolivia's problem are more in the social (see next page)

than in the economic sphere. A stabilization fund is only useful as long as it is not being used, which in Bolivia is not likely to be the case. It would undoubtedly encourage speculation by certain people. Furthermore, what is needed most politically is that during the critical eight months after stabilization the city populations will be provided adequately with basic foodstuffs such as sugar, flour and potatoes. These people are not asking for much, yet they must have a certain minimum. It is doubtful whether a stabilization fund would have a more direct impact on their problem than some other form of assistance. Sixth, the government's own expenditures are curtailed in accordance with current income.

In looking at these figures it should be kept in mind that the above projection, made at an exchange rate of Bs. 4,000 to the dollar, is only one of many that could be made. In practice, this rate may have to be higher to boost exports. Furthermore, a lot will depend on how effective a wage freeze can be in Bolivia.

Whether the best rate of exchange for Bolivia under the circumstances would be Bs. 4,000, Bs. 5,000, or Bs. 7,000 would depend on which rate would do most to increase mining production without creating too drastic internal pressures.

It will be noted that to provide some extra margin of safety, the above projection did not take into account the funds which might return as a result of increased confidence after stabilization, such as the importers' commissions mentioned above (which usually remain abroad), as well as other funds which now must be kept abroad since in the present situation they cannot be employed profitably in Bolivia. Although it has not been possible to obtain actual figures on this subject, these funds could well amount to some US $30 million. With a tighter credit squeeze, a considerable amount of money might be forced to repatriate.

Now the question arises, if it looks so simple to give Bolivia a stable currency why has this not been done before? As said previously, the main problem in changing over to a free economy would be a strong resistance from those having a vested interest in the present state of affairs. Unfortunately, these people are exactly the ones who wield most political power, which makes any stabilization program quite a problem.

Again the Social and Political Problem

Here it must be stressed again and again that any problem of changing over to a free economy is essentially a social and political problem. A move as suggested above should only be tried if the government has the courage to correct the basic factors leading to the present lack of production. This would call for a frank discussion with major labor leaders. Since the Bolivian workers are becoming all too well acquainted with the effects of constant wage increases which are eaten away by the inflation, this might be a good time to do so.

Labor should be made to feel that it has to play a role in this plan, which can be done. Labor in the mines has already made sacrifices and every day it is told to make more. Unfortunately present policies have largely neutralized the effect of these sacrifices. Wages probably would have to follow some sort of a sliding scale based on productivity per man as is

frequently done in other countries as well as on the cost of basic commodities such as wheat, potatoes and rice. Labor should be given a realistic share in profits instead of the present flat bonuses which must be paid whether the industry makes a profit or not. Social legislation should be brought in line more with the realities of the country instead of copying foreign models which Bolivia cannot afford.

Since a readjustment in the exchange rate will become inevitable anyway at some time in the future, the newly appointed Stabilization Council will have to study exactly and in detail what would be the effects of such a move with the help of representatives of the principal producers and consumers, such as the Mining Corporation, the Mining Bank, YPFB, the Ministry of Economy, the railroads, the Power Company, the Bolivian Development Corporation, as well as groups from commerce, industry and labor. On the basis of their findings the political pressures which would develop as a result of such a move could be properly analyzed in order to make the necessary corrections and adjustments.

Courage alone to carry out these measures is not enough, however. The government must also have the strength to do this. At present, with the army reduced to a nominal force and the miners and peasants armed, the government seems to lack a certain element of strength. If there is any respect for authority at all, it is mainly with the Indian who always respected authority. In the present chaos it is amazing that the Indian is keeping as much order as he does through his own chiefs and leaders. With a different type of Indian this situation could be far worse.

This is by no means making a case for the use of force. On the contrary, perhaps the best way to put it would be to say that a police force, like a stabilization fund, is most effective if it is never used. Yet to be effective even as a purely preventive measure, it must be there as was clearly shown in the case of the most recent Chilean Stabilization Program.

Of course, any stabilization program would call for adequate preparation of the masses. This is true even in Bolivia where the masses are relatively uneducated. It would seem that much could be done through schools, radio, extension agents, the Church and other social organizations, to enlighten the public with respect to the longer range benefits of such a step.

Conclusion

From the above it is clear that from a technical point of view the change-over into a free economy could be relatively simple. The problem lies in the political pressures which would develop and which it may not be possible to control. It should be equally clear that the longer this step is postponed the bigger the problem becomes.

Furthermore, it is obvious that if the change is not accompanied by a drastic change in attitude of an important segment of the Bolivian population the results would be negative since the new free rate would immediately start to slide down if there continues to be a relative anarchy and a lack of production. While in any developed country such as was the case in Germany, stabilization will mean new hopes on which to build a future of hard work, it could very well be that in Bolivia a temporary lowering of the free exchange rate would result in extraordinarily heavy pressures/from those who

on the boliviano

will want to get out, or from those who have been speculating in foreign exchange.

If successful, however, the move into a free economy could be quite spectacular for it is estimated that with a bit of luck in the form of new United States investments, the beneficial effects of this policy could be felt within a period of less than two years. Some agricultural exports such as Brazil nuts, rubber and coffee (from already available plantings) should increase almost immediately while others, such as cacao, would require a longer period.

As a result of the broadening of the foreign exchange market, the present fluctuations in the exchange rate of the boliviano would largely disappear. Because of increased confidence and incentives, very substantial amounts of flight capital could return and start looking for a profitable investment. Labor would gain as a result of increased production as is already demonstrated clearly in Santa Cruz. Extremely high import taxes on certain articles would limit the importation of luxuries.

A World Bank loan, while still not very likely, would at least become a possibility which could be discussed, which is at present not the case. The government's income from taxation is likely to become larger as the economy expands under the new stimuli while the gradual gain in real income of the worker would lend more stability to any government.

Finally, the indirect appeal to markets created by a sound financial policy - as contrasted with the present system of immediate direction - could accelerate progress in almost geometric proportion. In other words, after an initial period of a year or two, which might be most difficult, Bolivia would again begin to see a future.

ANNEX TO CHAPTER III

Chronological Review of Recent Financial and Monetary Policies

The Inflation

Inflation is not new to Bolivia since a gradual process of inflation started right after the Chaco War which upset many established social and ethical values in Bolivia. For a good many years the government covered its annual deficits with loans from the Central Bank. The present run-away inflation is new, however. It is a direct result of over-spending as well as of the activities - or rather the lack of them - of both the Mining Corporation and the Mining Bank. These two institutions, together with Yacimientos Petroliferos Fiscales Bolivianos, the national petroleum agency, are today practically the only sources which produce foreign exchange for Bolivia.

Ever since the middle thirties when the boliviano was quoted at Bs. 4.20 to the dollar, Bolivian currency has been declining, although at a much slower rate than during the last few years. In April 1950 the rate of exchange was fixed at Bs. 60 to the dollar instead of Bs. 42, which exchange rate had been in force for about ten years for the purchase of foreign exchange by the mines as well as for the sale of the same by the State. At the same time the rate of Bs. 100 to the dollar was fixed for the purchase of foreign exchange by producers of antimony, lead and agricultural products as an incentive to increase production, as well as for the importation of certain merchandise. Since the number of decrees and resolutions issued during the years 1952-1956 in the financial sphere is rather impressive, it seems best to refer to the respective action in chronological order.

Year 1952

Early in 1952, in order to facilitate the exportation of low grade minerals, a barter rate of Bs. 130 to the dollar was created. Anybody who exported minerals of the indicated categories could import merchandise at that rate. At the same time there was created a differential exchange rate of Bs. 190 to the dollar which was applicable to 10% of the exports of the Mining Bank for the same purpose of boosting the production of the small and medium sized mines. In January the free rate was around Bs. 190 to the dollar and, since import licenses were granted to people having their own foreign exchange which in reality was acquired at the free rate, this exchange rate acquired more or less the general acceptance. In April there existed the following types of exchange rates for the dollar: Bs. 60; 60.60; 63.60; 100; 101; 104; 130 and 190. The free market rate operated at around 190 to the dollar so that in reality there were eight different types of exchange rates 1/.

Also in January the reserves of the Central Bank were around U. S. $30 million while money in circulation amounted to Bs. 6.7 billion (see Table VI of Statistical Supplement) 2/.

1/ Franklin Antezana Paz, President, Central Bank of Bolivia, "La Politica Monetaria de Bolivia," 1954.

2/ Boletin Estadistico No. 77, Direccion Nacional de Estadistica.

When the MNR government came into power in 1952 it established an export monopoly for minerals by the Mining Bank. In order that this institution could finance the local currency requirements of the private mining industry of the country the Central Bank had to give credit, which meant the additional printing of paper money.

In October of the same year the big three mining companies were nationalized which put all exportation of minerals by the large mining industry into the hands of the Mining Corporation of Bolivia. Since the owners naturally withdrew their working capital, the Central Bank had to print more paper money in order to finance the operation of the Mining Corporation.

Thus at the end of 1952 the combined circulation had increased to more than Bs. 10.5 billion. In other words, in one year total circulation increased 54%. This inflationary process was given more impetus through the concession of large credits by the Central Bank and the State Banks to persons of influence for the financing of new undertakings as well as for the purchase of real estate. The loans of the Central Bank to private individuals went up from Bs. 697,289,000 in 1951 to 1,100,699,000 in 1952 1/. As a result of all this, the free market rate for the dollar went up from Bs. 190 in April 1952 to Bs. 500 in the last days of December of the same year 2/.

Late in 1952 the Central Bank established a new exchange rate of Bs. 247 to the dollar for the sale of foreign exchange to certain groups of travelers, students, etc. At the end of 1952 three more exchange rates were added to the eight which previously existed, namely the exchange rates of Bs. 247, 400 3/ and 500 to the dollar. The latter rate was then the black market rate. Naturally the differences between imports at the official rate and the existing free rate led to the re-exportation of merchandise which provided large profits to people engaged in all kinds of contraband activities.

Year 1953

During the first half of 1953 the world price of tin fell by 30% which, coupled with the mounting domestic inflation, put a severe strain on Bolivia's balance of payments. Thus early in June, Bolivia drew on the International Monetary Fund for U. S. $2.5 million. In May the situation had reached a point where something more drastic had to be done. As a result, a new rate of Bs. 190 to the dollar was established as a single exchange rate. This caused a general increase of the prices of imported articles followed later on by an actual increase of the prices of domestic products. To cope with the situation, the government fixed a general salary increase of Bs. 4,000 and Bs. 2,000 for those workers having a cheap commissary. This meant in practice a 100% increase in real wages for labor and around 30% for government employees and people engaged in private industry since the average monthly wage for labor was Bs. 4,000 as compared with about Bs. 12,000 for white collar workers.

1/ Boletin Estadístico, No. 77, Dirección Nacional de Estadística.
2/ Antezana Paz, op.cit.
3/ For gold producers.

It was further decided that the Central Bank would distribute foreign exchange in accordance with an annual budget which would be approved in December of each year. At the same time it was prohibited to carry out any imports with foreign exchange other than the one obtained at the official rate. Thus all imports with privately owned foreign exchange were cancelled. The decrease in the offerings of foreign exchange at the official rate and the increasing amount of circulation in the hands of the public resulted in an increase of the rate of exchange for the dollar. While during the first half of May the exchange rate for the free market dollar was 680, in the last days of December this rate went up to Bs. 800 to the dollar. At the end of 1953 the total circulation had increased to Bs. 20.5 billion 1/ which constituted an increase of 94% as compared with the previous year.

During 1953 the Mining Bank started to sell the foreign exchange which it received from the sale of gold, which was sold to it by the miners, for bolivianos. Soon the exchange rate of the Mining Bank became much lower than that of the exchange houses so that anybody who bought dollars from the Mining Bank made a profit of about Bs. 300 per dollar after he sold to the exchange houses. In order to put an end to this anomaly, it was decided later on (in 1954) that two private banks would sell at public auction all the dollars derived from the production of gold bought by the Mining Bank. These dollars could not be used for imports of any kind, and were only to be used for travel, payment of insurance policies, etc. Present auction sales amount to about $2 million a year. The dollar auction has been criticized very much on the basis that the dollars so sold are not of any benefit to the national economy and only serve as a means to get capital abroad for those people who want to put their savings in foreign currency; yet it is reliably estimated that private transactions, outside of the public auction (not considering double invoicing, etc.) are at least double those handled at the auction.

Since both merchandise and raw materials became scarcer and scarcer, both commerce and industry started investing ever-increasing quantities of money in the purchase of dollars at the free rate of exchange. In order to eliminate the secondary exchange rates which resulted from the application of taxes on the sale of foreign exchange, they were eliminated through another decree with the exception of a tax of Bs. 35 which was put on each dollar sold by the Mining Corporation to the Central Bank so that in reality the rate received by the Corporation was Bs. 155 per dollar.

The purposes of the monetary reform of May were said to be three: first, to reduce the eight types of exchange to a single one; second, to balance the budget; and third, to establish a basis for economic diversification.

During 1953 another new measure was introduced, a so-called surcharge on the CIF value of imported merchandise amounting to 50% on non-essential items and 100% for those which were still less necessary. Items of primary necessity remained free from this charge. In reality these were new taxes which, instead of being collected by the Customs were made effective by the Central Bank. In this way, surreptitiously, a new system of differential exchange rates was introduced, which was exactly what the authorities had wanted to avoid. Thus, the following exchange rates came about:

1/ Dirección Nacional de Estadística, Boletin Estadística No. 76.

Bs. 190 to the dollar (for articles of primary necessity and official requirements)
Bs. 155 for the purchase of foreign exchange from the Mining Corp.
Bs. 285 for the importation with a CIF surcharge of 50%
Bs. 380 for the importation with a surcharge of 100%
The special exchange rate for the sale of gold by the Mining Bank (which was always below the free market rate)
The free market rate of 580 in the second half of May, 1953.

All in all, there were six types of exchange rates after the monetary reform of May.

Another decree of May authorized the Central Bank to mint gold pieces of 7, 14 and 35 grams. Subsequently the minting of pieces of 3.5 grams was authorized. These gold pieces were to be given in exchange for native gold, and their export was legally permitted. It was believed that through this measure the contraband activities would decrease and the demand for dollars would lessen. Subsequently these gold pieces have been auctioned by the private banks, apparently with very little success.

Year 1954

Gold and foreign exchange holdings which amounted to U.S. $30 million in 1951 had decreased at the end of December 1953 to only U. S. $12.4 million. In December 1954 the total availabilities were U. S. $713,981 1/. The Central Bank which had received an $11.5 million credit from the Manufacturers Trust Company in New York, guaranteed with eleven tons of gold, decided to sell this gold to eliminate interest charges, in order to provide foreign exchange for necessary imports.

The cost of living index in the city of La Paz had increased from 5,041 in December 1951 to 33,212 in December 1954 2/. As a result the workers who in May 1953 had received a salary increase of about 100% (at Bs. 4000) could hardly exist. The middle class which had received in May 1953 an increase of only 30% was squeezed even more at the beginning of 1954. The sociological result of this should not be underestimated since, because of the general impoverishment, part of the middle class had to lower its levels to proletarian standards, whereas another group of intellectuals and people of higher education started to emigrate or engage in other occupations. It is hardly necessary to add that the stabilization program of May 1953 did not have the result which was expected of it.

The decree of August 26 modified the existing system of customs duties by classifying merchandise into four groups. In the first group fell articles of primary necessity, such as basic food items; in the second, essential articles; in the third, products of secondary necessity as well as those destined for agriculture, livestock products, industries, etc., while the fourth group consisted of luxury items. At the same time a new system of CIF surcharges was established. The first group of merchandise remained exempt from the surcharge while the other three

---

1/ Boletin No. 106, Banco Central de Bolivia.
2/ Boletin Estadistica, Direccion Nacional de Estadistica, No. 77.

groups were burdened with surcharges on the CIF value of the merchandise ranging from 50% to 1000%. In other words, there existed within the same market merchandise, the CIF value of which remained unchanged at the rate of Bs. 190 per dollar, while other merchandise, according to the surcharges, went up from 50% to 1000%. The result of this was that merchandise with a CIF value of $1.00 could cost, not considering import duties, Bs. 190 (without CIF surcharge); Bs. 380 (with a surcharge of 100%); or Bs. 2,090 (with a surcharge of 1000%).

At the end of 1954 the total circulation had reached Bs. 35 billion. During the same year there was a noticeable drop in production in all forms of activity and particularly in the mining industry. The situation became so critical that a United States food grant amounting to U.S. $10.9 million was needed in fiscal 1954 to establish some sort of balance. In order to prevent a further collapse of the private mining industry, it was necessary to pay more for minerals. This was done, as nearly always in the economic history of Bolivia, through the mechanism of differential exchange rates at the rate of about Bs. 400 to the dollar instead of Bs. 190. On the other hand the Mining Corporation, which likewise was badly in need of operating capital, received credits from the Central Bank amounting to billions of bolivianos ~~in credit~~ which it could never repay so that in reality it did not receive Bs. 155 per dollar but much more. In this way at the end of 1954 Bolivia was saddled with thirteen different exchange rates 1/ which certainly remained a far cry from the original purpose which the technicians of the International Monetary Fund had in mind when they advocated the Monetary Reform of 1953, hoping to arrive at a single rate.

Around the middle of 1954 the Minister of Economy introduced a new mechanism, called the application of "revertibles" (which mechanism comes closest to a sales tax). Although the "revertibles" were abolished in March 1956 a more or less detailed reference to this system appears necessary at this point in view of the impact which it has had on the Bolivian economy. A "revertible" consists of a surcharge on the cost price approved for the importation of certain merchandise. For example, an article costing $10 would - including import duties and CIF surcharges - eventually cost Bs. 8,000 in the market place, which means an exchange rate of Bs. 800 per dollar. Then the Minister of Economy proceeded to apply a "revertible" which, in our hypothetical case, might amount to Bs. 4,000 for

---

1/ 190 per dollar (for articles of primary necessity and official requirements)
285 (for imports with the CIF surcharge of 50%)
380 (for imports with surcharge of 100%)
350 to 455 (exchange rates to boost production by the private mines)
475 (with CIF surcharge of 150%)
510 to 512 (exchange rate of the Mining Corporation)
760 (surcharge of 300%)
855 (surcharge of 350%)
950 (CIF surcharge of 400%)
1,140 (surcharge of 500%)
1,710 (surcharge of 800%)
1,844 (free exchange, Bulletin 106, Central Bank)
2,090 (with surcharge of 1000%)

the merchandise in question which brings the cost of the merchandise up to Bs. 12,000, thus creating an exchange rate of Bs. 1200 to the dollar. The Bs. 4,000 had to be paid by the importer to the Ministry of Economy after he sold the articles, hence the name "revertible," i.e., something that reverts to the Ministry.

The main problem with the "revertibles" has been that one never knew exactly how much it would amount to. In 1954 the "revertible" was applied exclusively by the Minister of Economy and according to his criteria, mainly for the purpose of elevating the cost of merchandise to a more realistic level in order to prevent its re-exportation. Within a short time the system started bringing some very peculiar effects. In the first place, it gave the importers an extraordinary incentive to pad their dollar prices and increase costs since the percentage of profit recognized by the Ministry constituted a direct charge on the cost price. At the same time it became of the utmost importance to obtain friends in order to get the "revertibles" set at the lowest possible figure. For instance, if an article was imported with a "revertible" of Bs. 1,000, while at the same time the same article was imported with a "revertible" of only Bs. 700, the market price would tend to rise to the highest level since there is a shortage of practically anything in Bolivia so that the second importer had an extra profit of Bs. 300.

The application of the "revertibles" which varied from case to case, superimposed on the mechanism of exchange rates, created an innumerable quantity of different types of exchange rates which all depended upon the criterion of the Minister of Economy, resulting in increased monetary confusion. The equivalent of the United States assistance, i.e., counterpart funds, as well as the arbitrary use of the funds resulting from the "revertibles" created in reality two new spheres of public finance, apart from the Ministry of Finance, since the Ministry of Economy was also administering large quantities of "revertibles" in order to pay subsidies to agricultural producers as well as to foster economic development.

According to the report of the Minister of Economy 1/, the "revertibles" have fulfilled the objective of preventing the re-exportation of merchandise which had reached fantastic proportions. While this is highly questionable, the "revertibles" also have had some quite undesirable effects as may be seen from the following brief analysis of a typical case. Under the early system the importer first made his sale after which he paid the "revertible" to the Ministry. The official period to pay was 90 days but extensions could be obtained. On the total amount of imports, the "revertibles" amounted to billions of bolivianos. Therefore the importer who could postpone payment obtained free, without interest or commission, a boliviano loan which he then could circulate actively within the commercial sphere, as a result of which the inflationary process increased. As is understandable in such cases, here again entered friends and persons of influence, for the person who had those could see to it that the "revertibles" were not collected for some time so that in this manner he gradually acquired a working capital without cost. The importance

---

1/ Ministerio de Economía Nacional, "La Acción de Gobierno en el Ministerio de Economía Nacional," Publicación oficial, 1955.

of the "revertibles" is still clearer if one takes into account that frequently they amounted to 10 or 15 times the total sum of the capital invested to buy at the official rate the necessary foreign exchange required for the importation in question.

The psychological effects of the inflation are not to be underestimated. Quite a few people in Bolivia are now interested in accelerating the inflation. Among them are the people with sufficient influence to obtain substantial credits who, as the currency goes down, are interested in paying with depreciated currency. Furthermore, there are the importers who received dollar commissions and who in addition could increase their dollar and local currency prices more when the difference between the official rate and the free market was larger. It is interesting in this connection that in 1955 the government had to go so far as to prohibit the establishment of new export firms. The importers and distributors who actually sat on millions of bolivianos on account of "revertibles" on which they did not pay interest and for whom the inflationary process signified a payment with currency of lesser value also had an interest in fostering the inflation. Finally, the industrialists and people engaged in commerce who had invested part of their savings in dollars are also interested in more inflation. Apart from these persons having a personal interest in the inflation, there are those other factors which have been mentioned previously, such as the general lack of mining and agricultural production and overspending on too ambitious or too long-range development programs.

Year 1955

The total circulation at the end of 1953 was Bs. 20.5 billion and, as we have seen, it went up to Bs. 35 billion at the end of 1954. Four months later, at the end of April 1955, total circulation had passed Bs. 40 billion, which gives a good idea of the extent of the inflationary process. By decree of March 23, 1955, salaries and wages were readjusted on the basis of April 30, 1954. While the wages of labor were adjusted at percentages ranging from 67% to 75%, the salaries of white collar workers were adjusted at a percentage ranging from 39% to 75%, with the obvious disadvantage to employees having a salary in excess of Bs. 25,000 a month for whom the standard of living again went down sharply. The wages and salaries of the miners (both employees and laborers) having a cheap commissary were readjusted at between 34% and 50%, taking as a base the salaries paid on December 31, 1954. The decree provided that the Mining Corporation, the non-nationalized mines, and the manufacturing industry would have to find jointly with the unions the best form to increase labor productivity. It allowed the Mining Corporation a production bonus in the form of Bs. 320 per dollar over the official rate of Bs. 190 to the dollar, thus establishing a rate of Bs. 510 per dollar for the Corporation. For the Mining Bank this bonus was fixed at Bs. 710 per dollar making a rate of Bs. 900. The proceeds of this bonus were to be credited to the Ministry of Finance so that instead of covering their deficits with loans from the Central Bank, the two institutions would receive a direct subsidy from the State. The government hoped to cover at least a part of the loans resulting from the application of those bonuses with the increase in CIF surcharges which hope did not materialize.

A decree of March 31, 1955 greatly facilitated the export of some high priced agricultural products such as cacao, rubber and Brazil nuts

while at the same time it reintroduced an old mainstay - the compensation transaction - which enables the exporter to carry out imports with the dollar proceeds of his exports. Similar incentives were given to the private mining industry which will be discussed more in detail in Chapter IV.

The decree of May 10 authorized the banking department of the Central Bank, as well as the private banks which existed prior to December 22, 1949, to receive deposits from the public up to ten times their paid-in capital and reserves. Banks established after this date could do the same up to 3½ times their capital and reserves. A decree of May 30 established also that the private banks as well as the banking department of the Central Bank could grant industrial credits at an interest rate at the discretion of each bank provided the amount would not exceed 12%. The loans made to the public by the Central Bank continued to constitute another - although a relatively minor - source of inflation. As a matter of fact, from December 1954 to December 1955, the total went up from Bs. 1,848,979,000 to Bs. 3,778,267,000. This rapid increase of 104% obligated the Central Bank to suspend its loans to private individuals later on in the year under the excuse that such credit had been used principally for the purchase of dollars in the free market.

By supreme resolution of May 24, new rates for the CIF surcharges were fixed. As before, the group of articles of primary necessity remained without a surcharge. The other groups received surcharges ranging from 50% to 1500%. Simultaneously, the above mentioned policy of the Minister of Economy in relation to the "revertibles" resulted in the elevation of the prices up to a point where some imported merchandise came up to the level of the free world prices and in some cases even went up more.

On November 17, a decree was issued destined to establish finally the legal regime for the system of "revertibles" which until then had been simply a matter of fact. The decree stated that while the actual economic disequilibrium and the system of distribution of foreign exchange continue as an emergency, the sales price of imported merchandise would be fixed in each case by a committee of price control. The Minister of Economy would take into account the general level of the market in order to prevent artificial demand for re-exportation, speculation and hoarding. The official sales price would be the only one for all importers of the same article. The difference between the cost price approved by the Central Bank and the official sales price constituted the charge named "revertible". For the purpose of calculating profits and general expenditures of the merchant, the "revertibles" were considered to form an integral part of the cost. The decree brought one big improvement in establishing that once a "revertible" is fixed the importer had to pay it at the time he collected the merchandise so that he could not sell the merchandise before the "revertible" was actually paid, as was previously the case.

The "revertibles" collected so far by the Ministry of Economy have been utilized to pay minimum guaranteed prices, to subsidize and maintain stable prices for articles of primary necessity, for the execution of public works and services, and to boost the income of the Treasury.

The decree of November 24 established that a bonus received on account of excess production by the private miners could also be used for imports within the regime of imports established under the decree of

March 31 mentioned above. This latter measure was of considerable importance due to the fact that the bonuses for excess production will increase substantially during the year 1956 if this means to stimulate production will be continued. It goes without saying that all this signified a complete departure from the exchange rate of Bs. 190 to the dollar and the establishment of a free rate or relatively free rate for a certain sector of the national economy.

First Half of 1956

The combined total circulation which at the end of 1955 was about Bs. 73.1 billion had reached a total of Bs. 124.8 billion at the end of June of the present year. The cost of living index for La Paz, which in March 1955 stood at 40,697, went up to 102,970 in June 1956. Since the wage increases did not keep up with the increase of the cost of living, the government was forced to grant another general wage increase through the decree of February 25, 1956. In essence this wage increase constituted an adjustment of 35% to 90% for labor and a similar one from 35% to 76% for white-collar workers. Although last year the miners had received lesser wage increases than those given to workers not enjoying cheap commissary privileges, at this time they were given the same increase supposedly to compensate for the fact that frequently the commissaries were empty. The decree readjusted the price of articles of primary necessity in various percentages. Thus while rice went up only 8.33%, meat went up from 37½% to 75%, gasoline went up 84.2% and bread went up 120%.

As of January 1, the prices created by the Mining Bank for minerals were increased accordingly together with an increase in the railroad fares both for passengers and cargo. Under the new price set-up the private miners receive approximately Bs. 1,500 per dollar. As we saw before, since March 1955 the Mining Bank and the Mining Corporation received a certain bonus for every dollar sold to the Central Bank. The purpose of this bonus was to prevent the Mining Corporation and Mining Bank from financing their losses with credits from the Central Bank as had been done previously so that these losses would run for the account of the Treasury which theoretically would have to cover them with the increases in the CIF surcharges. This system never worked however since, first, the surcharges were frequently not paid and, second, there were never enough dollars available to finance imports. At the end of June 1956 the credits granted by the Central Bank to the Mining Corporation and the Mining Bank, including bonus payments, amounted to Bs. 84.8 billion. Therefore, it will be easily understood that these credits and bonuses are now one of the principal sources of the inflation.

As of March the Mining Corporation received a bonus of Bs. 1,010 per dollar and the Mining Bank was given a bonus of Bs. 1,310 in addition to the official rate of Bs. 190. By decree of April it was established that the Central Bank would pay to Yacimientos Petroliferos Fiscales Bolivianos the sum of Bs. 1600 per dollar over and above the official rate. The economic section of the Central Bank estimates that the amount of Bs. 94 billion would be necessary this year to pay the bonus in question.

By decree of March 29, the "revertibles" were replaced by an additional CIF surcharge which had to be increased accordingly. Since under the system existing prior to the decree the CIF surcharges and "revertibles"

were applied jointly, the new decree merely increased the CIF surcharges up to a point where the application of the"revertibles" becomes unnecessary. A decree of November 1955 had eliminated the CIF surcharge for all imports made with foreign exchange received from exports, establishing that this type of merchandise would be sold at the free rate. Naturally since this small amount of imports could not possibly fill the demand of the local market, the same merchandise would be imported with official exchange subject to the CIF surcharge. For this reason the March decree established that the price of merchandise imported with official exchange would be brought up to the same level of the one bought with foreign exchange received from exports. In other words, the "revertible" would again be applied to these cases.

By supreme resolution of April, the new CIF surcharges were fixed. The most essential articles remained without a surcharge while other groups of articles must pay surcharges over the CIF value ranging from 50% to 3000%. For the moment the new CIF surcharges replace the "revertibles" in order to bring up the price of articles imported with official exchange to the world price level. However, in view of the galloping inflation it will be necessary to readjust these surcharges within a short time in order to maintain these prices at the world level or else to reapply the "revertibles" for the same purpose. As a result of these reforms, there will be no greater income. Simply the amounts which previously were deposited in the account of price compensation in the Ministry of Economy will be collected by the Treasury.

The Minister of Economy calculated at the end of 1955 that the income resulting from "revertibles" during 1956 would be in excess of Bs. 20 billion. On the other hand, the income from CIF surcharges for 1955 will probably not be over Bs. 10.5 billion, which will not increase greatly during 1956 if the previous system (separation of the "revertibles" from the CIF surcharges) will be maintained, particularly if one takes into account the increase of imports bought with foreign exchange obtained from exports which are not subject to CIF surcharge. Therefore, the income on account of CIF surcharges during 1956 may be calculated at an amount between Bs. 30 and 35 billion. As we see, this figure is barely 1/3 of the amount which it is estimated would be paid as a bonus to the Mining Corporation and the Mining Bank for dollars sold to these institutions.

A decree of July 21, 1956 changed again the regime covering compensation transactions which had been set up by the decrees of March 31 and November 3, 1955, to stimulate both agricultural and mineral exports.

By far the most important financial measure of 1956 is the creation of the Monetary Stabilization Council which was established by the decree of August 4. The decree provides that the Council shall be headed by the President of the Republic and the Minister of Finance who shall act as its President and Vice-President respectively. Other members of the Council are the Foreign Minister, the Minister of Economy, the Chief of the Planning Commission, the President of the Central Bank, an Executive Director who now is an American contracted by the International Cooperation Administration, and a Secretary General. The decree provides that within 30 days all the Ministries and other autonomous or semi-autonomous government agencies must send in all their accounts covering the past four years indicating rates of exchange used,

etc., to the President of the Council. Likewise they must submit a statement of all their current commitments as of June 30, 1956. While this is being done, none of the entities in question can incur any further obligations without the approval of the Council. In addition the decree provides that as of August 4, 1956, the Central Bank cannot issue any more currency (except for replacement needs) nor grant any further credits to government agencies without the approval of all the members of the Council.

The auction rate for the dollar which was Bs. 4000 to the dollar in December 1955 went up to Bs. 6697 at the end of June 1956 with street rates going as high as 9000.

In considering the extent of the Bolivian inflation, one should keep in mind that matters actually could be worse, if it were not for the Indian who has a habit of hoarding currency. Although lately the city population is becoming more and more aware of the effects of inflation resulting in large queues of people willing to buy anything - as a matter of fact the tail end of the queue frequently does not even know what is sold at the start - the Indian still seems to keep his money in his pocket. Naturally this habit could change as the pace of inflation steps up more and more. While this might have a beneficial effect on overall consumption habits, making the Indian more of a "spender", the effect on the inflationary process could be quite sizeable.

IV. EXTERNAL POSITION

Foreign Trade

As is well known, traditionally Bolivia has covered nearly all of its import requirements with the sale of minerals. This process started in colonial days when fantastic amounts of silver were exported from the country. For instance, the city of Potosí, located at the bottom of the famous Cerro de Potosí which was made up of vast amounts of the highest grade silver ore, was already a flourishing city by 1560. After hundreds of years of exploitation, however, many of these well known mines are now gradually becoming depleted.

Exports

During 1955 the export of minerals accounted for around 96% of all exports of the country. Of this total, tin amounted to 56%. In the same year petroleum appeared for the first time as an export item on Bolivia's balance of trade. Details of Bolivia's mineral exports may be found in Table XXI of the Statistical Supplement.

The following table gives an indication of the relative importance of the export of minerals from Bolivia 1/ during the past fifteen years.

Mineral Exports 1940 - 1955 (in percentages)

Product	'40	'41	'42	'43	'44	'45	'46	'47	'48	'49	'50	'51	'52	'53	'54	'55
Tin	73	73	69	70	73	82	80	73	72	74	70	64	62	69	66	59
Wolfram	7	9	12	13	14	4	2	4	3	2	3	8	10	11	14	16
Lead	3	4	3	2	2	2	2	5	9	9	11	8	8	6	6	6
Silver	4	5	5	4	4	4	7	5	5	5	5	4	4	4	4	5
Antimony	5	4	6	5	2	2	3	7	6	4	2	5	3	2	2	2
Copper	3	3	3	2	2	2	2	3	3	2	3	2	2	2	2	3
Zinc	4	1	2	3	3	4	4	3	2	2	6	8	10	5	5	6
Other	1	1	-	1	-	-	-	1	-	2	-	1	1	1	1	3
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

As may be seen, the importance of tin has been gradually declining during the past few years, while exports of wolfram have been increasing.

In 1954 about 59% of Bolivia's exports went to the United States, 38% to Great Britain, and 1% to Argentina. Trade with the rest of the world accounted for the remaining 2%.

The origin of Bolivia's principal exports for 1955 was as follows:

1/ Source: Table XXI

Mining Corporation 1/	US $ 73,227,282
Mining Bank 1/	24,542,281
YPFB 2/	2,294,497
Agricultural Exports 3/	2,091,000
Manufactured Articles 3/	219,400
	$102,374,460

High grade tin concentrates produced at Catavi and Huanuni, formerly belonging to Patiño and at Quechisla and Morococala which belonged to Aramayo, are sold to the British smelter of Williams Harvey, which contract expires December 31, 1960, while the balance, which consists mainly of low grade concentrates, is sold to the United States through the Federal Facilities Corporation, to be smelted in the Texas City Smelter. The sales contract of the Mining Corporation and the Mining Bank with the Federal Facilities Corporation expired on April 30, 1955 and since then it has been extended several times.

A small amount of tin ore is sold to the Capper Pass Smelter in England through theiragents, Tennant and Sons. These minerals are also sold to Metallgesellschaft of Germany, and to the firm of Cobrasin of Brazil.

Copper is now being purchased by the American Smelting and Refining Co., while the private firms of Phillipp Brothers, Inc., and American Smelting & Refining Co. are also buying lead.

Wolfram is sold directly to General Services Administration of the United States with which the Mining Corporation, the Mining Bank and the International Mining Company have contracts. Likewise South American & Mineral Corporation is purchasing some minerals.

In view of this monoproduction, the price of minerals takes on a major aspect for Bolivia with the price of tin becoming a matter of life or death. The price of tin (in New York) went from $0.61 per pound of fine tin in 1943 to $0.64 in 1945. After a break in 1946 it went to $0.73 to reach $0.95 in 1949. In 1950 the price dropped again to $0.83 to go up to $1.28 per pound of fine tin during the Korean War, after which it dropped again to $0.93. While in 1954 the average price was $0.89, during 1955 the price of tin fluctuated between $0.83 and $1.10 per pound of fine tin with an average of $0.92.

These price fluctuations become extremely important if one takes into account that a drop of one cent in the price of tin amounts to a decrease of about $600,000 in the foreign exchange income of Bolivia.

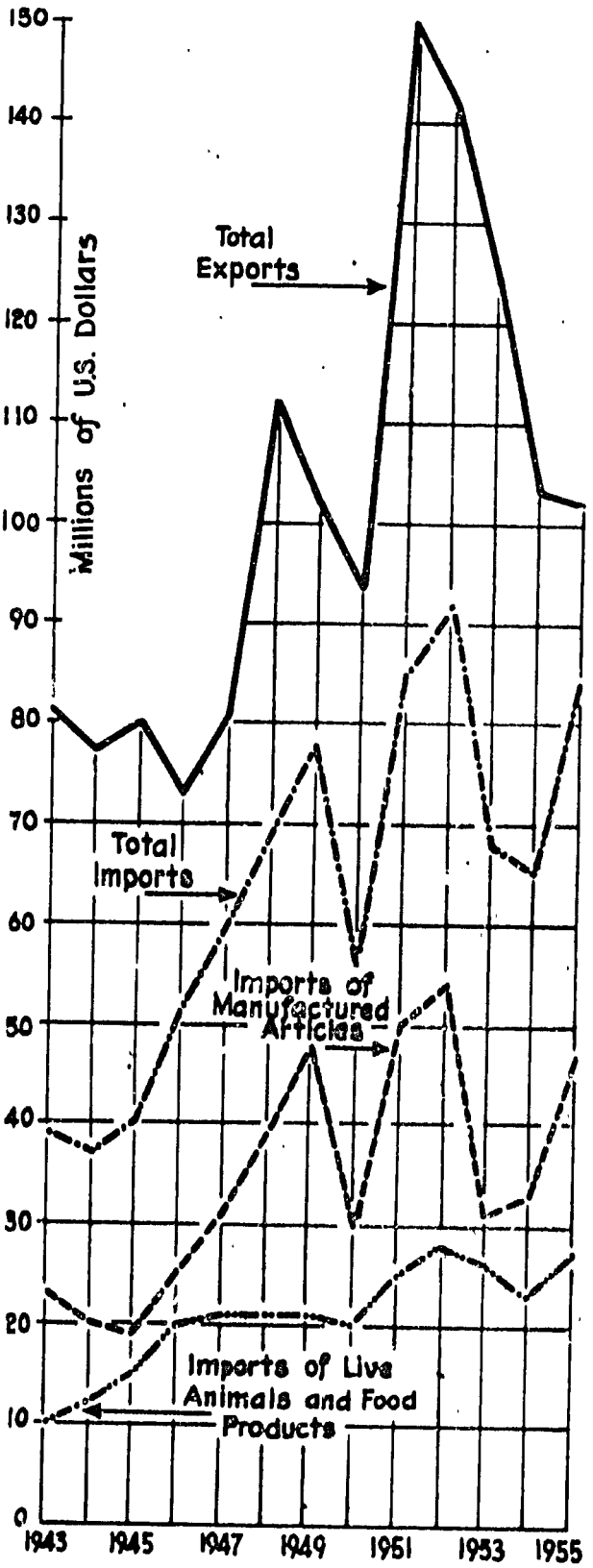
Wolfram is quoted per unit of 20 pounds. The unit price (FOB New York) went from $19.50 in 1950 to $73.00 in 1951. Although the world price has dropped considerably since then, Bolivia has continued to reap the benefits of its long term contract with the General Services

---

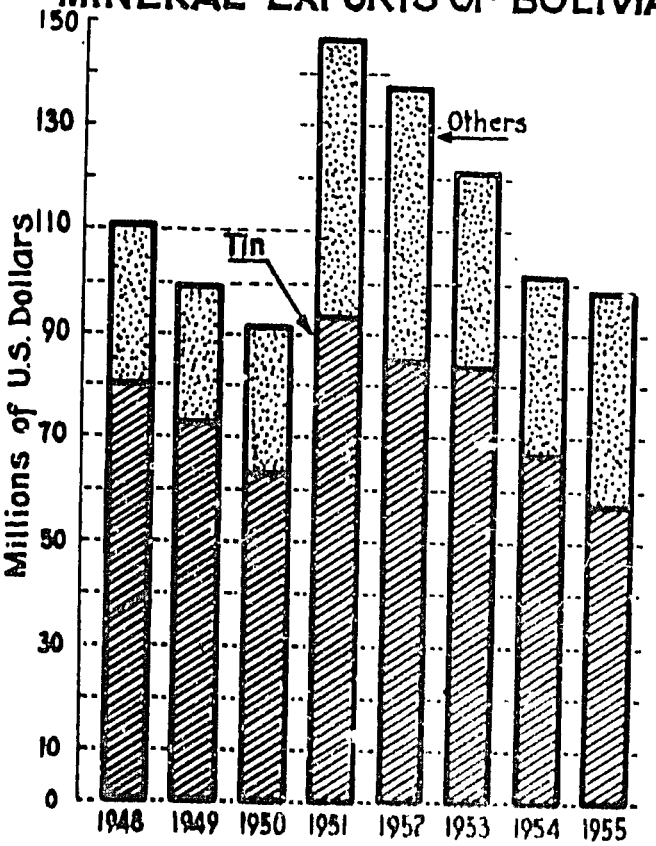
1/ Dirección Nacional de Estadística;
2/ YPFB; Memoria Anual 1955
3/ Dirección Nacional de Estadística;

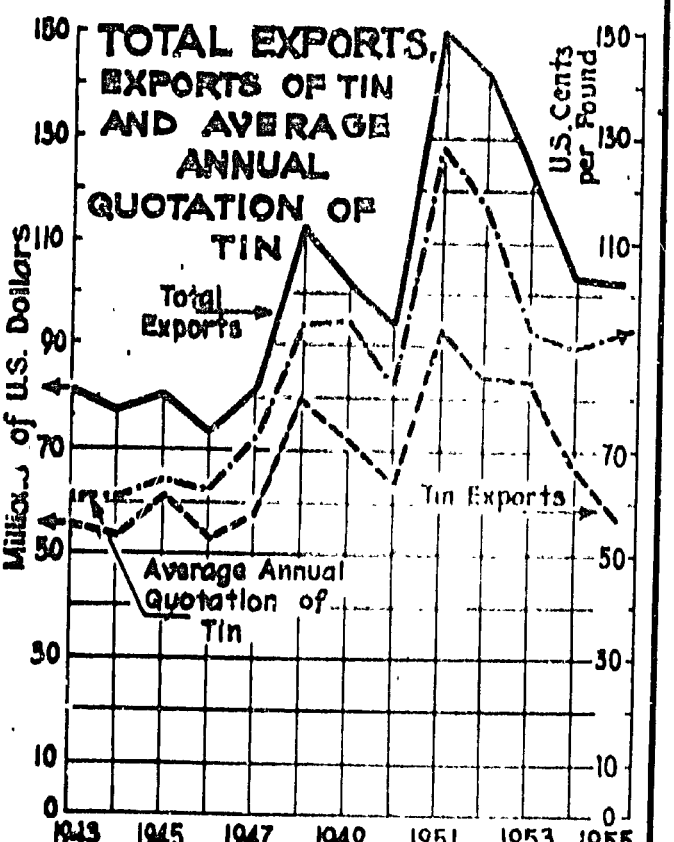
FOREIGN TRADE

EXPORTS AND IMPORTS



MINERAL EXPORTS OF BOLIVIA





Administration which pays $59 per unit of 65% ore content. These contracts are now about to expire. The prices of most other minerals have dropped considerably since the Korean conflict, although they remained generally above those paid before the Korean War.

In spite of these problems, 1955 mineral exports amounted to $97.8 million which is considerably more than annual exports prior to 1948. What actually happened, however, is that while the value of minerals went up, total production drcreased. For instance, exports of tin went down from 35,384 tons in 1953 to 28,369 tons in 1955, a decrease of 7,000 tons. Exports of antimony dropped from 11,816 tons in 1951 to 5,784 tons in 1953 with a further decline in 1955. Exports of zinc went down from 35,619 tons in 1952 to 21,327 tons in 1955. Lead went from 30,000 tons in 1952 to 19,120 tons in 1955. In contrast with this, exports of wolfram increased from 1,631 tons in 1951 to 3,231 tons in 1955. Although 1955 petroleum exports were not as high as was hoped for ($6 million) mainly because Argentina was unable to take delivery, total 1955 exports amounted to some US $2.3 million.

Imports

Bolivia's imports consist largely of manufactured articles and foodstuffs which could be produced within the country. Table XXIV of the Statistical Supplement shows all imports by category since 1940 while Table XXV shows all imports by country of origin.

One of the most interesting items in the import figures is the trend in the importation of basic foodstuffs. During the period 1925-29, these imports amounted to 22.3% of all imports 1/ while in 1940 this figure had increased to 23.9%. In 1952 and 1953 food imports accounted for 30% and 37.84% respectively of all imports. In 1955 this percentage was 31.59%.

Table XXVI of the Statistical Supplement shows the principal imports of food during the years 1950-55, giving both the tonnage and the amount in dollars. It should be noted that the importation of these articles represents 88.4% of all imports of foodstuffs in 1955, most of which can be produced within the country.

The importation of raw materials had decreased from $11.4 million in 1951 to $9.8 million in 1954, and again to $9.3 million in 1955. The importation of manufactured articles has suffered most on account of the current import restrictions. Representing 57.7% of all imports by value in 1951, this figure had gone down in 1954 to 49.8%. Actually, the importation of these articles went down from $49.5 million in 1951 to $32.6 in 1954. In 1955 the importation amounted to $47.5 million.

The imports of lard went up from 1,882 tons in 1950 to 2,998 tons in 1951, after which they remained at this level with slight variations. In 1955, 2,607 tons were imported. Imports of powdered milk, which during the period 1948-50 amounted to only 637 tons, went up to 2,292 tons in 1954, part of which was due to substantial gifts of CARE. In 1955, 4,614 tons were imported. Imports of edible oils which in 1949 amounted to 782 tons went up to 1,583 tons in 1954, and to 1,536 tons in 1955.

1/ United Nations Economic & Social Council Document E/CN12/218/add2; May 12, 1951.

The most substantial increases took place in the importation of sugar, rice and wheat which may be attributed in part to contraband trade (reexports), in these commodities.

Balance of Trade

Until a few years ago Bolivia's exports were generally expanding, both insofar as volume as well as value are concerned. After 1952 there was a considerable decline as may be seen from the following table:

Balance of Trade: 1940-55 1/

Year	Exports	Imports	Balance	Exports	Imports
	(In Thousands of Dollars)			(In Thousands of Tons)	
1940	49,828,9	20,378,0	29,450,9	177.9	264.3
1941	60,649,7	27,747,2	32,902,5	193.7	375.7
1942	65,656,8	33,234,8	32,422,0	198.6	364.8
1943	81,600,6	39,177,1	42,423,5	225,7	329.3
1944	77,553,8	37,451,3	40,102,5	198.9	355.5
1945	80,431,6	40,369,8	40,061,8	202.6	325.1
1946	73,650,2	51,365,6	22,284,6	192.9	310.0
1947	81,429,3	59,557,4	21,871,9	201.6	303.3
1948	112,825,9	68,735,8	44,090,1	244.8	326.8
1949	102,970,1	78,359,4	24,610,7	222.7	328.4
1950	94,072,4	55,842,7	38,229,7	216.7	253.0
1951	150,646,0	85,837,6	64,808,4	251.8	325.0
1952	142,106,9	92,620,4	49,486,5	257,4	353.3
1953	124,522,1	68,006,2	56,515,9	213.0	333.5
1954	103,694,7 2/	65,483,1	38,211,6	182.2	292.0
1955	102,375,0 3/	84,390,0 3/	17,985,0	n.a.	287.2 3/

It is interesting to note that from 1900 until the present date, with the exception of the year 1921, Bolivia has always had a favorable balance of trade which makes up at least to some extent for the substantial payments which the country must make on account of invisibles which constitute such a heavy burden on the balance of payments. These figures clearly show the need for a substantial increase in exports as well as for a greater economic diversification to cut down imports.

Recent Trade Agreements

In accordance with the policy announced in 1936 by Foreign Minister Luis Fernando Guachalla, Bolivia has tried ever since to expand its trade with neighboring countries. This policy has become more important with the construction of several new railroads which now connect Bolivia with both Argentina and Brazil. Furthermore, recently a pipeline was con-

---

1/ Source: 1940-50, Banco Central de Bolivia 26a, Memoria anual correspondiente a la gestión del año 1954.
1951-55, Dirección Nacional de Estadística y Censos

2/ Excluding monetary gold

3/ Approximate figures

structed to the Argentine while the construction of another pipeline to Chile is a prospect of the immediate future.

During the past few years Bolivia has entered into the following trade agreements:

a. With Brazil

In December 1953 Bolivia signed an agreement with Brazil amounting to some US $4 million. The list of Brazilian exports contains sugar, raw cotton and processed cotton. Bolivian exports would consist of tin concentrates, rubber, and lead ingots.

In 1955 Bolivia committed itself to sell to Brazil about 6,800 barrels of gasoline and 1400 barrels of kerosene monthly, which would be placed at Santa Cruz at a price of US 11¢ and US 10.7 ¢ a gallon respectively. After July 1956 these exports will increase to about 13,333 barrels of gasoline a month. It appears that deliveries of gasoline and kerosene have been normal from August to December 1955. Early in 1956, however, exports to Brazil were stopped for some time due to the fact that in December 1955 some floods of the Rio Grande paralyzed the railroad transport from Santa Cruz to Corumbá which, as is known, will become normal once the bridge across the Rio Grande will be constructed.

b. With Argentina

In 1954 Bolivia and Argentina signed an agreement for an economic union as a result of which some duties, taxes and other commercial restrictions were to be eliminated. For this purpose, lists of products have to be prepared which will be exempt from taxes. The merchandise in question is to be quoted in dollars and must be paid in accordance with the foreign exchange regulations existing in either country. Both countries were to open a reciprocal credit of US $3 million and the excesses over this figure would be paid in free dollars or in gold.

The agreement has been drawn up for a period of three years, after which it may be renewed. During the middle of 1955 some modifications were made. The anticipated commercial exchange is now set at about US $10 million a year. The principal exports from the Argentine are: cattle, wool and various manufactured articles. The principal exports from Bolivia are petroleum, tin ingots and quebracho bark.

c. With Chile

In October 1954 YPFB and the Compañia de Acero del Pacífico entered into an agreement by which the former would sell monthly 7,900 barrels of gasoline, having a value of US $500,000. The Chilean National Steel Company was to export to Bolivia steel for the same amount.

In February 1955 both countries concluded an agreement for economic complementation destined to increase the trade between the two countries. In November of the same year they signed a commercial agreement and approved lists for the exchange of products up to US $2.5 million.

At the end of 1955 both countries signed a protocol for the construction of a pipeline to Arica as a result of which it was agreed that Chile would have preference to acquire up to 1,000 barrels a day of oil payable in agreement dollars as well as an additional 3,000 barrels payable in free dollars. In addition to this Chile would have preference to acquire all the petroleum which the government of Bolivia may receive in the form of royalties.

Bolivian exports of gasoline to Chile during 1955 amounted to US $436,676. YPFB also signed an agreement with Compañia Petrolera de Chile, Esso and Shell Ltd. 1/ to export up to 10,650 barrels a month of gasoline having a value of US $600,000 a year which will be credited under the trade agreement. This new contract will replace the one signed previously.

d. With Paraguay

There exists a modus vivendi between both countries by which Bolivia will sell to Paraguay up to US $150,000 a year of gasoline in return for which Paraguay will deliver to Bolivia 50 tons of cotton from the Mennonite production as well as quebracho extract and yerba mate. In 1955 the exports of petroleum and its derivatives to Paraguay amounted to 1,970 barrels having a value of US $9,200.

e. With Peru

At the end of April 1956 2/ an agreement between YPFB and the International Petroleum Company of Peru was announced for the delivery of regular gasoline in accordance with which YPFB would sell 10,650 barrels of gasoline a month for Puno, Juliaca and Cuzco in the south of Peru. The proceeds of these sales are payable in free dollars which constitutes a new feature since all the exports to Argentina, Chile, Brazil and Paraguay are to be paid only in nominal dollars, i.e., at certain pegged rates.

f. With Uruguay

In 1955 a trade agreement was entered into with Uruguay which has not been ratified as yet. The agreement contains a clause for the exchange of goods up to US $1,6 million. The principal Bolivian exports are lumber, and lead ingots. The principal exports from Uruguay are wool and rice.

g. With Yugoslavia

In 1954 Bolivia and Yugoslavia signed a trade agreement which provides for the exchange of goods up to US $0.5 million. The agreement contains the "most favored nation" clause except for neighboring countries. It has not been ratified as yet.

Actual Implementation of Trade Agreements

With respect to the various trade agreements entered into with Brazil,

---

1/ El Diario, March 7, 1956.
2/ El Diario, April 28, 1956

Chile, Argentina, Paraguay and Uruguay, as mentioned above, it has not been possible to obtain any further details as to their actual execution.

It appears that the ones with Argentina and Brazil are actually in effect, the latter showing a favorable balance of about $640,000 as of June 30, 1956 while the former showed a Bolivian overdraft of about $914,000 during the same month. The implementation of the agreement with Argentina has run into some difficulty since Argentina does not have the transportation facilities to receive at its borders all the petroleum which Bolivia can deliver through its newly built pipeline. To solve this problem is not easy for the moment. It appears that Argentina has offered Bolivia to construct a pipeline within its territory in accordance with the declarations made by Bolivia's Foreign Minister Guevara.

Actual exports of petroleum to the Argentine during 1955 have amounted to about $1.6 million. Due to differences of interpretation of the agreement, however, Bolivia's petroleum exports to the Argentine have not yet been credited to the Bolivian account.

The agreement with Chile is also in effect.

Foreign Exchange Income

Bolivia's foreign exchange income depends largely on the price of tin as well as the quantity of tin exported. Table XXVIII 1/ shows Bolivia's foreign exchange income by sources, while Table XXVIII-A gives all sales of foreign exchange by the various exporters to the Central Bank during the years 1940-1955.

This table shows the drastic decrease in foreign exchange income realized from activities other than mining (see column 4) which went down from US $6.5 million in 1951 to $1.7 million in 1955.

Table XXIX 1/ shows all 1955 foreign exchange income by sectors of production.

Insofar as the exports of petroleum are concerned, it should be noted that YPFB only sold to the Central Bank $113,400 instead of the US $6 million estimated in the 1955 foreign exchange budget. In reality foreign sales of petroleum products amounted to some $2.3 million. However, a large part of the proceeds realized from the sales to Chile and Brazil was used for imports while the proceeds from sales to Argentina could not be used because of a difference between YPFB and YPFA in the interpretation of the respective agreements concerning the price of sales.

The agricultural exports, estimated at US $3 million in the 1955 foreign exchange budget, actually came to only $2 million (only $1 million was sold to the Central Bank).

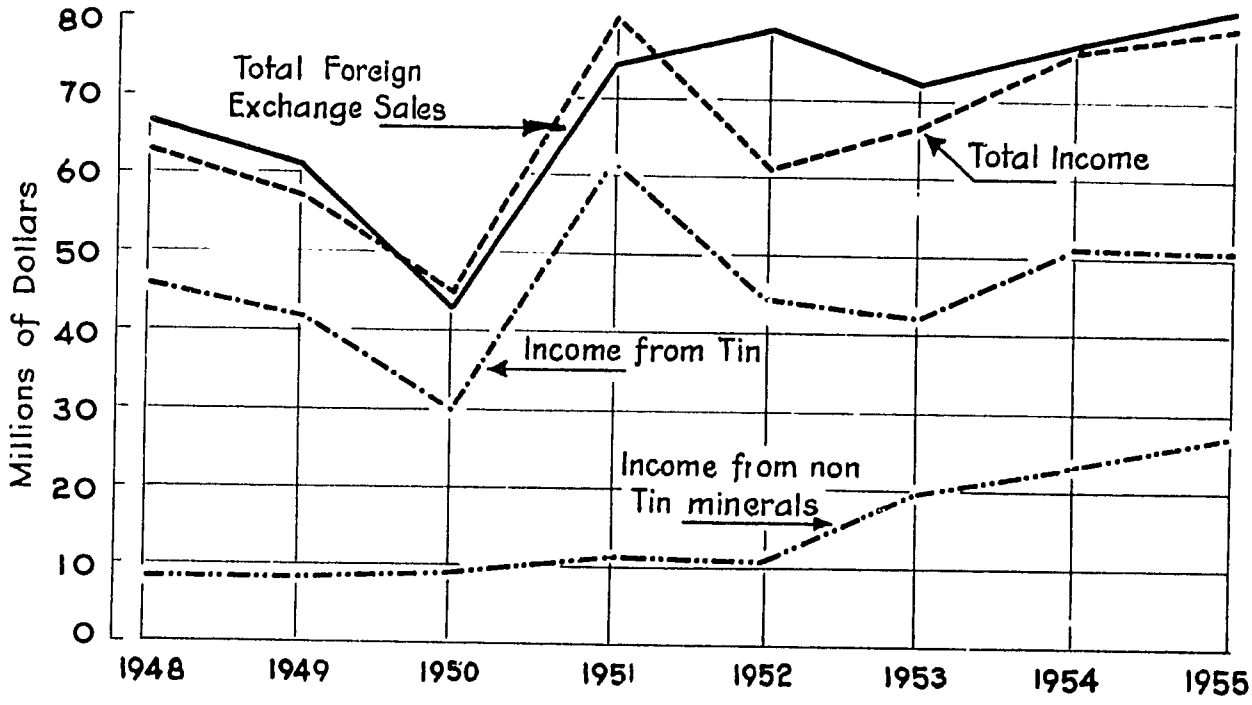
Foreign Exchange Expenditures

The system of handling foreign exchange was changed in 1952. Prior to

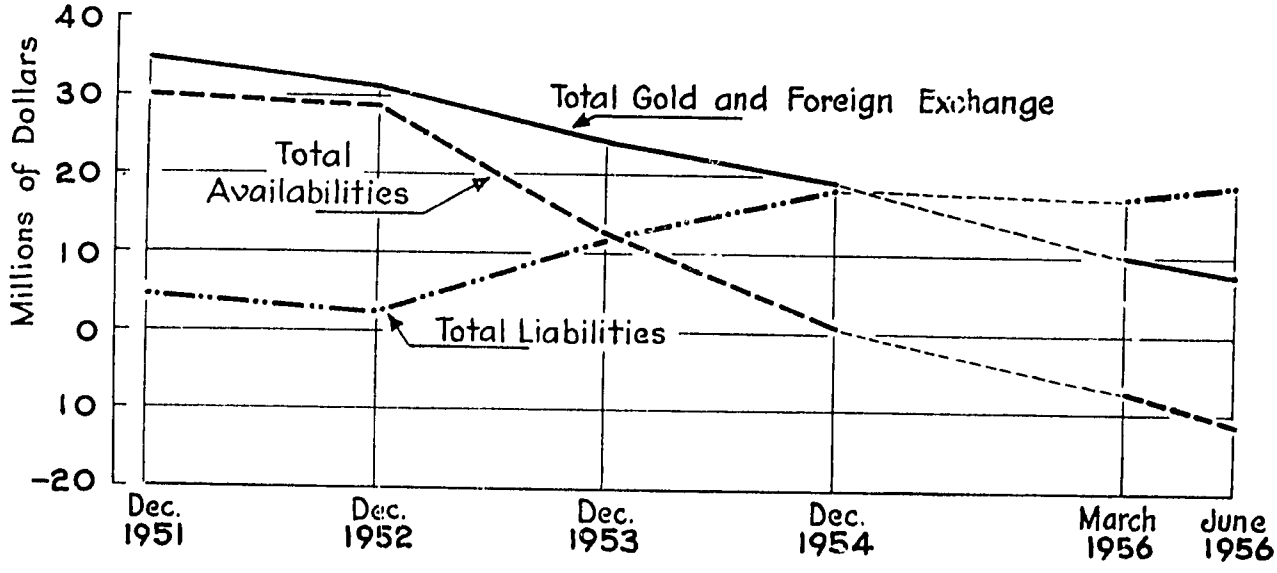
---

1/ See Statistical Supplement.

FOREIGN EXCHANGE INCOME OF THE CENTRAL BANK BY PRINCIPAL SOURCES AND TOTAL SALES



CENTRAL BANK RESERVES*



* Years 1951 and 1952 do not consider letters of credit pending and collections outstanding.

this year the exporters of minerals kept the foreign exchange needed for the upkeep of the mines, payments of dividends, etc., so that they only sold the balance to the Central Bank. Since 1952, however, the miners sell all foreign exchange received to the Central Bank (except for a large part of the realization costs and indemnization to the ex-owners which are deducted at the smelter), after which they purchase again dollars from the Central Bank to pay for exploitation and part of the realization cost. This situation is shown in some detail in Table XXX of the Statistical Supplement.

As will be seen from this table, the amount of foreign exchange used to purchase items for industry and commerce has been declining steadily. In 1951 these sales amounted to $48 million while in 1955 they had declined to US $26 million. The reason for this is threefold. First of all, consumption has been cut; secondly, the Ministry of Economy is now importing most articles of primary necessity, and thirdly, a large part of the basic foodstuffs and certain types of machinery which used to be imported are now brought into the country under the United States aid program.

Table XXX-A of the Statistical Supplement gives a comparison of the income and expenditures in foreign exchange during the years 1948-1955. As may be seen from this table the largest deficit occurred in 1952 which was an exceptionally good year for Bolivian minerals, particularly tin, as a result of the Korean War. However, it was also the year in which the three large mining companies were nationalized.

Central Bank Reserves

The reserves of the Central Bank which at the end of 1951 amounted to some $30 million decreased sharply in the following years as a result of the adverse balance of payments. Table XXXII 1/ shows the change in position of the Central Bank during the years 1951-1955.

As may be seen from this table, at the end of 1953 the total of gold and foreign exchange holdings dropped to $24.1 million; in 1954 to $18.9 million. At the end of 1955 they dropped to $13.4 million, and in June 1956 to $7.7 million. Total availabilities after deducting the bank's obligations dropped successively to US $12.5 million in 1953 and to $0.7 million in 1954. 1955 was the first year during which the bank was operating at a deficit, amounting to US $20.5 million in December. In June 1956, after some corrections were made, the negative balance was reduced to $11.3 million. The above mentioned reserves include under assets $2.5 million which corresponds to Bolivia's quota in the International Monetary Fund, while under liabilities are listed US $2.5 million which the Central Bank owes to the Fund. Therefore, Bolivia's quota in the Monetary Fund as well as the loan which the latter made to the Bank has been cancelled out and is of no effect on the bank's balance sheet.

Letters of credit pending liquidation went up sharply from only $5.5 million in December 1953, to US $13.4 million in June 1956. Since letters

---

1/ See Statistical Supplement

of credit constitute no obligation until the documents are presented, it would be logical to think that these obligations can be paid with income received from the future exports of minerals. However, this is only partially true since in the meantime new credits will have been opened which are equal or superior to the previous ones. This is quite clear from the increase of letters of credit. This shows the serious problems which the Central Bank has in complying with its obligations. Likewise the increase in the item payments to foreigners, or collections outstanding, which are also existing obligations and which amounted to $1.7 million in 1953, to reach $3 million in June 1956, is also a sign of the serious problems which the bank has to meet its obligations.

In any case, this deficit of the Central Bank cannot continue indefinitely since there will come a moment at which letters of credit will be paid with so much delay that foreign exporters will be reluctant to continue accepting these letters of credit.

The outlook for 1956 is not very much better than for the previous years. The foreign exchange budget for this year shows a deficit of US $48.2 million and, taking into account American aid and credit, the deficit which has not been financed so far amounts to US $23.6 million.

Foreign Exchange Budget

The 1956 foreign exchange budget projects expenditures of $164.6 million as compared with $144.4 million for 1955, or an increase of 14%. On the receipts side, income was estimated to increase from $101.5 million to $116.4 million, an increase of 14.7%. The increase of US $20.2 million is caused by increased expenditures in the various categories; for instance, this year the Ministries with the exceptions of the Ministry of National Economy are expecting to spend $4.7 million more. For other entities this increase in expenditures over 1955 is as follows:

Commerce	$5.4 million
Industry	3.0 "
YPFB	5.0 "
Development Corp.	3.1 "
Mining Corporation	4.7 "
Mining Bank	4.9 "
Other Enterprises	1.0 "

The deficit went up from $42.9 million in 1955 to $48.2 million in 1956 while the non-financed deficit at a time when the respective foreign exchange budget was drawn up went up from $17.3 million to $23.6 million in 1956. Table XXXIV, containing a comparison of the foreign exchange budgets for the last three years may be found in the Statistical Supplement. Of course, in considering the 1956 foreign exchange budget, it should always be kept in mind that this is a mere projection based on what is considered desirable. If no money is available the budget will have to be cut accordingly since, except for European credit and normal commercial credit (exporters - importers), Bolivia is for all intents and purposes unable to carry out any dollar financing. In view of the relative importance of European credit to the Bolivian economy at this moment, we shall consider this point somewhat more in detail.

Credit Agreements

During the last few years, Bolivia has contracted a sizable amount of European credit. While some of these credits have been used to buy a few consumer items, the larger part of them has been used to buy capital goods such as trucks, tractors, motorcycles and mining equipment. In some of these deals there has been considerable overpricing which in certain cases goes as high as 50%. Furthermore, in a number of cases equipment has been bought which - although good in itself - has not been found to be suitable for Bolivian conditions.

These credit agreements have been entered into with a number of European firms, some of whom obtained considerable export credit from official agencies in their respective countries (up to 80%) to finance these deals. Although an amount in excess of $110 million was offered by various European firms, so far (as of June 30, 1956) about $28.8 million has been used 1/. Since these credits all run for a period of five years at a maximum, with the largest part falling due at the end of the contractual period their repayment will affect Bolivia's balance of payments in the near future.

Balance of Payments

During the past few years Bolivia's balance of payments has shown ever increasing deficits. These deficits have been covered in the following way:

1) Digging into the Central Bank's reserves of gold and foreign exchange.
2) Drawing on the Central Bank's credit to incur moreobligations abroad. As we saw, letters of credit pending liquidation went up from $5.6 million at the end of 1953 to $13.4 million at the end of June 1956.
3) Requesting ever-increasing amounts of United States aid.
4) Using three to five year European credit.

More detailed data on the picture of Bolivia's balance of payments from 1951 through 1954 may be found in Table XXXV of the Statistical Supplement. It should be noted, however, that according to the Department for Economic Studies of the Central Bank, the data for 1951-1953 should be considered as provisional and are subject to correction. The balance of payments for 1955 is also provisional. According to the same source, only the balance of payments for 1954 can be considered as final.

External Debt

As is well known, Bolivia's external debt is vast. It is way beyond the country's actual capacity of repayment. While the amount of the debt to the bondholders is somewhat unrealistic because of the large percentage of accumulated interest which in any debt settlement is usually revalued at a fraction of the total, Bolivia's external debt is high even discounting this aspect. The figures as of December 31, 1955 are as follows:

1/ Banco Central de Bolivia, Dept. Monetario.

A. Debt to Private Entities

1. To Foreign Bondholders		Capital	Accrued Interest	Capital plus Interest
Chandler, 1917	6%	$ 1,296,000	$ 44,144,200	$ 66,216,200
Nicolaus, 1922	8%	22,072,000	1,944,000	3,240,000
Dillon Reed, 1927	7%	13,364,000	23,387,000	36,751,000
" " 1928	7%	22,690,000	39,707,500	62,397,500
Total		$59,422,000	$109,182,700	$168,604,700
Union Allumetiére		365,377.86	2,435.85	367,813.71
Total Private Debt		$59,787,377.86	$109,185,135.85	$168,972,513.71

Bolivia has suspended all service on its external debt since 1931. An agreement with the Foreign Bondholders' Protective Council was reached in 1948. According to this agreement, Bolivia was to pay $20,000,000 in full settlement of the above debt. The government was to use $1.5 million annually during six years to pay interest and repurchase bonds in the United States market. Thereafter interest and amortization payments were to amount to $2.3 million annually. This agreement was never implemented, however. In the 1954 and 1955 foreign exchange budgets, no provision was made for any debt payments. The 1956 budget has set aside an amount of $505,000 to pay off government debts.

2. European Credit

European credit was contracted largely during the past two years. Its total as of December 31, 1955 amounted to $22,646,443.15.

3. Debt to the Nationalized Mining Companies

The nationalization decree of October 31, 1952 provisionally established the following amounts of indemnity in favor of the three large mining companies, which figure has not been accepted by the latter.

Patiño Mines & Enterprises Cons. Inc.,	Bs. 218,876,797.51	US$ 2,707,707.74
Bolivian Tin & Tungsten Corp.	41,378,536.91	211,213.77
Cia.Minera Unificada del Cerro de Potosí	18,328,600.89	1,847,385.17
Cia.Minera de Oruro	15,817,060.67	2,688,903.43
Cia.Huanchaca de Bolivia	----	1,179,134.89
Empresa Minera Matilde	4,153,310.80	1,724,847.78
" " Bolsa Negra	5,989,981.36	831,250.60
Minas Pampa Grande	---	2,210.65
Grupo Minero Venus	---	6,555.64
Compagnie Aramayo de Mines en Bolivie S.A.	---	4,976,324.82
Cia.Minera Agricola Oploca de Bolivia £87,657,11.2 at the rate of US$2.75 -£	---	241,058.28
Mauricio Hochschild S.A.M.I.	---	361,985.64
	Bs. 304,544,288.14	US$16,778,578.41

80

The above amount in local currency has been cancelled on account of the social obligations, taxes, etc., owed by the companies which were taken over by the Mining Corporation. Since the nationalization of the mines, the Mining Corporation has been paying the following amounts (until December 31, 1955) as indemnity to the companies in question:

1953	US $ 395,707.63
1954	2,357,420.96
1955 (approx.)	2,848,063.06
	US $5,601,191.65 1/

As a result of this, the net balance in dollars still owed to the three large companies under the provisional arrangement as of December 31, 1955 comes to US $11,177,386.76.

B. To Public Entities

(1) Export-Import Bank

Principal outstanding as of December 31, 1955 US$34,407,232.41 2/

(2) Debt to Argentina

By means of a protocol dated February 11, 1955, all of Bolivia's debt to the Argentine (for the construction of the Yacuiba-Santa Cruz Railroad and other works) was consolidated and fixed at US $20,890,431.94. Since this debt carries 3% interest, the amount due as of December 31, 1955, was US $21,445,050.58.

(3) Debt to Brazil

Bolivia's debt to Brazil on account of the construction of the railroad from Corumbá to Santa Cruz has not been established as yet. As of December 31, 1955 the total cost of construction amounted to US $45,864,710.32. It should be stressed, however, that this amount may be reduced substantially depending on the exchange rate which will be used in the final settlement.

As a result, the total external debt of Bolivia as of December 31, 1955 is as follows:

1/ As of June 30, 1956 the amount of $9.6 million had been paid to the former owners.

2/ From the US $4,700,000 of the loan for the paving of the Cochabamba-Santa Cruz Highway, $2,392,801.03 had not been disbursed as of December 31, 1955.

Debt to private entities, incl. accrued interest	US $168,604,700.00
Unión Allumetiére	367,813.71
Export-Import Bank	34,407,232.41
Public, semi-fiscal and private entities guaranteed by the Central Bank of Bolivia	22,646,443.15
Debt of the Mining Corp., on account of nationalization	11,177,386.76
Argentine Debt	21,445,050.58
Brazilian Debt (provisional)	45,864,710.32
Total	US $304,513,336.93

If the 1948 agreement with the foreign bondholders could be implemented, or if a similar agreement could be made the total foreign debt of Bolivia, as of December 1955, would be US $155,908,636.93.

Prospects for the Future

On the basis of the above figures, very little has to be said about the future. For 1956 income is calculated at US $116.4 million as compared with expenditures of $164.6 million, leaving a deficit of $48.2 million which constitutes an increase of expenditures over the previous year of 14.1% and 16% over 1954. About $14 million of this deficit has been financed with United States aid already available up till June 1956 and $10.6 million with credit purchases, leaving a non-financed deficit of US $23.6 million.

The income foreseen for 1956 is as follows:

Mining Corporation	US $ 77.1 million
Mining Bank	29.8 "
Agricultural Exports	3.- "
YPFB	6.- "
Gov't Income (Consulates, etc.)	0.5 "
Total	US $116.4 "

Of course, this estimate could be subject to changes since petroleum exports may not reach as high as $6 million.

Furthermore, in accordance with the recently signed International Tin Agreement, Bolivia would have to contribute from October 1956 to March 1957, 3.441 tons of tin to the buffer stock having a value of more than US $6 million to be followed by a further contribution of some 2,000 tons having a value of about US $4 million.

Since the current contracts with the General Services Administration for the sale of wolfram at a figure substantially above the world market price runs out during 1956, receipts from the sale of wolfram are also likely to decrease during this year. Once the full impact of this is felt, the drop in foreign exchange earnings on this account could result in a lesser income to Bolivia ranging from US $6 - 8 million. On the other hand, in the present unsettled international situation, tin could go up overnight.

The main expenditures for 1956 are constituted as follows:

Category	Millions of US $
Ministry of Economy	26.8
Commerce	15.4
Industry	18.0
Foreign Office	1.6
Ministry of Defense	1.3
Ministry of Public Works	6.2
Ministry of Agriculture	1.0
Provincial Governments	0.9
Yacimientos Petroliferos Fiscales Bolivianos	14.8
Lloyd Aereo Boliviano	1.7
Railways	5.0
Bolivian Power	1.0
Social Services	1.9
Bolivian Development Corp.	8.7
Mining Corp.	34.9
Mining Bank	12.8
Dollar Auction	1.8
Amortization of Credits	1.0
Debt Services	0.5
Others	9.3
Total	164.6

During 1956 the dollar budget of YPFB was again increased to $14.8 million while the budget of the Bolivian Development Corporation was increased by US $3 million. During 1955 YPFB spent $11,173,135 as compared with the budgetary allocation for that year of $9,725,000. As will be shown in the corresponding sections of this report, the increased expenditures of the two agencies are largely caused by a certain expansion which could be shifted to private industry. Further cuts could be made in the budget as shown in our projection made in Chapter III.

The amortization allocation for European credit went up from $800,000 in 1955 to $1,000,000 in 1956. If the present policy of accepting European credit should continue, yearly amortization quotas may start running as high as $4 to 5 million a year which would exert considerable pressure on the balance of payments.

Imports on account of barter agreements are also over-estimated since, if the Mining Bank and YPFB would have exports of $3 and 5 million respectively under current barter deals, this would only give imports of some $8 million instead of the $13.2 million projected in the budget. Since mineral production (in tons) is constantly decreasing while agricultural production also shows a decline, it is obvious that the prospects for an early improvement in Bolivia's balance of payments are slim.

Hope Amidst Gloom

The only hopeful elements in this picture are new prospects for foreign investment. It may be expected that after the new oil code is passed

as a law, several oil companies may decide to make a substantial investment in Bolivia while recently a contract for gold exploration in the Beni region was approved with another one pending consideration.

On account of these prospects, an amount of new investment of some $10 million during 1957 would not appear to be out of the question. Since this investment will be largely in the form of machinery, however, the effects on the economy will not be felt until several years later, which means that in the meantime United States aid and Bolivian belt-tightening will have to fill the gap. Furthermore, present prospects for new United States investment are contingent upon a more or less stable political situation.

ANNEX I TO CHAPTER IV

Export Promotion

Exporting from Bolivia looks simple on paper. In reality it is far from easy. A summary of current regulations together with their recent history follows hereafter. However, to provide a better idea of the problems which may be encountered in a typical transaction, two hypothetical cases have been provided as Appendix II of this report which show clearly the administrative difficulties involved. Although the above cases have been more or less invented, based on similar experiences of exporters, to give the reader some idea of the actual problems, the tragedy is that they could well have been true cases in 1954.

The problem is clearly realized at the higher levels of the government which seriously and honestly wants to promote these exports. As a result of this, the procedure was streamlined somewhat by the decree of March 31, 1955. This situation is all the more deplorable since Bolivia has the potential to increase its exports of coffee, cacao, rubber, Brazil nuts and other agricultural products fairly rapidly, which could result in an additional income of several millions of dollars a year.

Coming now to specific regulations, a decree of 1954 established within the Central Bank a "Bureau for the Promotion of Exports" which was to fix remunerative prices in local currency for all Bolivian exports except minerals and petroleum. As a result of the irrealistic local currency prices established by the agency, official exports of certain products dropped further while clandestine exports such as Brazil nuts and rubber increased accordingly.

As this system did not work, a decree of March 31, 1955 freed exports of rubber, Brazil nuts and cacao from certain controls except for an export license from the Central Bank. Another decree of November 3, 1955, extended the system originally set up for exporters of rubber, Brazil nuts and cacao to nearly all non-mineral exports. Several bureaus were created to administer these exports.

In order to obtain an export license under this new system, the exporter is obligated first to put up the full value of his export in dollars with the Central Bank as a guarantee that the goods really will be exported. Exporters are allowed to use the proceeds of their exports to import not less than 60% in capital goods such as machines, motors, trucks and other items to be determined by the Ministry of Economy and 40% in general merchandise, all of which may be sold in the open market. In the case of exports of rubber, Brazil nuts and cacao, the above 60% will be reduced to 40% while 20% must be brought in in the form of articles of primary necessity such as flour, sugar, edible oil, lard, powdered milk, etc., to supply the producing regions with these products at the official, controlled low prices.

By decree of December 1955, exports of lumber were put in the same category as exports of the above three products. The decree further provided that the right to import which results from exports is transferable. It also provided that no official exchange shall be provided for the importation of the above-mentioned items unless there exists a shortage, except for food. The same exception applies to imports of capital goods under certain credit

and trade agreements, as well as to certain imports of machinery for industry and commerce which have received previous approval of the Dirección de Industrias. Industrial firms which do not request official exchange for their imports are permitted to sell at free, uncontrolled prices. From the above it is clear that the above system constitutes in essence a return to the compensation transaction as it existed prior to 1953.

The export of minerals remained in the hands of the Mining Corporation and the Mining Bank. However, in the case of these exports the need for incentives became even more urgent. As we saw, in 1954 the Mining Bank started to pay to the medium and small sized miners a premium over and above the official exchange rate of the boliviano which operation was largely financed with credit from the Central Bank. A similar procedure was followed in the case of the Mining Corporation.

In March 1955 these production premia were increased so that the private mines actually were receiving Bs. 800 to the dollar. In addition to this the decree of March 23, 1955 gave these mines another premium amounting to 80% of the net value of that part of their production which exceeded the level established during the period 1952-54. The miners could sell the foreign exchange in question freely or use it for the importation of machinery to increase their production. On the other hand it was provided that 16% of the proceeds of all mineral exports of the private mines would have to be used to purchase articles necessary for the operation of the mines. Subsequently this percentage was raised to 20%. At the end of November 1955 it was decided that the production premium for minerals could also be used to carry out imports under the regime set up by the decree of November 3.

At the same time the Mining Corporation was given the rate of Bs. 510 per dollar sold to the Central Bank. For the Mining Bank this rate was fixed at Bs. 900. YPFB received an even larger bonus since as of March 31, 1955, it received Bs. 1500 to the dollar while its imports, in addition to being free from "revertibles" and surcharges, were still carried out at the rate of Bs. 190 to the dollar.

In March 1956 the exchange rates for the Mining Corporation and the Mining Bank were fixed at Bs. 1200 and Bs. 1500 respectively, while as of February 25, 1956, YPFB's rate of exchange is fixed at Bs. 1790 per dollar for exports to Brazil, Argentina, Chile and Paraguay. As a result of this change in policy the Ministry of Economy estimates that since November 1955 and March 1956 about $1 million of commodities were exported which figure may reach $2.5 million in 1956.

A decree of July 21, 1956 changed again the regime covering compensation transactions which had been set up by the decrees of March 23 and November 3, 1955 to stimulate both agricultural and mineral exports. The respective decree provided that the right to import with the proceeds from exports is no longer transferable. An exporter who is not interested in importing goods with the proceeds from his export sales is now obligated to sell his dollars to the Central Bank at the auction rate. In addition it was established that in the future import items brought in with the proceeds from export sales can no longer be sold freely but are subject to a cost calculation by the Central Bank, with the exception of basic food items which must be brought in at the official rate. It is obvious that in addition to creating instability, the decree has done a good deal to

make both importers and exporters lose interest in this type of business. Therefore it is likely to be revoked again in the near future.

ANNEX II TO CHAPTER IV

Exporters' Sales of Foreign Exchange [redacted] to the Central Bank

As is well known, the percentage of foreign exchange which is to be delivered by the exporters to the Central Bank has always been a political problem in Bolivia, especially when the large mines were still operating as private concerns.

Under the regime in force prior to 1952 these companies were authorized to use their dollar income from the sales of minerals directly to pay for their realization and exploitation costs which latter included the purchase of machinery, materials and articles for their commissaries. The companies also retained the amounts needed to pay dividends so that they only sold the balance of their foreign exchange income to the Central Bank.

The following picture of foreign exchange sales to the Central Bank derived from tin exports is interesting:

TIN EXPORTS AND OBLIGATORY SALES OF FOREIGN EXCHANGE 1/
(In Thousands of US Dollars)

Years	Value of Exports	Sales of Foreign Exchange to Central Bank	%
1951	93,366	62,638	67
1952	84,783	44,494	52
1953	83,643	42,050	50
1954	66,900	51,153	76
1955	57,291	50,660	88

The sale of foreign exchange, which in 1951 amounted to 67% of the total value of receipts, went down after the nationalization of the mines to 52% in 1952 and 50% in 1953. In 1954 and 1955 it went suddenly up to 76% and 88% respectively. This increase was merely caused by a change in the system since under the new system the Mining Corporation, for example, no longer uses its own foreign exchange proceeds to pay for its expenses, but sells the same integrally to the Central Bank at the official rate plus a premium after which it buys from the Central Bank foreign exchange for its dollar expenses at the official rate. It is obviously to the advantage of the Corporation and the Mining Bank to sell as many dollars to the Central Bank at a premium and then to buy them back at the official rate, thus pocketing the difference in bolivianos.

The following table shows the sales of foreign exchange by the Mining

---

1/ Source: Boletín No. 106 del Banco Central, Oct-Dec 1954. For exports, data taken from Dirección Nacional de Estadistica 1955, Boletin No. 77. Sales of foreign exchange in 1955 provided by Dept. de Estudios Economicos y Estadistica del Banco Central.

industry as a whole to the Central Bank.

EXPORTS AND OBLIGATORY SALES OF FOREIGN EXCHANGE BY THE MINING INDUSTRY TO THE CENTRAL BANK 1/ (In Millions of US Dollars)

Year	Value of Exports	Sales of Foreign Exchange	Purchase of Foreign Exchange	Net Sales	%
1948	111.2	54.7	----	54.7	49
1949	99.0	50.5	----	50.5	51
1950	90.9	39.0	----	39.0	43
1951	145.7	73.6	----	73.6	51
1952	137.8	55.8	19.3	36.5	26
1953	121.3	61.6	19.5	42.1	35
1954	100.6	74.4	21.6	52.8	52
1955	97.8	78.0	22.7	55.3	57

The amount of net foreign exchange sold has varied quite a lot in accordance with the value of mineral exports. For instance, in 1950, a year of low mineral prices, sales were only $39 million while during the following year, the year of the Korean War, net sales came to $73.6 million, an increas of 88%. On the other hand, the percentage of net sales of foreign exchange during 1948-1951 - except for 1950 which was an abnormal year - fluctuated around 50% of all mineral exports.

In 1952 the year of the nationalization of the mines, during which the yearly average price of tin was US $1.17 per pound of fine tin, the net sale of foreign exchange amounted to only 26% and the $36.5 million sold by the mining industry during this year was the lowest of the last eight years. In 1953 this figure went up to 35% and in 1954 to 52% which may be considered as the normal level. In 1955 this percentage went up to 57% which is the highest in the last eight years.

To understand this increase of 1954 and 1955 one has to take into account the fact that during these years the mining industry stopped importing certain foodstuffs which are now imported directly by the Minister of Economy, sometimes with Bolivian funds and sometimes with United States aid. Furthermore, the mining industry did not import enough equipment for the proper maintenance of the mines. The Mining Corporation naturally does not have to pay dividends like the private concerns did; however, it does pay certain amounts annually as compensation to the ex-owners for the expropriation of the mines, amounting to some $9.6 million during the period 1953-1956.

It is interesting to see which would have been the sales of foreign exchange during the period 1952-1955 if the mining industry had sold 50% of all foreign exchange derived from exports which percentage can be considered more or less as the normal one during the years 1948-51 and previous years, the detail of which is shown in the following table:

1/ Value of mineral exports taken from Table XXI. Sales of foreign exchange taken from Boletín No. 106 Banco Central. 1955 figures and purchase of foreign exchange provided by Dept. de Estudios Economicos del Banco Central.

Year	Value of Exports	Actual Sales of Foreign Exchange	Sales of 50% of Foreign Exchange Receipts		Difference
		(In Millions of US Dollars)			
1952	137.8	36.5	68.9	(-)	32.4
1953	121.3	42.1	60.7	(-)	18.6
1954	100.6	52.8	50.3		2.5
1955	97.8	55.3	48.9		6.4
			Lesser Income Received in Four Years		42.1

From this picture it is clear that during 1952 and 1953 the mining industry sold to the Central Bank US $51.0 million less than its normal quota, or 50% of the gross value of exports, while in 1954 and 1955 it went $8.9 million above this level leaving a negative balance of US $42.1 million for the period 1952-1955.

This point is of special importance since to survive Bolivia will have to attract foreign capital and foreign capital will only come if a minimum of stability is assured. Even if some of Bolivia's decrees, laws, and regulations appear to be reasonable at face, it is in their execution that difficulties are encountered. These difficulties are omnipresent. They are felt by the tourist who gets into unexpected difficulties with the customs. It is felt by the investor who has to wait weeks, sometimes months, before he is allowed to bring his money to Bolivia. It is felt by the engineer who cannot get his plans approved, and it is felt by the doctor who sees his patient die because someone failed to import the right medicine.

Intense hatred between the various political parties, which has been more accentuated during the past few years, makes political stability at the lower levels even less of a prospect. As poor as it is today, Bolivia has practically two officials for every government function, one who is doing the job, and one who is waiting in exile to do the same job later.

Back to Keenleyside

It is obvious that the existence of a "lost generation," a generation which is periodically out of the country, does not contribute to peace and stability. To achieve this goal we must resort to a neutral force which can remain in its place all the time. The only way to find such a force is to implement the proposal made in 1950 by the Keenleyside Mission 1/. In view of the importance of this suggestion, we quote it verbatim, as follows:

> "It is proposed that the United Nations assist the Bolivian Government in obtaining the services of a number of experienced and competent administrative officials of unquestioned integrity drawn from a variety of countries, and that the Bolivian Government appoint these officials on a temporary basis to positions of influence and authority as integral members of the Bolivian civil service.....
>
> "It is intended that the function of these 'Administrative Assistants' shall be
>
> (1) To perform the duties and exercise the authority assigned to them in the Bolivian civil service;
> (2) To direct and assist in the training of Bolivian personnel with the object of developing as rapidly as possible a Bolivian civil service of experience, competence and integrity....."

The only point in this otherwise excellent and most original proposal which we might question is that the administrators be drawn from a variety of countries. Experience has shown that people from various countries frequently have quite different philosophies. Since Bolivia's present problem is to some extent a problem of the lack of a definite and consistent economic philosophy and since the function of the officials in

---

1/ Report of the United Nations Mission of Technical Assistance to Bolivia; United Nations, New York, 1951.

question would be largely one of policy-making, a uniform political philosophy is of primary importance For this reason it is suggested that the officials be recruited from one single country

To stress the importance of the measure, we quote further from the Keenleyside report:

> "The proposal is an experiment. But it is an experiment initiated under the best possible auspices It is a token of international good will towards, and interest in, Bolivia. It will have the vigorous and constant support of the Technical Assistance Board and the Specialized Agencies of the United Nations. It has been approved in advance by the Bolivian authorities and by representatives of business, labor, professional and academic life in that country
>
> "Above all other considerations is the fact that it seems to offer the only real hope of success It is true that economic laws operating on the abundant resources of Bolivia may eventually produce a stable and sound economy But such a result will take generations if not centuries It will certainly not develop in time to be of benefit to the present inhabitants of Bolivia or to their children By taking this bold and dramatic step it is the belief of the members of the Mission and of their Bolivian collaborators that the national evolution of that country can be materially accelerated It is their desire to see results in this generation, indeed in this decade They are not content to allow poverty and ignorance to reign unchallenged one day longer than is absolutely necessary It is essential for Bolivia, but it is also of importance to the prosperity and peace of the rest of the world, that something be done now "

The present study could, of course, elaborate on the specific weaknesses of Bolivian Public Administration However, it is believed that this would be of little use The main weaknesses have been pointed out quite brilliantly in the report of the United Nations Mission mentioned above Most of their comments are still valid today

Furthermore, without the acceptance of this proposal there would be little use in pointing out specific and serious weaknesses such as exist in the overlapping of the Ministries of Finance and National Economy, the Planning Commission and the Bolivian Development Corporation, the Mining Corporation and the Ministry of Mines If on the other hand, this suggestion is accepted, most of these weaknesses would be corrected automatically

B AGRICULTURE

On the basis of its unique geography alone, Bolivia should be an ideal country for agriculture, since all climates from the cool highlands to the steaming jungle can be found within its borders According to the 1950 census there are about one million people engaged in some form of agriculture or livestock production, while at best only 0 5% of the country's total area is now under cultivation. Thus, it is not only obvious that the country's land resources could support a far greater population than the present one but also that there could be some excellent possi-

bilities for the export of high priced agricultural products such as coffee, cacao, sugar, pyrethrum, turmeric, honey, rubber, Brazil nuts, cinnamon and perhaps vanilla.

Right now, Bolivia seems to have a particularly interesting potential in the field of tropical agriculture. As is well known, during the past fifty years a number of plants native to Latin America became important dollar earners in Indonesia and the Malay States, both because of superior management and the availability of cheap native labor. These two advantages are now gradually disappearing. Furthermore, in view of the precarious political situation in the Far East, some of these tropical crops may well command a premium in world markets at some future date.

The Possibilities on the High Plains

In view of the marked geographic differences which exist in Bolivia one can only discuss agriculture on a regional basis. Beginning with the highlands region, at present there are about 15.3 million hectares on the high plains, of which it is estimated that a maximum of 150,000 are now under cultivation. The climate is more or less dry and cold with occasional frosts and hail damaging crops. The average rainfall of about 500 mm is rather evenly distributed. The soils are poor and badly eroded. They generally lack nitrogen. Since there is so little organic matter left in the soil, even small amounts of manure may accomplish wonders. There appears to be a marked phosphorus deficiency in most high plains soils.

Although most of the highland Indians are subsistence farmers, past experience has shown that with a free price for their products and other incentives, they can be brought into the national economy. Before the land reform, which established the agricultural wage, a good many properties on the highlands were so marginal that they could only be worked with compulsory Indian labor. In spite of the fact that agricultural wages are still low - at present the daily wage of a farm hand is from Bs. 800 to 1500 a day - wages are not cheap if one considers output per man.

While it is true that in general the high plains do not offer much for an advanced type of agriculture, it also must be said that a good deal more could be obtained from the area. According to Dion 1/ and a number of other experts, there are many large areas having soils of good texture (clay loam) and good moisture holding capacity. Making a rough estimate, Dion feels that there are about two million hectares of relatively good lands on the high plains.

It is strange that the Spaniards, who were familiar with this type of operation, never thought about the use of windmills for irrigation purposes on the high plains. Yet since the water table is not too low and since steady and strong winds blow during a large part of the year, this would look like a natural to obtain greater agricultural yields.

The subject of the agricultural potential of the high plains appears to be somewhat controversial, however, since some equally creditable experts seem to feel that the potential of the high plains is rapidly declining, particularly as a result of bad agricultural practices during the past fifty years when many trees were cut resulting in decreasing rainfall.

1/ H.G.Dion, Agriculture in the Altiplano of Bolivia (FAO Report, May 1950)

It is undoubtedly true that if present practices are continued, a large part of the presently cultivable area of the high plains may be turned into a useless desert in less than one hundred years Yet so far, the high plains have always provided some of the basic items in the Bolivian diet which consists of potatoes to a very large extent. Furthermore, since large scale internal migration is out of the question in the near future, the high plains, just like the mines, will have to continue carrying the burden of keeping Bolivia going for some time to come. Perhaps the most realistic way to look at this problem is that coming generations of Indians may gradually want to leave their centuries-old habitat while the present and a large part of the next generation will largely remain where they are now

The Valleys

In the past, valley agriculture has played a more or less complementary role in supplying Bolivia's needs. When transportation was still less developed than it is today, the valleys near La Paz (Yungas) and Cochabamba provided the necessary additions to the diet of the highland economy such as corn, vegetables, fruits, etc. These valleys generally start at the edge of the high plains. Since the drop from about 4000 meters to about 1200 meters is rather severe, the area consists of hilly or very steep uplands. Rainfall is abundant, ranging from 1000 to 1300 mm a year, while the climate is generally subtropical (16°-18° C), depending on the altitude. It is estimated that not more than 3.5% of the area is under cultivation at present.

It is hard to generalize valley agriculture insofar as methods are concerned since the topography is so varied. There are several large flat areas where mechanization could be introduced but in many places all work will always have to be done manually. Another obstacle to mechanization is the fact that since valley lands are at a premium, there are too many small plots worked by subsistence farmers.

To increase the valuable acreage in the valleys it might be possible to improve some of the alkaline soils near Cochabamba which are now wasteland. Since on some of these soils the water table is only a few inches below the surface of the land, it may be economically feasible to install a system of drainage ditches to lower the water table. Once this has been done, at least some of these soils could be rehabilitated by teaching proper soil treatment. As the Indians are generally so reluctant to leave their villages this possibility should be studied in order to increase the available lands in densely populated areas

It is obvious that agricultural production in the valleys is much less risky than on the high plains. Yields are considerably higher while good markets are not too far away.

The Eastern Plains

On the basis of area and climate alone, the most promising agricultural regions are to be found in the lowlands. About 70% of the surface of Bolivia consists of the large eastern plains which run from north of the Brazilian border to the Paraguayan and Argentine frontiers in the south. Although these plains take up the largest part of Bolivia and could provide good possibilities for the development of agriculture, they have now hardly any population. The principal areas represented here are

the Santa Cruz area, which is at present being developed; the Chaco, which extends from Argentina north towards Camiri; and the Beni, consisting of immense plains which are periodically overflown by large rivers such as the Mamoré and the Beni. This latter area has a decidedly tropical climate, with heavy rainfall ranging from 1300 to 2000 mm. A large part of it is covered by dense forests.

From an agricultural point of view, perhaps the best variety of lands is found in the Santa Cruz area which has a subtropical climate combined with an average annual rainfall of 1300 mm and mean temperatures of 24° C. About half of these fertile plains consist of woodland which requires extensive land clearing. Once cleared, they provide reasonably good farmland. Second to this are the extensive black pampas consisting of natural pastureland with scattered growth of trees. A third type of soil is the white pampas consisting of a sandy soil of low fertility.

Specific Crops

For those who are interested in the agricultural potential of Bolivia, a discussion of specific crops has been attached as an annex to the present chapter.

Present Problems of Agriculture

In discussing the problem of agriculture in Bolivia, a good many factors must be taken into consideration, some of which are decidedly more in the social than in the economic sphere. As we saw before, right now the position of the Indian is changing. From some sort of feudal serf he is turning into a low type of peasant. Anybody who fails to consider this aspect of the agricultural problem is likely to come up with a somewhat distorted appraisal of the situation as it exists today.

Uneven Distribution of the Agricultural Population

One of the first problems, one cannot fail to note, is the extremely bad distribution of the agricultural population. An excess concentration of Indians on the highlands and in the valleys has produced far too many uneconomic small units which in turn tends to depress agricultural wages. Thus the words "lack of lands" and "demographic pressure" have become rather favorite slogans to explain the extreme poverty of the peasant on the high plains of Bolivia.

Deficient Cultivation Practices

As in all slogans there is always a danger of over-simplification. While it is undoubtedly true that in some areas, such as the Cochabamba Valley and certain parts of the high plains, there is decidedly an excess rural population, this hardly tells the whole story.

It is estimated that in colonial days the highland population was around one million and in those days Bolivia was completely self-sufficient in agriculture.

According to the agricultural census of 1950, which is considered as not too reliable, there were 654,258 hectares under cultivation in Bolivia

at that time. Since 1950, however, agricultural production on the high plains and in the valleys - especially market-directed production - appears to have dropped considerably.

Table XXXVI 1/ shows the area which is now planted in basic crops together with the respective yields. It also shows the additional area that could be planted in the same crops. It is further shown that if every Bolivian were to consume an equal amount of potatoes, wheat, rice, corn and sugar, etc., as was consumed per capita in the United States in the post-depression years (1935-39) 2/ and if the above combined acreage were cultivated with proper methods, Bolivia would have vast agricultural surpluses.

Taking into account that on the high plains there are at least two million hectares of potentially good lands while in Santa Cruz there are some 200,000 hectares that could be brought into production in a relatively short time, it is obvious that lack of land alone cannot explain the present situation. As a matter of fact the total acreage required to give Bolivia an adequate diet is so small that - using modern methods and techniques - one would have to be more concerned with the danger of over-production than with the lack of it.

The Social Problem

What then is the problem? Bolivia's present day problem in agriculture is largely a social problem as well as a problem of the lack of adequate incentives to produce. As is well known, the highland Indians are extremely resistant to change. Present methods of cultivation have not changed for centuries, resulting in extremely high labor intensity. Wooden plows drawn by oxen represent the most advanced agricultural tools on the high plains; working the soil with a simple stick is a lot more common. Even the large estates - now broken up - frequently could not work the land for lack of adequate tools and equipment.

Since the climate of the highlands can be quite cold, the Indians like to burn whatever manure they have for fuel. Having been used for centuries without any fertilizer, most of the highland soils are now completely exhausted which results in the fact that some lands lie fallow for four to ten years. Furthermore to protect themselves from a rather harsh climate, the Indians have generally settled in small, broken-up, valleys away from the windswept large plains which are easier to cultivate. To this should be added the fact that in general the Indian does not work more than 60% of the time, the remainder being dedicated to leisure and "fiestas" during which a whole village may end up in a collective stupor as a result of prolonged and heavy drinking. The economic consequences of this situation, resulting in the loss of production of entire villages, are obvious.

Agrarian Reform

Another problem of more recent date has been the Agrarian Reform. This reform was absolutely necessary. As a matter of fact, it was long overdue

1/ See Statistical Supplement

2/ Data taken from: Economic Forces in the USA in Facts & Figures, U.S. Dept. of Labor, Bureau of Labor Statistics in cooperation with ICA.

since the feudal system of farming and the complete lack of agricultural policy which existed before 1953 constitutes one of the factors which held back Bolivian agriculture.

Basic Provisions of the Reform

The basic provisions of the reform are contained in the decree-law 3464 signed August 2, 1953 which has become known as the "Agrarian Reform Decree-Law". It was drawn up by the Agrarian Reform Commission headed by Dr. Hernan Siles, now President of Bolivia, and it established in fact the basis for the entire land reform. To complement this decree a number of others have been issued such as decree-law 3471 of August 27, 1953, creating the National Agrarian Reform Service which was to implement the reform.

Decree-law 3464 divides rural property into five categories as follows:

1) The small property which is operated by the farmer and his family on a subsistence basis.
2) The medium sized property which employs some hired hands or which operates with machinery for commercial purposes.
3) The agricultural enterprise characterized by large scale investment of capital, salaried labor, and modern cultivation techniques.
4) The agricultural cooperative.
5) The Indian communities which always existed and which have now been recognized by existing legislation in favor of such social groups.

Apparently the main purpose of the decree is to exclude recognition of the "latifundio," in other words, to eliminate those extensive land holdings which are unexploited or are exploited with obsolete tools and methods. For this purpose the decree carefully distinguishes between the illegal large land holding and the recognized working agricultural enterprise, which latter is conceived as an intensive farm operated with large capital investments per unit of land, producing for the market with paid labor.

The decree limits the small individual land holding to from 10 to 35 hectares on the high plains, 6 to 20 hectares in the valleys, and 10 to 80 hectares in the lowlands. For the larger agricultural enterprises these areas may go as high as 800 hectares on the high plains, 500 hectares in the valleys, and 2,000 hectares in the tropical and sub-tropical lowlands. Likewise for cattle breeding in the lowlands, the total areas may be increased to 50,000 hectares for large enterprises providing they keep 10,000 heads of grown cattle at all times.

Of course, the decree eliminated all personal services in agriculture which henceforth have to be paid for. It recognized peasant unions which would help in carrying out the agrarian reform under a National Service of Land Reform which would grant land titles under the supreme authority of the President of the Republic.

Problems of Implementation of the Reform

The main problem with the land reform has been that for political reasons the reform had to be carried out in a very short time since discontent among the peasants was mounting rapidly.

According to the message of former President Paz Estenssoro to the Congress 1/, the implementation of the agrarian reform has been delayed because of lack of people to measure the land and to carry out the other functions which necessarily go with the reform. This problem is now being remedied through a program of training the police force and rural school teachers in land measurement and related functions.

Effects of the Reform

On paper the reform, which was termed as the most advanced in the world 2/, has a good deal of merit. It even has some features which are quite modern. In practice, however, the agrarian reform is said to have broken down completely in its implementation, throwing the country's commercial agriculture into a state of near paralysis. So far the reform has resulted in endless litigation which is hard to solve without a sufficient number of competent people to survey the land. As a result of this, people are more and more reluctant to plant on land which may not be theirs. Furthermore, many of the large properties operated as a unit with the owner providing both the management function and the tools, all of which is now lost.

It is obvious that an agrarian reform could have been effected in a much more gradual manner through a system of progressive taxation per hectare of holdings. It is equally obvious that such a solution, or a system as contemplated in the Austrian land reform of 1848 whereby the large land owners could keep their holdings while the peasant was given other lands, would have had less of an impact on agricultural production. However, both measures lack the political appeal which a revolutionary land reform has.

Because of its broad application, the agrarian reform law has even interfered with the production in those areas where there exists no land problem such as the Beni region. There a rigid application of the law has resulted in the breaking up of worthwhile properties with a corresponding lack in production, while plenty of virgin soil was available for new settlers. This situation has now been remedied by the decree of January 28, 1954.

Another decree of March 30, 1955 further recognized the difficulty of implementing the agrarian reform in the eastern lowlands where there is more land than people. To eliminate further lawsuits the decree provides that anybody holding over 500 hectares of land in this region can automatically stop any interference on account of the land reform by selling his excess acreage. It's interesting that so far there have been only a few buyers except in those cases where the land was cleared first!

In the social sphere the agrarian reform has undoubtedly been a success, since it established a greater degree of justice on the land. From the point of view of the individual economy of the farmer it may also have been a success since the reform at least enables him and his family to eat better. From the point of view of the national economy, however, so far the reform has been a patent failure; yet there

---

1/ Mensaje del Presidente de la República, Dr. Victor Paz Estenssoro al H Congreso Nacional, August 1956.
2/ El Diario, October 25, 1953.

is no good reason why this should be the case since this problem could be helped a good deal by a little better planning.

For those who may be interested in further details on the Bolivian land reform, we may refer to a recent study prepared by an American anthropologist by the name of Richard Patch 1/.

Lack of Law and Order on the Land

Another basic problem has been the lack of law and order on the land. Since the Indians are now armed, and since they generally outnumber the few large property owners, they can pretty well do as they please. This has resulted in the taking over of quite a few very worthwhile properties in complete violation of the agrarian reform law 2/ which faces even the best intended agrarian reform judge with a rather hopeless situation.

It is obvious that under these circumstances there is little hope for an early increase in agricultural production on the high plains without increased enforcement of law and order. According to a report by the regional agricultural agent in Cochabamba, Mr. Walter Ceballos Tovar, recently published in the newspaper Ultima Hora, the production of wheat in the area has declined sharply during the past year because of the confusion created by the agrarian reform. Likewise, at the end of 1955 the price of potatoes skyrocketed in a matter of weeks because the Indians had been eating their seed potatoes instead of planting them.

In several areas, particularly the Cochabamba and Sucre areas, the Indians have done incredible damage by stealing and killing off a good sized number of purebred cattle. This problem has been recognized officially since it was the object of a subsequent decree (of August 26, 1954) to remedy this situation.

Suggested Remedies

To state the problem briefly, what seems to have happened on the land is the following. The reform unintentionally killed the productive large hacienda because of the uncertainty which it created with respect to ownership of the land. It gave more land to the Indian who, therefore, may be living somewhat better off his own land. Part of the large haciendas, which used to produce for the city markets, are now used by the Indians as "no man's land" to graze their cattle or sheep.

To solve this problem it would be advisable to complete the agrarian reform at an early date in one area so that there will again be secure land titles. Another solution would be the one suggested by the United Nations expert, Mr. Quesada, namely, to have the reform deal with the large land owner first so that at least he will know where to plant and where not to plant. Once this is done, the Indians can divide the remaining lands among themselves which is likely to result in endless problems. Since they are

---

1/ R. W. Patch. Social Implications of the Bolivian Agricultural Reform. Doctoral thesis, Cornell University, June 1956.

2/ Ultima Hora, La Paz, August 28, 1953.

subsistence farmers anyway - at least for the time being - the time they will take to do this will not affect the national economy.

To make an agricultural plan for the large farms to supply the cities should not constitute a major problem. As a matter of fact, in view of the political importance of such a plan, it is amazing that this not not been done as yet. In making it, however, one would also have to stress the need for effective guarantees and personal safety since even the above proposal would fail if the Indians could prevent the larger landowner from entering his property as is presently the case in some areas.

Lack of Credit

Another problem in agriculture affecting primarily the more advanced farmers has been the lack of credit. Lack of capital and lack of credit have been plaguing the farmer for many years. Since the large landowners never made an investment in agriculture their returns were quite low, which in turn resulted in abject poverty of those Indians - virtual serfs - working the properties.

In view of the impossibilities of obtaining agricultural credit, the government was persuaded in 1942 to establish the Agricultural Bank the principal function of which, as we have seen, was to give credit, to purchase agricultural produce and, in general, to foster agriculture. Unfortunately this bank has never been able to meet the demand for agricultural credit. It probably never reached more than about 5% of the farmer population. Since private credits for agricultural development are practically unknown in Bolivia, the bank's activity constituted the only one in this sector of the economy.

Even in its limited activity the Agricultural Bank has never followed a strong policy of fostering specific sectors of the agricultural economy, which would have been difficult anyway for political reasons. Thus, most loans were given for all kinds of purposes, such as the purchase of tools, breeding animals, general improvement loans, etc., most of which did not run for a period beyond five years. With the introduction of the agrarian reform, something more drastic had to be done about agricultural credit if the land reform were to be off to any start at all. Therefore, recently a system of supervised credit was set up by International Development Services, Inc., under contract with the International Cooperation Administration.

Inadequate Prices - A Major Problem

One of the main problems in agriculture, however, has been both the lack of remunerative prices and the present monetary policies in general which do not favor the producer. For a number of years the price of agricultural products was kept at an artificially low level. The case of wheat may be instructive as an example. A first attempt to increase domestic wheat production was made in 1918 which failed miserably because of a lack of adequate milling facilities. A second attempt was made in 1936 when the wheat development board was set up for the purpose of increasing domestic production. No practical results were obtained from this effort,

In 1941, however, the government established support prices for domestic wheat as a result of which farmers became a bit more interested in

wheat cultivation with a corresponding small increase in production. The main problem then was that the price of wheat was not set high enough to compete with corn from the valleys which constitutes a much hardier crop. Even on the high plains, potatoes, barley and quinua offer much less risk than wheat. Thus, in 1946 the government fixed the price of wheat at a level close to the world market price under a sort of sliding scale arrangement.

The pay-off of this policy came in 1949 when corn prices fell sharply and purchases of domestic wheat by millers reached an all time high of 20,657 tons as compared with 3,268 tons in 1946. This policy gave hope to the farmer as a result of which a small beginning was also made with the development of agriculture in the Santa Cruz area which could provide such staples as sugar, rice and vegetable oils.

While this increase in wheat production saved a considerable amount of foreign exchange it also created a problem for the government which wanted to keep the price of bread low. The subsidy paid in those days amounted to about 30% of the price of wheat imported at the official rate of exchange. The obvious answer here would have been to eliminate this subsidy gradually through the introduction of better methods to increase efficiency and productivity, thus creating a cheaper end product.

With the advent of the 1952 revolution this progress was arrested again since the new regime, to keep its popularity with the masses, had to go back to a policy of controlled low prices for agricultural products. Since this factor has been of so much importance in the recent lack of agricultural development, a few examples are in order: until recently to produce a quintal of wheat in Bolivia cost Bs. 10,563, while imported wheat was sold for Bs. 1,582. To produce a quintal of rice in Bolivia cost Bs. 12,000 while imported rice could be bought for Bs. 4,200.

The situation is clearly reflected in the production figures over the last fifteen years, which are as follows:

AGRICULTURAL PRODUCTION (In Tons) 1/

	1941	1946	1950	1955
Rice, hulled	2,825	10,000	18,073	11,600
Barley	61,796	36,000	45,000	40,000
Corn	71,600	150,000	137,503	95,000
Wheat	33,400	18,000	45,649	17,000
Potatoes	90,000	150,000	189,384	120,800
Sugar Cane	---	203,000	342,893	525,000 2/

To show what a price incentive can accomplish, we may mention the fact that during 1955 the price of rice was raised from Bs. 4,000 to Bs. 8,100 a quintal. As a result of this simple operation, rice purchases by the Agri-

---

1/ Source: Agricultural Servicio - figures considered to be rather unreliable.

2/ Sugar cane production goes largely into alcohol for which there is a strong demand.

cultural Bank alone went up from 1669 tons in 1954 to 2797 tons in 1955.

Although during the past few months there has been a tendency to correct this situation, the system of controlled low prices has hurt the country's agricultural program in more than one respect. It has also taken a good deal of steam out of the work performed by the Agricultural Servicio. To show this in more detail, the following price structure prevailed in June 1955:

Product	Controlled Price at Place of Production (per ton)	Production Cost (per ton) 1/
Sugar	Bs. 191,720	Bs. 221,720
Wheat	" 100,000	" 150,000
Rice	" 160,000	" 180,980

In this picture the actual prices are of little importance since they change practically every two or three months. What is important, however, is the ratio between prices and real costs, which has had a tendency to remain fairly constant.

Of course, controlled prices are being adjusted continuously in accordance with the inflation, but usually these adjustments are made too late so that the small producer has already sold his crop in advance to loan sharks which makes him reluctant to try again for the next harvest. For example as of the date of this report, the controlled price for wheat was Bs. 240,000 per ton while the cost to produce a ton of wheat would come to some Bs. 272,000.

High Production Costs

Because of the ever accelerating inflation as well as because of the fact that few farmers keep adequate records, it is extremely difficult to obtain reliable cost-of-production data in Bolivia. To make an adequate study of this problem would take two persons several months. However, from the few data collected by the Agricultural Servicio it would appear that the cost of production of agricultural products is high. In some cases, such as in the case of sugar and wheat, it approaches or may even exceed the world market price if we convert all figures at a realistic rate of exchange. This should not be surprising since agricultural production in Bolivia is still in its initial stage and hence rather inefficient. Furthermore, it is obvious that insofar as the above two commodities are concerned, there are other countries which definitely have a comparative advantage over Bolivia.

The Need for Government Support

In view of the above considerations, it would seem that in a free economy some agricultural products grown in Bolivia may require protection in the form of a tariff. This in itself is nothing new since in the case of sugar

---

1/ As estimated by the Agricultural Servicio.

V. THE FACTORS OF PRODUCTION

General

As we have already seen in previous chapters, the structure of the Bolivian economy is relatively simple. Even today most of the economic activity consists of subsistence agriculture with mineral exports supplying almost all foreign exchange. While of the presently known mines a number are becoming depleted to the extent of having to be closed, there appears to be no reason why new prospects could not be developed with adequate incentives. Furthermore, during the past few years, petroleum is becoming more and more of a prospect to earn additional foreign exchange.

In the pages that follow, each of these sectors of the Bolivian economy will be discussed in some detail.

A. PUBLIC ADMINISTRATION

It will undoubtedly seem quite unorthodox to start the present chapter with a discussion of public administration, an activity which should merely lend support to the basic efforts of production such as mining, agriculture, industry, etc., instead of with a description of these activities themselves. However, no proper analysis of the Bolivian problem can be made without a direct reference to at least some aspects of Public Administration since the deficiencies in this sector are one of the principal causes of the present lack of production. Lack of Public Administration explains fully the apparent paradox between Bolivia's immense potential riches and its present abject poverty.

Lack of a Consistent Policy

There is a basic tendency in Bolivia to cure every problem on an incidental basis by decree which results in many contradictory regimes all of which last for a short time. As a result of this, the businessman cannot make any sound, long range plans. It is very difficult to remedy this situation since curing this approach would involve a basic change in philosophy from direct control to "laisser faire." To make things worse, it must be admitted that there is a certain justification for this philosophy since the Bolivians have found out at one time or another that by a policy of too much "laisser faire," some rather undesirable elements were able to accumulate [redacted] wealth in a short time at the expense of the rest of the country. While this may be quite true, it is equally obvious that the activities of this type of person can hardly ever be controlled by law or decree. As a matter of fact, the present situation frequently helps him since he is usually able to exploit the confusion created by various decrees and changing regimes to his own advantage and to the detriment of the more reputable enterprises.

Almost everything in Bolivia today points towards a lack of administration; the lack of delegation from the top to lower levels, the country's regionalism, its unstability in government, the inadequate price policies, the excessive control of the economy, as well as the duplication of effort in the various Ministries and other government agencies, to mention only several items on a long list.

several countries are now protecting the domestic producer. For instance the United States is protecting its Louisiana sugar by a tariff while Argentina and Brazil have established similar protective measures.

It is obvious that in many cases some sort of subsidy is necessary to protect an incipient production. In Bolivia, however, this creates a double problem since the present high internal transportation cost for certain crops constitutes an additional handicap while the purchasing power of the masses to whom the production should go is extremely low. As a result of this it has always been tried to keep consumer prices for basic foodstuffs low by artificial means, as we saw above.

If this policy is to be continued and if at the same time really attractive prices are to be paid for wheat, sugar cane and rice, the government will be faced with a considerable budgetary problem insofar as its present local currency budget is concerned, as may be seen from the following figures. At present the government is distributing imported rice at the price of Bs. 114,000 a ton which would cost $118 or Bs. 472,000 a ton placed at Arica 1/. If the Bolivian producer were given this same price for his rice, the government would have to pay a subsidy of Bs. 3.8 billion on the basis of present imports. For sugar this figure would come to Bs. 11.3 billion, and for wheat Bs. 27.5 billion, making a total of Bs. 42.6 billion or US $10.7 million.

The above amount would be the subsidy if the Bolivian producer were given something like a world market price and if distribution were made at the present low prices. However, according to the calculations made by the Agricultural Servicio, this price might not be a sufficient incentive for certain crops such as sugar, in Bolivia. Taking the Servicio's calculations of really incentive prices for these commodities as a basis 2/ the support needed would come to Bs. 3.0 billion for rice, Bs. 22.8 billion for sugar, and Bs. 25.6 billion for wheat, making a total of Bs. 51.4 billion if all present food imports were produced in Bolivia, as compared with a total local currency budget of Bs. 74.0 billion.

At present there is no problem insofar as the local currency budget is concerned since the food is either bought with dollars which only shows up in the foreign exchange budget or it is received under the United States aid program.

Present Policy Favors the Foreign Producer

It is obvious that the present policy of importing large amounts of foodstuffs for dollars and paying as little as possible to the domestic producer favors only the foreign producer at the expense of the domestic one. This

---

1/ We have taken the price placed at Arica (Chile) to eliminate problems of comparing internal transportation cost. Furthermore, taking the price of these commodities placed at Arica would seem to make a stronger case.

2/ Bs.391,304 per ton of rice
Bs.326,086 per ton of wheat
Bs.608,695 per ton of sugar

policy has been defended on the ground that higher internal prices would increase the inflation. This argument is only true, however, as long as large quantities of food can be obtained practically for nothing under the American aid program. It is not at all true in a realistic situation, as the following figures will show.

Let us assume that the government would want to eliminate half of the present imports of wheat, rice and sugar which could certainly be a realistic goal. To do this it would have to pay support prices and establish a tariff for sugar at the same time. If the world market price placed at Arica were given, this would involve a subsidy of Bs. 21.3 billion. If the incentive prices calculated by the Servicio were given the total would go up to Bs. 25.7 billion. In dollars, at Bs. 4000 per dollar, this would come to US $5.3 and 6.4 million respectively. Yet Bolivia is now spending dollars anyway for the purchase of these commodities to the extent that they are not received under the United States aid program.

In the above calculations we have on purpose assumed that the government would continue to pay the full difference between present low sales prices and support prices to the producer, based on its present policy of low consumer prices. In a free economy, however, the picture would become vastly different. In Chapter VI we shall see that the artificially low sales price frequently does not benefit the ultimate consumer but only the distributor who sells to the black market. Thus by raising prices to a more realistic level, the total amount of subsidy could be reduced drastically; the only difference here would be that the profits now made by the black market would accrue directly to the producer and be paid by the consumer as it should be in any normal set of circumstances.

It will be clear from the above figures that by paying realistic internal prices for agricultural commodities which would boost production, a substantial amount of dollar imports could be eliminated within a few years, even if in certain cases the internal cost of production might be somewhat higher than the world market level.

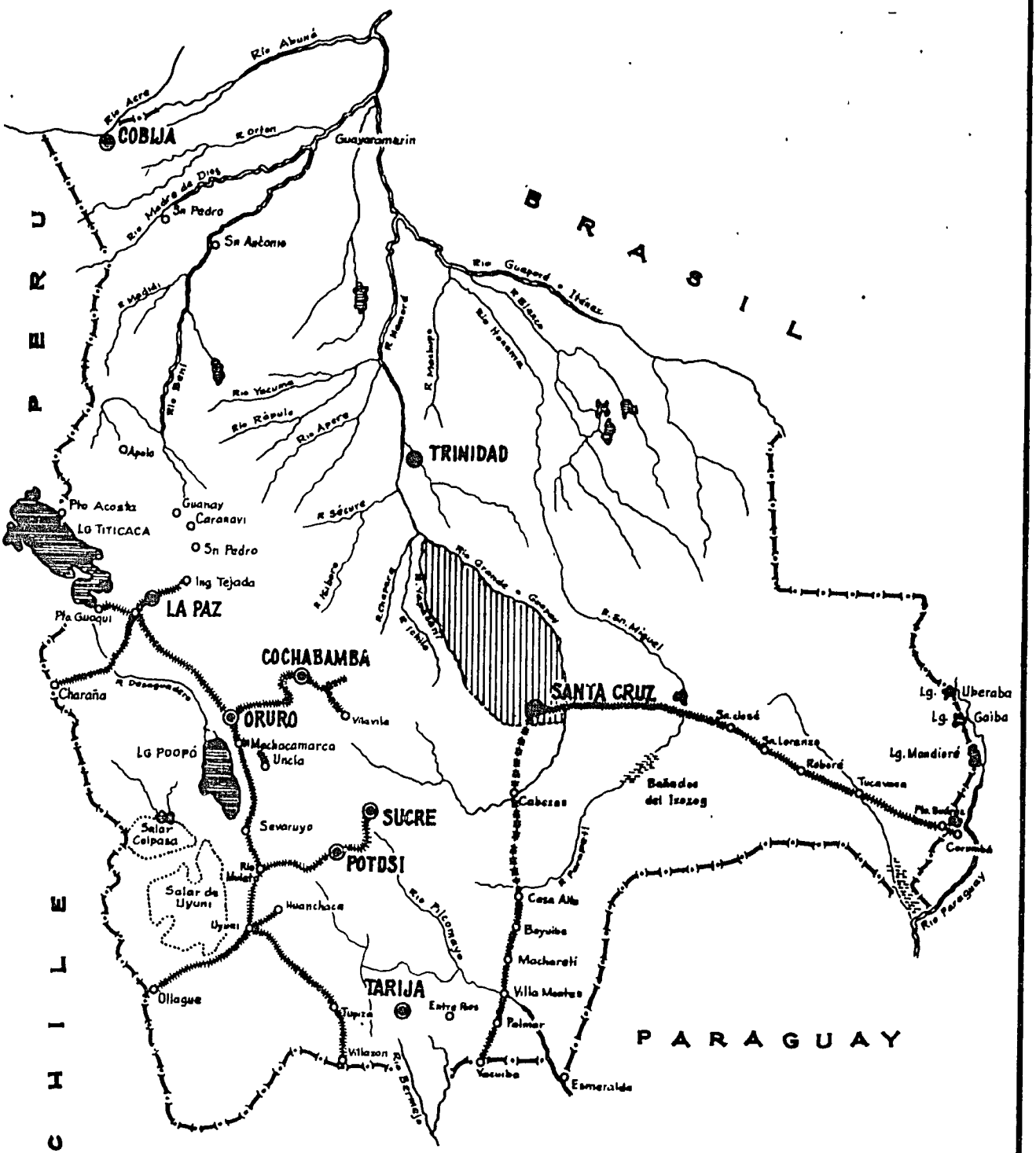
To put it quite plainly, we might raise the question as to whether the government should not convert some of the dollars normally spent on food imports into bolivianos to pay an incentive price to the local producer instead of favoring the foreign over the domestic producer. This would undoubtedly create a problem during the transition period but it would pay off in from two to three years in the form of the permanent elimination of certain imports of food which now require a substantial amount of foreign exchange.

Special Problems of the Santa Cruz Area

In view of the extensive development work which is now going on in Santa Cruz, a separate discussion of the Santa Cruz area and its problems appears to be well justified. The Santa Cruz plan was drawn up at the beginning of World War II. Political considerations, both national and international, played an important role in pushing it forward.

As a first step, the plan called for the construction of a highway from Cochabamba to Santa Cruz which was finally completed in 1954. However, when the plan was first conceived, Bolivia's economic situation was vastly

MAP OF BOLIVIA



REFERENCE

The Santa Cruz Area .....

different since mineral income was still such that the country could, on its own resources, take on a project of this size, while today the plan has to be financed largely by United States aid.

The great merit of the Santa Cruz plan is that it has linked the high plains with a substantial part of the lowlands of Bolivia, thus unifying the country politically. A similar situation still arises with the Beni area which is still not integrated with the rest of the country. Thus the political importance of the Santa Cruz plan may exceed its economic significance.

Strength and Weaknesses of the Santa Cruz Plan

Right now the main trouble with the Santa Cruz plan is that its immediate effect on the Bolivian economy has been greatly overestimated. The Department of Santa Cruz contains about 37 million hectares, most of it fertile lowlands. The area at present under cultivation amounts to less than 0.2% of the total. Corn, oil seeds, tobacco, cacao, fibers, sugar, rice, meat and lumber all could be produced in large quantities in the area which in addition is well adapted to mechanized farming. As a result of this, the Santa Cruz plan has been pictured on many occasions as the solution for Bolivia's short term agricultural problems, both insofar as excess agricultural population on the high plains as well as actual production is concerned. From all present indications, however, this does not appear to be the case.

Internal Migration

As to the first point, an initial attempt has been made to transfer Indians from the high plains to Santa Cruz. The subject of internal migration from high altitudes to lower altitudes has been rather controversial. Based on the experience in the Chaco War and in certain areas in Peru, it has been said that the highland Indian cannot easily adapt to lower altitudes. However, the Chaco War had all the elements to make the Indian want to get away as fast as possible from the lowlands, while some of the experiences in Peru are also atypical. Rather than a physical problem, internal migration would seem to constitute more of a psychological and social problem for the Indian.

At present the Bolivian Government has initiated a program to bring down young recruits of draft age to the Santa Cruz area under military discipline for the purpose of building roads, bridges, clearing land and constructing houses. At the close of his services the soldier is offered a 20 hectare plot of land with a simple dwelling. Calculated cost to maintain the recruit for one year is estimated at Bs. one million a year, half of which constitutes a grant and half of which the recruit must pay in a period of five years.

Last year a group of 1,300 soldiers was "colonized" in this fashion while a similar group is being brought down this year. According to present reports, about 5 to 10% of the recruits have expressed a desire to stay. Land developed but not taken by these recruits is being sold by the Bolivian Government for Bs. 500,000 to anybody who wants to work the property. This program is developing nicely and those who have visited the area express amazement at how well ordered colony life and agricultural development is.

Another program of internal migration is that of a group of small farmers from Cochabamba who work under a sort of collective scheme

in addition to being given a piece of individual property.

As a means to alleviate the immediate demographic pressures in certain parts of the high plains and the valleys, however, all these schemes are of dubious value because of the limited number of people which can be transplanted in this way. Even if we could transplant 5,000 families a year to the lowlands, which appears to be a maximum at present, this would mean nothing to offset the population increases on the high plains. Therefore, the real value of this plan lies much more in its long range effects since it will in time help to sell the idea of internal migration to the next generations of Indians. This in turn will help to alleviate the problem of declining agricultural prospects on the high plains in the more remote future.

Actual Production Potential of Santa Cruz

As to the second point, namely the elimination of Bolivia's agricultural imports, Santa Cruz is not likely to be the solution either although it will help to remedy the present situation. Right now less than half of Bolivia's agricultural imports are items which are typical products of the Santa Cruz area, while the remainder are products which are now being produced in other areas, such as the high plains, the valleys and the Beni as may be seen from the following figures:

MAIN AGRICULTURAL IMPORTS FOR 1955 1/

Santa Cruz Products		Products from Other Regions	
Rice	$1.4	Wheat & Flour	$ 9.0
Sugar	4.0	Milk Products	3.0
Vegetable Oils	0.6	Cattle	4.3
Edible Fats	1.2		
	$7.2		$16.3

Of course this ratio can be improved substantially since cattle could be raised in Santa Cruz in large numbers. However the fact remains that at present the area is not producing any cattle to supply other areas.

The Problem of Tropical Soils

Like all tropical areas, Santa Cruz may develop yet unknown problems of soil management. At present it is hard to predict how the Santa Cruz soils will stand up over a period of time. In view of the experience gained with similar types of soil in other areas, it seems likely that after the first few years fertilizer will be needed to keep up production in the future. Yet to transport a ton of fertilizer from Charaña on the Chilean border to Cochabamba would cost Bs. 28,679, or $7.17 at the parity rate of exchange. However, at present, the Arica-La Paz railroad, because of a peculiar conversion system, to be discussed later, charges US $13.44 for the short trip (200 kilometers) from Arica to Charaña. Furthermore, of the Bs. 28,679 received by the

1/ Dirección Nacional de Estadística y Censos Boletín No. 77, adjusted with USOM figures for wheat and flour.

Bolivian railroad, the latter has the right to convert a certain percentage at the official rate of Bs. 190 which comes to US $5 97 To all this we still have to add trucking from Cochabamba to Santa Cruz which at Bs. 70,000 a ton adds another $17.50

If we assume that it would be possible to adjust these railroad freight charges which are largely based on outdated agreements to a more reasonable figure, total transportation from Arica to Santa Cruz still would be likely to come to at least $30 a ton which, added to the cost of the product would make a total of some $159 or Bs. 636,000, at Bs. 4000 to the dollar. Considering the use of only half a ton of fertilizer per hectare this would add some Bs. 318,000 to the production cost per hectare, a cost which no Santa Cruz crop at present will be able to stand. Although these costs may be lowered by buying from Brazil, using the Santa Cruz-Corumba-Santos Railroad, which would come to $8 plus Bs 5220, the cost of the product itself is still likely to be prohibitive. Therefore, since the use of fertilizers may become economically prohibitive, the only alternative will be to build up a cattle industry in Santa Cruz and resort to a practice of large scale rotation. This would involve a program of making compost to build up the soil. Even this involves a foreign exchange problem, however, since because of the rapid growth in the area more tractors would have to be used to clear overgrown lands continuously.

In case extensive land clearing will in time result in the indiscriminate cutting of trees - a far from academic problem as roadbuilding progresses - there will be an additional problem of erosion which we shall not discuss further.

Lack of Population

The Santa Cruz area has some other serious problems. According to the 1950 census the department has a total population of only 286,145, of which 188,537 are classified as rural. Although both immigration and internal migration might help to cure this situation, the growth of Santa Cruz will necessarily be slow since the country lacks the resources to finance any large scale type of immigration.

To settle a European family properly would involve an amount varying from $4,000 to $6,000 which would immediately create friction with internal migrants who can be settled for considerably less. Furthermore, the possibilities for the European immigrant in Bolivia are definitely less promising than in many other countries which are opening up their gates.

At present the only immigrants are about 550 Okinawans, 90 Japanese, 12 Italians and a few Mennonite families. The Japanese have already harvested their first crop; the Mennonites their second. In spite of tremendous difficulties, partly because of difficulties in obtaining a clear title to the land, it may be said that these four colonies are doing satisfactory work.

High Labor Costs

Tied in with this labor shortage is the fact that the few available workers in Santa Cruz are of extremely low productivity because of absenteeism, lack of responsibility, and an immense amount of holidays.

For example, last year a Hungarian immigrant decided to establish a furniture factory in Santa Cruz with the idea of exporting knocked-down furniture for reassembly, obviously a very good plan. After a few months' trial he had to give up the idea because labor demands were found to be excessive.

Thus for the time being, Santa Cruz is forced to resort to a rather high cost mechanized agriculture which contrasts even more with the low purchasing power of the people to whom this production should go, i.e., the masses on the high plains.

Marketing Problems 1/

Another problem is that Santa Cruz is far removed from the center of consumption on the high plains. Transportation costs right now are very high. To transport a ton of rice costing Bs. 400,000 placed at Santa Cruz, costs Bs. 70,000 for trucking to Cochabamba. To transport the same ton further, to La Paz, by rail would cost the general public Bs. 13,150 or $4.38. However, the present railroad rates are not very realistic because of the subsidy which the government has to pay to the railroad in the form of differential exchange rates.

If trucks are used all the way, which may become necessary at some time in view of the precarious state of the Cochabamba-La Paz Railway, as well as because of trans-shipment problems at Cochabamba, the total transportation cost from Santa Cruz to La Paz comes to Bs. 170,000 or US $42.50. These figures do not even make any allowance for the maintenance of the roads in question. Thus the price of a ton of Santa Cruz rice 2/ trucked to La Paz comes to US $100 plus $42.50, or $142.50, as compared with $130,000 for the imported product placed at La Paz.

In time these costs will undoubtedly go down because of cheaper transportation (larger tonnage trucks) and larger volume, as has been the case in the United States. However, even to pay for these lower transportation costs would call for increased incomes of the consumers on the high plains. It is hardly necessary to point out that this will take considerable time.

To the above picture should be added that once the road from La Paz to Caranavi - which is now under construction - is completed, similar areas as the Santa Cruz area will become available at considerably closer distance to the high plains. Apart from the fact that a 500 kilometer difference will mean quite a saving in transportation costs, some of these more nearby regions may offer additional advantages. We may take rice as an example. At present, dry rice is being produced in Santa Cruz at a considerable risk since about one crop out of three fails. It is evident that, in time, this rice

---

1/ In discussing the problem of marketing and of production costs the main problem is that at present all economic data are distorted because of the confusion created by the exchange situation. Since our assumed parity rate is by no means certain, we can only pose the problem and discuss the probabilities.

2/ Based on an incentive price of Bs. 400,000 ~~to~~ a ton and an exchange rate of Bs. 4,000 to $1.00.

will not be able to compete with wet rice in the Beni area which involves no risk at all, especially if this rice is located so much closer to the center of consumption.

There is another point to consider. If the Santa Cruz plan is to be a success, it must have remunerative prices which will be more or less close to the world market level. In some cases, they may even result temporarily higher, to get the growers committed. Yet if this production at these prices were destined for the large masses on the high plains, and if their consumption were not subsidized, markets would shrink.

At present, the high plains have an artificial purchasing power amounting to several millions of dollars, based on American aid. In a free economy the demand for Santa Cruz products might shrink considerably since first there would be no contraband going out and second there would be less demand.

In view of the above considerations, it would seem to be more logical to consider, at least for the time being, Cochabamba, Sucre and Tarija as the natural markets for Santa Cruz where, because of lesser transportation costs, Santa Cruz products would need no protection. On the contrary, if this production were destined to the high plains, a tariff would be needed in some cases, as we saw above. If, in time, large agricultural surpluses should develop in the Santa Cruz area it may become economically sound to dispose of some crops on the high plains at marginal cost.

The Future of Santa Cruz

The future of Santa Cruz could perhaps be summed up best in one sentence: Great hopes surrounded by uncertainty. At present, many things are uncertain in Santa Cruz, especially markets.

Since the Santa Cruz project has been developing rather fast under the impact of the American aid program, people generally have paid more attention to getting a cash crop than to sound farm management. Furthermore, the Agricultural Servicio, to get people committed to agriculture, has been clearing land and supplying rental services, tools and equipment at a very low cost to the farmer, involving a considerable subsidy. In a period of spiralling inflation, investment in a tractor which could be bought at a low rate of exchange proved a worthwhile venture under almost any circumstances.

First Stage - An East Start

As a result of all this a number of "investors," city people, started to buy farms in the Santa Cruz area while the small local farmer - likewise helped by the machinery pool of the Agricultural Servicio - moved along also at a somewhat slower pace. The result has been a good deal

of land clearing, some quick profits and a few losses. While domestic prices were generally unattractive, exports of contraband to Brazil provided large and immediate profits in rice.

Second Stage - Sobering Up

As the subsidy of cheap machinery and cheap rental services is gradually being removed, some people are now running into some unpleasant surprises learning that farming is a full time job which calls for a little more than just throwing in a crop with the help of rented machinery.

Labor costs in Santa Cruz have now gone sky high while the domestic price of agricultural products has been kept down all the time. Amortizing farm machinery at a realistic price will call for some sound judgment and increased efficiency. It can be done, but it may not be easy all the time as may be seen from the following example. Working 100 hectares planted in rice, the farmer can get Bs. 33 million for his crop in Bolivia and about two to three times as much in Brazil. However, the Brazilian market may not last forever since Bolivia's apparent advantage - caused to some extent by subsidies in the form of a low cost rental and purchase of machinery - is bound to become much smaller in a free economy. Therefore, it is likely that in the future the farmer will have to look again to the domestic market. Buying a tractor now on the black market involves an expense of Bs. 30 million or roughly the equivalent of a year's crop. But a tractor is only the beginning since a farmer needs a combine, tools, a shop and other machinery. From the above it will be clear that while the use of machinery can be paid for even at the present low domestic prices, this amortization calls for some very careful planning, especially as one out of three to four rice crops in Santa Cruz turns out to be a failure.

In a free economy the picture may become somewhat better since the price of machinery would tend to go down while the cost of labor would move up. However, the labor factor will generally lose in importance as mechanization is stepped up.

Disillusionment

As a result of all this, right now there appears to be a considerable disillusionment among a number of people in Santa Cruz. This disillusionment is threefold. It is partly based on economic factors, such as the problem of making ends meet. It is also based on the fact that some people had too high hopes which were never justified. What seems to carry much more weight, however, is the lack of political stability in the area. Many people feel that the owner lacks protection. Resale of official allocations by privileged groups is widespread. For instance sugar is now being bought from the mill by the Agricultural Bank for Bs. 30,000 a quintal to give the producer an incentive price. The Bank then sells it back to the distributor - usually somebody with political connections - for Bs. 8,000. Instead of selling it at this price to the public, he contrabands it to Brazil where the same quintal brings Bs. 60,000. As a result of this there is now an acute sugar shortage in Santa Cruz, although the Department is Bolivia's principal sugar area.

Another complaint seems to be that all the time properties are being

taken over in an arbitrary manner by some political elements of rather low caliber. The agrarian reform is being used as a pretext to invade desirable lands or to cut timber for a quick profit. Some people appear to be concerned about personal safety. Others express a desire to go elsewhere if they could liquidate their investment at a reasonable price. In other words the general investment climate in Santa Cruz seems to be deteriorating.

What Type of Farmer?

From all present indications it would seem that in time Santa Cruz will see the rise of the smaller farmer as compared with the present operator who is likely to disappear. He will have to increase his efficiency sharply, he may use machinery or he may operate as a family unit, using animal traction. If he is to sell in the domestic market, particularly the high plains, some of his products such as sugar probably will have to be protected for some time by a tariff. As time goes on he will tend to get away from the present cash crop system into a more balanced farming operation, keeping some livestock. In other words, in time he will become like the farmer in most places, making a not too easy living. To get himself started he certainly will need low cost land clearing and extensive credit since he could not pay cash for machinery or improved land.

Not Unsound but Long Range

This does not mean that the Santa Cruz plan is unsound. It merely means that a healthy development will take time and more time than has been anticipated generally. The concept that Santa Cruz will be a cure for so many of Bolivia's immediate problems is likely to prove incorrect. This concept involves the same error in timing which we find in Bolivia's petroleum development, which is also of such a nature that it cannot provide a solution for Bolivia's problems during the next three years which are to be most critical.

Over the longer term, Santa Cruz would seem to have enough resources to assure it a good future. When the railroad to the Argentine border is completed, there will be other things to sell than sugar and rice. Santa Cruz citrus fruit, pineapple, honey and turmeric are of such unusually high quality that they should easily find a market abroad in spite of transportation costs. These exports alone could provide the foreign exchange requirements for all agricultural machinery imports for the area.

There is one factor which makes it difficult to project the future of the Santa Cruz scheme more accurately, namely, oil! From a geological point of view, Santa Cruz seems to be situated close to some potentially petroliferous areas which, once developed, could completely change the face of Santa Cruz.

Steps to be Taken

In view of the uncertainties involved in the Santa Cruz scheme, at this writing, it would seem to be advisable to go somewhat slowly on further public investment. During the past two years the area has received through Point IV several millions of dollars worth of agricultural

machinery which should be able to give it a good start. From now on the area should be able to develop more or less on its own under the impetus of incentive prices.

The Agricultural Servicio's machinery pool should gradually be withdrawn and be replaced by an aggressive dealer with adequate facilities for the maintenance of agricultural machinery.

The Extension Service should stress farm management so that farmers will become more cost conscious.

Finally, the area should be freed as soon as possible from all controls so that it can start developing its export potential of those products in which it seems to have a comparative advantage.

The Solution of the Agricultural Problem

Although it is hardly possible to give a complete blueprint for the solution of Bolivia's agricultural problem, we can arrive at some definite conclusion as to some of the conditions which must be fulfilled if success is to be assured, as follows:

Without a drastic change in the government's price and monetary policy which directly encourages contraband activities while discouraging production, all efforts to help agriculture in Bolivia are doomed.

Unless a more realistic approach is taken to land reform, limiting the same to certain areas where a problem of overpopulation exists and not extending the same to areas such as the Beni where there is more land than people, market-directed agricultural production will remain at a low level during the next few years. To restore security on the land, it would be essential that the agrarian reform be carried out completely and swiftly in one area first so that people will know where to plant, after which the same process can be repeated in another area.

More than half of Bolivia's basic food items will have to come from the high plains and the valleys. This being a fact, adequate means should be provided to stimulate production in these areas through the provision of price incentives, the supply of tools, the setting up of farmer cooperatives, as well as through extension work to maintain or improve the present potential of the area.

Instead of the present excessive emphasis on mechanized agriculture both in the high plains as well as in Santa Cruz, more thought could be given to the introduction of more and better draft animals. Apart from the fact that in many places - as was the case in China - the step from a stick to a tractor will be too much for the peasant, it has been proven that animal traction handled on a family farm is cheaper in Bolivia.

It may be interesting to mention in this connection that during the period 1900-1952 when agricultural production in Bolivia was certainly higher that it is today, 265 tractors were imported into Bolivia, while during the last three years alone some 488 tractors were imported 1/.

1/ Mensaje del Presidente de la Republica al H. Congreso Nacional 1956.

The tractor standing idle for lack of a vital part is quite a familiar sight in Bolivia.

Some years ago the extension section of the Agricultural Servicio presented a project for the production of mules in Santa Cruz which appears to have some merit It would make greater use of domestic resources which are now idle, such as mares, grass, leather for harness, etc., in the process of cultivation, leaving the land clearing aspect to the big tractors. It is estimated that a farmer with six mules could easily handle 50 hectares of cleared land. Since this type of farmer is now working with hand tools and could not afford to use machinery anyway, his productivity could be greatly increased by the use of draught animals

The stock of these animals could be rapidly increased if the Agricultural Servicio would import a number of jacks and put them out with breeders who owned a sufficient number of mares (30) kept under fence and who provided a jack stable, exercise, corral, etc., all according to specifications. This scheme more or less follows the system used for years by the United States Army Remount Service which was quite successful in the States. In this way one could develop a group of middle class farmers in Santa Cruz which would greatly benefit the growth of the area A similar project could be drawn up for the increased use of oxen on the high plains, with which the Indians are already familiar Its social value could in time exceed its economic returns.

As we saw above, at present Bolivian agriculture is rather inefficient and therefore its cost is relatively high Furthermore the problem is complicated by the fact that markets are limited since transportation costs are high also Thus it becomes vital to introduce at an early date measures to increase efficiency in the production of agricultural commodities and to provide better marketing facilities, including transportation. In view of the importance of this problem we shall refer to it somewhat more in detail.

At present the small producer is usually dependent on the service of truckers who can afford to charge in the most arbitrary manner A small example may explain this An orange which costs Bs 10 each in the Yungas, a distance of some 100 kilometers from La Paz, is sold for Bs. 60 in the La Paz market

For lack of both storage facilities and credit, the farmer is frequently forced to sell his crop to loan sharks at ruinous prices. Even when this is not the case, slow movement and poor storage facilities will destroy a large part of the agricultural production Theoretically the farmer can always sell his crop at certain fixed prices to the Agricultural Bank but in practice this is far from true since in many instances the Bank has no money to buy when the crop comes in.

To remedy this situation, more adequate transport facilities are most essential while the establishment of some sort of a produce exchange in certain areas might also be a great help in alleviating the farmer's present plight.

It goes without saying that to enable the government to carry out a policy of supporting agricultural production, productivity in all other sectors of the economy, especially mining, petroleum and export agriculture, should be vastly increased also.

C. MINING

Although mining constitutes one of the most important sectors of the Bolivian economy, the subject will be dealt with rather briefly here since a private engineering firm is now preparing an extensive report which deals with all the technical and administrative, as well as some of the economic aspects, of the Bolivian mining industry. Therefore, the reader who is interested in the more detailed problems of the industry should be referred to this report 1/.

Although some people may feel that this report is overly pessimistic, the present study has accepted the figures provided by the Ford, Bacon and Davis engineers for the simple reason that if the International Cooperation Administration goes to the trouble of obtaining a report on the Bolivian mining industry from a first class firm - in effect one of the oldest and most reputable engineering firms in the United States - this should provide the last word to the economist interpreting these findings in terms of the over-all economy.

The highlands of Bolivia are undoubtedly one of the most mineralized areas of the world 2/. At least a sample of almost every mineral can be found within its borders. Since there exists very little concept as to what constitutes "a mine" - many owners have a habit of attributing this high sounding name to mere prospects or even speculations - it is rather difficult to determine the actual number of mines in Bolivia. As a rough indication, however, we might mention that the memorandum prepared by Foreign Minister Walter Guevara Arze 3/ mentioned the existence of over 2500 small and medium sized mines in Bolivia, which figure is likely to be exaggerated.

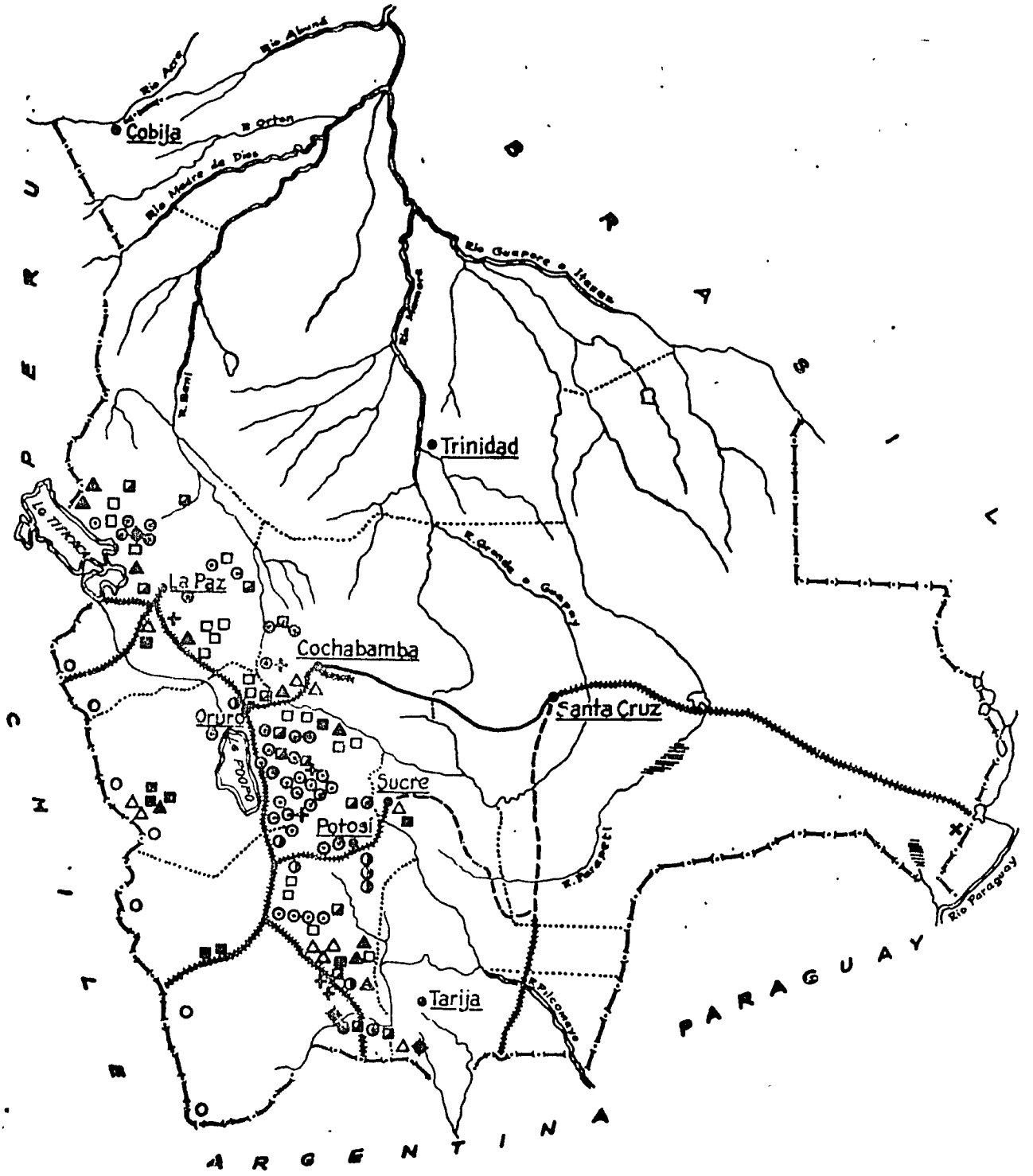
Most of the larger mines used to be controlled by the Patiño, Hochschild and Aramayo interests. After the nationalization of the mines in 1952, all these properties were incorporated into the Bolivian Mining Corporation which now operates these mines as a national enterprise.

Roughly the Bolivian mining industry can be divided into three groups, namely, the large mines mentioned above, the medium sized mines, and the small mines. The two latter groups are almost entirely private. Although this classification itself is based on production, and, therefore, more or less arbitrary, it has very important legal effects.

During the last few years the number of small and medium sized mines which are actually producing has declined substantially, partly as a result of Bolivia's policy of strict controls and low prices paid to the producer in spite of high world market prices. While the memorandum of Foreign Minister Guevara still mentions about thirty-five medium sized miners who operated some eighty mines in 1954, this number has now decreased to about sixteen miners. Both groups employ about 50,000 workers 4/.

1/ Report prepared by the firm of Ford, Bacon and Davis, Inc.
2/ Ahlfeld, "Los Yacimientos Minerales de Bolivia, 1954"
3/ W. Guevara Arze, Plan Inmediato de Política Económica del Gobierno de la Revolución Nacional
4/ Exact figure is difficult to determine because of lack of data on the small and medium sized mines. Figures range from 50,000 to 70,000.

MINERAL DEPOSITS



REFERENCES

- Tin
- Silver and Tin
- Wolfram
- Lead and Zinc
- Copper
- Silver
- Gold
- Bismuth
- Sulphur
- Antimony
- Iron

Labor intensity in the small and medium sized mines is relatively high since in most cases they use only the most primitive equipment. Frequently their operation is for a quick profit with little or no regard for correct mining practices.

Principal Producers

To understand the Bolivian mining problems a little better, a discussion of the principal producers would appear to be helpful. From an organizational standpoint all Bolivian mines are operating under some form of direct government control. In the case of the Mining Corporation, the government is actually running the mines. In the case of the private mines, the government exercises its control in a more indirect manner through the Mining Bank with which all private miners must deal.

A. The Mining Corporation

The Mining Corporation now controls some 163 odd properties ranging from large mines employing thousands of workers to mere prospects. According to the report of the Minister of Mines, Mario Torres 1/, the "Big Three" had invested some $40.7 million in these mines as of December 1951. Although this figure is probably far too low, it should be kept in mind that many Bolivian mines started from scratch so that most "investments" constitute reinvested profits. Because of this as well as because of the inflation, it is practically impossible to determine the present net worth of the Mining Corporation without an exhaustive study.

Until recently the management of the Mining Corporation was made up of a Board of Directors which virtually ran the mines, both from a technical as well as a policy point of view. However, by a presidential decree of July 1956, the organization was streamlined at the suggestion of Ford, Bacon and Davis, Inc. As a result of these suggestions, the top management of the Corporation is now made up of a Board of Directors whose task it is to set the policy, and a manager whose task it will be to carry out this policy and to run the mines.

As of December 30, 1955 the Mining Corporation employed some 34,500 workers as compared with 28,998 in 1952 and with 17,990 who were employed by the three big companies in December 1949.

Production of tin, the most important mineral produced by the Mining Corporation, decreased from 34,662 tons (fine) in 1949 to 23,484 tons in 1955. Table XXXVIII of the Statistical Supplement shows the production figures for the Mining Corporation during the past five years.

B. The Mining Bank

The Mining Bank controls the output of between 1500 and 2000 small and medium sized mines in which, according to the above report of the Minister of Mines, some $22 million had been invested up to December 1951.

1/ La Verdad Sobre las Minas Nacionlizadas - La Nación, January 18, 1956.

The Bank was established mainly for the purpose of purchasing minerals from the small independent miners who were frequently forced to sell their production at cut throat rates to middlemen. Originally it achieved this purpose. However, as time went by the Bank became more and more bureaucratic. Finally, it practically turned into a graveyard for the private mining industry, as we shall see later in this chapter.

Economic Importance of the Mines

During the period 1940-1950, mineral exports contributed about 95% of Bolivia's exports, about 70% of which were exports of tin. In 1952, which was the last best year for the Bolivian mining industry, mineral exports (gross) were as follows as compared with 1955:

	1952	1955
Tin	US $ 84,783,178	US $ 57,290,759
Lead	11,356,529	6,332,841
Silver	5,957,180	4,983,080
Antimony	4,228,732	1,887,541
Zinc	13,152,080	5,726,847
Tungsten	14,220,690	15,673,681
Copper	2,918,792	2,673,345
Gold	288,279	2,583,521
Bismuth	105,855	124,338
Sulphur	659,062	476,865
Others	84,059	16,748
Totals	US $137,754,436	US $ 97,769,566

In terms of world production, Bolivia has been an important producer of tin and antimony. However, recently its share in the global production of tin has been declining from 21.2% in 1949 to 15.7% in 1955. For antimony the respective figures are 27.7% and 11.8%.

Productivity

As was mentioned before, productivity per man in the mines has been dropping gradually both because of declining ore content as well as because of the drop in output per man. In several of the Corporation's mines, for instance, the ore content dropped over 40% over a period of less than ten years.

Far worse, however, than the drop in ore content, which frequently can be offset by increased production, has been the lack of discipline and featherbedding in the Corporation's mines. As an illustration, we may just mention the following example: during 1950, Huanuni, one of the Corporation's better mines, employed 655 people within the mine and 726 above ground. Today these figures are 936 and 829 respectively.

Although actual production of ore from all of the Corporation's tin mines has increased by about 30% in the past five years, this increase was needed to offset the drop in grade of the ore. Furthermore, it was accompanied by an increase of the underground labor force of about 40%.

According to the Ford, Bacon and Davis report, mine labor efficiency at the Corporation's mines has decreased about 18 per cent during the past four years.

Present Problems of the Mining Industry

The problems of the Bolivian mining industry can be divided into three categories. First of all, there are the general problems which affect the industry as a whole, then there are the problems of the Mining Corporation, and those of the private mines which we shall discuss separately.

The general problem of the Bolivian mining industry can be stated in one sentence: Ore depletion and lack of development. During the last twenty years Bolivia has systematically been depleting its richest ore bodies. As a result of this, the mining industry is now faced with a relatively large number of nearly exhausted mines. At the same time, little was done to improve the investment climate in order to encourage new exploration while social benefits to the miners were increased beyond the actual capacity of the mines to pay for them.

The present situation is not so much a problem of prices since during the last few years mineral prices paid have been about the highest in the history of the industry. Furthermore, until recently the United States has been subsidizing Bolivian tungsten production to the tune of about $6.2 million annually. In spite of all this, mineral output on a quantitative basis has continued to decline.

According to the above mentioned engineering study, Bolivia has now about three to five years left in which it can continue to live on its existing mineral resources and develop new ones. To solve this problem the country needs private investment. To attract the latter will call for a substantial change in over-all philosophy.

Problems of the Mining Corporation

The main problems of the Mining Corporation insofar as they affect production appear to be:

a. A Complete Lack of Labor Discipline

The unions are in control in most of the Corporation's mines. Management frequently has to look up to the union if it is to keep its job. As a result, there is a constant turnover of higher personnel. Many of the foreign technicians have left a long time ago. The remaining technicians - both Bolivian and foreign - who are doing an almost superhuman job of keeping the mines together, are constantly under fire.

Since the unions have almost direct access to the higher levels of the government, including the Minister of Mines, there is little Management can do to defend itself. The position of the managers and technicians is further weakened by the fact that in many cases the union can get results by applying political pressure which Management is unable to do. For instance, last year in several mines the union was able to obtain almost immediately the necessary medical supplies and commissary items which Management had repeatedly requested through channels.

At the same time the union has actual control over the commissary in many mines which gives it a most effective means to put pressure on the workers who are dependent upon the sale of commissary items in the black market to make a real wage.

Stealing of both mineral and supplies has been prevalent in a number of mines. In several mines there are daily interruptions of the work on account of union meetings which are called during working hours, resulting in a corresponding drop in production. Frequently, Management is unable to carry out its normal every day functions since it has to give priority to union demands.

It is practically impossible for foremen and supervisors to exercise authority since the union won't approve any dismissals. Actually, dismissal is the only thing which means anything to the workers since it is directly connected with the loss of the cheap commissary.

In one of the larger mines of the Corporation, the number of "sick people" has been increasing rapidly since the union encouraged the workers to use up their thirty day sick leave whether sick or not. Mine physicians were afraid to turn down people with "subjective complaints" i.e., complaints for which no direct medical basis appears to be present, for fear of losing their jobs. As a result, the number of sick people rose from 2,048 in April 1954, to 2,331 in April 1955, an increase of about 15%.

Continuously the unions are demanding favors from Management which cannot be refused. Cars are borrowed, bills for official delegations must be footed, contributions must be made to union causes, etc. In Potosí, in desperation, the accountants had to lump all these odd items together under two new accounts named "Defense of the Revolution" and "Union Expenditures."

b. Political Interference

Actually, in addition to their every day management, the mines have six bosses, as follows:

The Minister of Mines
The Board of Directors of the Mining Corporation
The General Manager " " " "
The Union
The "Control Obrero" (labor group advising Management)
The "Commando" of the MNR (present government party)

Continuously, contrary instructions pour in on the bewildered local managers. Since labor has about six channels of recourse to higher authority to bypass their own management, the confusion in some cases is incredible. For the politicians it is an ideal situation to make political hay with the miners. It is quite possible for a worker to be fired for cause by one of the above authorities and to be reinstated with higher pay by another.

Frequently the local union, control obrero, and the commandos are fighting out an issue, with Management not being able to do anything more than just look on.

The mines are constantly used as a source of patronage by higher

authorities. While production goes down, employment is going up constantly. The total labor force of the Mining Corporation was increased by 20% in four years. Had Management been given a free hand in not filling vacated positions employment rolls could easily have been brought more in line with actual needs. Most of these new jobs are not directly related to production since there still exists a shortage of real miners, people who actually go down into the pits.

Especially bad in this connection is the fact that the Mining Corporation was forced to take on so many partially or permanently disabled people who really should be a burden on the State and not on the Corporation. Apart from the fact that these people cannot do any work, they destroy morale and are a danger of infection to the healthy miners with whom they work. The number of totally disabled miners (silicosis, tuberculosis, etc.) now on the payroll of the Corporation amounts to over 1600, or about 5% of the labor force.

c. Lack of Administrative Organization, Coordination and Control

Lack of administration starts at the top. As is well known, there is a great dearth of competent administrators and technicians in Bolivia. This problem has been complicated even more by the mass exodus of many technicians during the past few years.

Central purchasing for the Corporation is carried out in a most inefficient manner. Important decisions are delayed for fear of political repercussions, while documents are constantly lost. Local managers have to refer practically everything to La Paz for approval, whether it concerns a major policy matter or the purchase of a few cases of powdered milk for the commissary. Frequently, improper equipment is bought to save a few pennies, as was the case in a number of purchases which were made last year from certain sources.

Because of the ever increasing shortage of dollars, the Corporation's technical department, which makes its purchase recommendations on a strict quality basis, has been over-ruled a number of times to give preference to certain manufacturers located in different countries who are willing to give three - five year credit at considerably higher prices. It is obvious that even in case the material were adequate, which appears frequently not to be so, the combination of equipment from various sources will create standardization and stockpiling problems which far outweigh the advantage of a few pennies saved initially.

There is also a certain lack of coordination between various agencies of the government. For instance, last year for several months the Mining Corporation had a number of essential shipments at Antofagasta, including several hundred thousand dollars worth of mining, milling and transportation equipment. For quite some time these shipments could not be cleared because the Central Bank was unable to make the necessary dollars available.

d. Lack of Materials

At nearly all of the Corporation's mines, there exists now a serious lack of materials and equipment. To illustrate this, a few examples may be mentioned.

122

During the period 1952-1955, twenty pound rails were unavailable for twenty months while fifteen pound rails were unavailable for sixteen months during the same period.

Procurement is slow. On December 20, 1952, an order for pipe was sent out by Catavi, the Corporation's largest tin mine, to La Paz. The material arrived on July 6, 1954, or 18 months later. The lack of this pipe made it necessary to dismantle pipe elsewhere in the mine, and delayed the progress of the block caving program.

Compressor hose offers another interesting example. During the period May 1952 until July 1954, 3/4" hose was conspicuously absent at Catavi and the shipment of 32 pieces which finally arrived was used in one month.

In nearly all mines there exists a serious shortage of shovels. To show how preposterous this situation has become, frequently the managers have to go out to buy a few second-hand shovels in the black market to give to their miners.

e. Lack of Reserves

Tin mining in Bolivia has been more or less a boom or bust proposition. Production started early in this century with the mining of some incredibly rich veins and ore bodies. With the exception of the Santa Fé mine near Morococala and Colquiri which was developed more recently, no new tin mines have been discovered during the last 20 years. As a result, the Mining Corporation's reserve position has now become most critical.

According to the Ford, Bacon and Davis study, out of the twenty large active mines of the Mining Corporation only four mines have a save development status while six additional mines have proven reserves for only two years, which is considered to be a minimum. The remaining ten mines can be considered as seriously lacking in development status or lacking in possibilities to develop additional reserves.

According to the same source the Corporation's ore reserve position indicates that the several mines that follow are at or near the exhaustion stage or will reach this stage in the next three years:

San José	Siete Suyos
Pulacayo	Tatasi-Portugalete
Japo	Bolsa Negra
Morococala	Viloco (Tin Section)
Colavi	Caracoles (Tin Section)
Colquechaca	Pampa Grande

(Some of these mines were closed under the regime of the ex-companies but were reopened later on.)

Within two years thereafter the Unificada, Animas and Viloco mines will be added to the list, unless some presently unknown ore can be found. This leaves Colquiri, Huanuni and Catavi as the only mines that have any substantial ore reserves on which to base future earnings.

It is clear from the above data that since the Mining Corporation has been carrying itself by using previously proven ore, the problem of reserves now re-

quires immediate attention. This will call for extensive geological and geophysical work to find and develop new properties or to find additional ore in nearly exhausted mines.

f. Declining Ore Content

The most unfavorable factor affecting economic operations in the Corporation's mines is the low grade of the ore which, in the case of tin, has dropped about 30 per cent in the past five years. Detailed figures may be found in Table XXXX. Another adverse factor resulting from the drop in grade is the decrease in mill recovery as well as the drop in grade of concentrate produced. Mill recovery at the Corporation's tin plants has decreased an average of 13% since 1952. Although much of this is due to the changed mineralization of the ore, part of it is caused by poorer attendance and the deterioration of milling equipment.

g. Lack of Power and Transportation

In a number of mines there exists a chronic transportation problem through lack of proper maintenance.

Power requirements of the Mining Corporation are likely to increase during the next few years because of the lowering of the ore content. Thus, the failure to improve power equipment and power distribution will create many power problems in the near future.

h. Lack of Investment

Another dangerous aspect of the present situation of the Mining Corporation is its relative lack of reinvestment. Under normal conditions an enterprise of the size of the Mining Corporation would require an investment of some $8-10 million a year just to keep it going.

According to the Mining Corporation's books, it earned some $164 million during the three year period 1953-1955. Of this amount about $50 million constituted operating costs while $5.6 million were paid to the ex-owners as compensation for the expropriation. Of the $50 million mentioned, about $38 million were used for the purchase of warehouse and commissary supplies. During this period, capital investment amounted to only $8.3 million, and a little less than US $4 million was paid for power, foreign technicians and other dollar expenditures. The remainder of the Corporation's dollar earnings, or some $108 million, was withheld by the Central Bank. The Ford, Bacon and Davis engineers calculated that during 1955 the government took about 56.4% of the proceeds from the Corporation's net sales. According to the same source, the Corporation's minimum annual capital requirements for the next two years are estimated as follows:

1. For accelerated development (in addition to 1955 expenditure figure for ore preparation)	$ 670,000
2. For replacements (in addition to 1955 expenditure figure of $2.2 million)	1,317,000
3. Improvements, expansions (mostly partly completed)	250,000
	$2,237,000

Although obviously too low, this figure is based on the fact that even

if the Corporation were given more money for development, it could not use it during the next two years because of the present lack of technical personnel and preparatory studies.

i. Social Problems

One of the major problems of the Mining Corporation constitutes the fact that although from a commercial point of view the Corporation is not what it used to be, the labor force has been increased all the time and labor demands have been growing resulting in more and more social legislation. As the Ford, Bacon and Davis group puts it: "It is a sort of a paradox that the recent Governments that have for some time advanced the social legislation, have also created in large part the conditions which are making it impossible for the mining industry to support this social legislation."

A most urgent social problem for the mines constitutes the "pulpería" or cheap commissary. This system grew out of the necsttity to furnish food, clothing and fuel to the miners so that they could remain at work and were assured of adequate supplies at low cost. As pulpería prices were gradually frozen, the pulpería privilege took on the form of an indirect and substantial wage as may be seen from the fact that meat can be bought in the pulpería for Bs. 24 per kilo, or US $0.006, while the normal price is Bs. 600. Other items such as flour, rice and sugar are priced accordingly.

To show how serious this problem is, we may mention that in 1953 the average miner was making a salary of Bs. 240 a day at Catavi. With this he could buy a "package" including such items as shoes or clothing, costing Bs.2000. In June 1956 the same miner earned Bs. 1314 a day and he can still buy about the same package (if available) for about the same price, and keep it or sell it in the black market.

Another social problem facing the Corporation's nationalized mines will be the shifting of the dependent mine populations from non-profit or "social" mines to new productive enterprises.

According to the Ford, Bacon and Davis study, which we like to quote on the subject, "There will exist within the next five years a dependent mine population (at mines that are essentially exhausted) of about 45,000. With the non-profit mines now being operated as social mines and with other mines to follow, it is obvious that a serious unemployment problem must be solved, for the betterment of both Bolivia and the mining industry.

"The forced operations of the social mines for the sole purpose of creating employment is a costly way of solving this problem and one contributing to demoralization at the mines because of the tendency to add to the payroll increasing numbers of nonproductive workers. Furthermore, these mines are wearing out equipment which must be replaced with dollars obtained through foreign exchange. Both the equipment and the trained labor could be used elsewhere to greater advantage. Also these social mines offer no incentive to make economic improvements and continually set a poor example to the other nationalized mines and the private mines as well.....

125

"The handling of the excess population of mining towns where mining activities must of necessity cease, has always been a difficult one and some unsuccessful attempts have been made in the past to move mine workers and families to wholly new occupational areas. It is the opinion of the Engineers that the trained miners of this group will be very much needed by the mining industry if the Government takes the necessary steps to revive the industry. These miners and their families can be attracted to new mine developments wherein good housing and camp facilities are provided.

"The first solution to the above problem is for the government to take the necessary steps to create an investment climate which will stimulate the mining industry and create the need to employ these miners who know mining and who prefer to live in the mining country. It would not require much stimulation of the industry to create a shortage of miners. A large mining project like the development and operation of the Matilde property for instance, would absorb a large portion of this mine population."

The Future of the Mining Corporation

The future of the Mining Corporation is hard to predict with any degree of accuracy since so much depends on how the political and social problems will be handled in the near future. However, one certainly can make the statement that even under the best of circumstances the future of the Mining Corporation is not good.

To make ends meet, the Corporation could make sizable savings by closing certain mines and using equipment saved in this manner elsewhere.

Table XXXX-A shows the Corporation's estimated increase or decrease in mineral output over the next five years as projected by the Ford, Bacon and Davis study. As a result of this, according to the same source, the Corporation would be operating at a loss of about $4.5 million by the end of the fifth year.

Lack of capital and lack of technical staff, combined with the few years which are now left in which to do anything, will make it almost impossible for the Corporation to develop new properties which completely throws the burden of the rapid development of new mineral resources on the private mining industry. For further details of this most interesting aspect of Bolivia's economy during the next few years, the reader is referred to the Ford, Bacon and Davis report.

Problems of the Private Mines

One of the main problems of the private mining industry has been the absolute government control exercised through the Mining Bank. As mentioned before, prior to the establishment of the Mining Bank in 1936 the small and medium sized miners had absolute freedom to do with their production as they pleased. Some of them exported their minerals directly, while others sold to ore buyers such as Philipp Bros., Hochschild, Duncan Fox, and others. As a result, nearly all of them had their own credit standing abroad and were able to purchase or replace the necessary mining equipment.

With the establishment of the Mining Bank as a government monopoly handling practically all exports, all this was changed, the idea being that

the ore buyers were making too much profit which should have accrued to the miners themselves. The system worked at the beginning since in the early days the Mining Bank operated more or less as a development bank for the industry. However, as time went on the Mining Bank became more and more bureaucratic and unable to help the miners. From the original concept of a development bank for the private mining industry, giving credit, assistance in the sale of minerals and technical assistance, it gradually developed into a stumbling block for the private mining industry.

According to the decree of June 2, 1952, all private mines had to deliver their minerals to the Mining Bank at completely arbitrary prices in local currency after which the Bank would sell them for dollars. Likewise they had to import all equipment through the Mining Bank. These measures resulted in a serious drop in production as may be seen from the following figures:

PRINCIPAL MINERAL EXPORTS OF THE MEDIUM AND SMALL PRIVATE MINES 1/
(All Figures Given in Thousands)

Mineral	Metric Tons Fine			US Dollars (gross value)		
	1949	1952	1955	1949	1952	1955
Tin	5,682	6,169	4,576	11,943	16,107	9,305
Wolfram	947	1,449	1,353	1,381	9,267	5,660
Lead	18,178	20,245	11,252	5,908	7,661	3,729
Antimony	10,255	9,626	5,292	4,177	4,151	1,871
Copper	202	461	306	86	286	243

During 1955 the gross income from all the small and medium size private mines amounted to some $24.5 million as compared with $32.5 million in 1951. Of this total some $9.0 million went to the Mining Bank for realization costs and other expenditures.

Although it is not its major problem, private mining is affected by labor problems to a considerable extent. For instance, in one of the private mines labor productivity dropped from 2360 kilos of fine metal per man per month in January 1954 to 645 kilos in December 1954. By April 1955 this figure had dropped further to 274 kilos per man per month. However, it seems safe to say that the labor problem is nothing compared with the problem which the Mining Bank presents to the private miners. Requests for equipment are handled in a very slow manner. To show what the private miner is up against, a hypothetical - however typical - import case has been provided under Appendix III of this report. Sometimes requests are changed or not attended to. Furthermore, the Mining Bank's prices for equipment appear to be in excess of what the private miners would have to pay if they were to buy their equipment directly. For instance, miner's hats bought through the Mining Bank in a specific case cost Bs. 3500 a piece. The same hats could be bought without the help of the Mining Bank for Bs. 785.

The high cost of the Bank's operation is easily explained if one takes

---

1/ Source: Ford, Bacon and Davis, Inc.

into account the fact that, in addition to charging a higher price for the goods which it procures, the Bank charges expenses in bolivianos which are then converted into dollars at the official rate and deducted from the client's dollar account. It needs no explanation that with the fast increasing inflation, the effects of this procedure are disastrous for the individual miner.

Because of the extreme disorganization in the Bank, there is a constant struggle between the Bank and the miners as to the amount of credit which the latter have with the Bank as a result of their sale of minerals. Since the Bank is more or less autonomous in these matters, there is little the miners can do about it.

The Mining Bank is rather incompetent as a procurement agency. During 1954 the Mining Bank bought on credit US $1.3 million worth of compressors to "mechanize the mines", which are said to be of the wrong type, while at the same time the small mines were clamoring for transportation equipment.

The Bank can only handle routine operations and handles them badly. Not so long ago a private miner offered a certain low priced mineral which contained a substantial part of another, much more valuable mineral. In this relatively new situation the Bank punished the miner in question for the "impurities" in his mineral instead of considering the less valuable mineral part of the more valuable ore.

The Road to Bankruptcy.

As a result of all this, there are now only very few private mines that can still make a profit. According to a calculation made by the Ford, Bacon and Davis engineers, the government's "take" in the case of many private mines amounts to about 100% of the net profit as compared with 37% in Canada, 28% in Venezuela, and 22% in Peru. According to the same source most of the medium and small private operators are now non-profit, and some of them have been driven into bankruptcy. The report states that during 1955 the government withheld 74% of the gross sales, thus making it impossible for these mines to be self-sustaining.

Apparently the ore reserve position of the medium sized mines - while not as bad as that of the Mining Corporation - has also deteriorated to a dangerous extent, while the productivity per man shift in these mines has deteriorated about 20% since 1953. Along with this, working capital and reserves have been depleted while mine and milling equipment has deteriorated because of lack of maintenance and replacements.

Since the problem of the private miner is a direct result of excessive controls and taxation, and not one of lack of capability or initiative on the part of the operators themselves, this problem could be remedied in a relatively short time. That this is true can be proven by the fact that since the decree of March 23, 1955, the industry has already experienced a small recovery and further expansion is still possible if the operators' freedom is increased. If the private mines were able to export for $32.5 million in 1951, which was admittedly a good year, there is no reason why, with adequate incentives, this figure could not be brought up again to $30 million a year under present day conditions.

Remedies

As indicated before, to arrest the present decline in mineral production and to develop new sources of minerals will call for a number of measures, the principal ones of which would be in the political sphere.

Considering the fact that most of the existing mines are now diminishing prospects, the principal solution would appear to lie in giving substantial incentives to the private mining industry through the adoption of a sound mining code along with creating administrative changes in the government as advocated earlier in this chapter. This would automatically result in bringing new managerial and technical personnel to Bolivia which is a must even if mining operations are to be maintained at the present low levels.

Further remedial measures involving political decisions would be the stabilization of the currency, removal of many fiscal controls, the closing of a number of low profit mines, the elimination of the cheap commissary and the restoration of labor discipline in the mines. Likewise, as a matter of the highest priority, the present monopoly of the Mining Bank would have to be abolished.

In the technical sphere geophysical methods might be used profitably to find new ore deposits or to replace the ones that are now becoming exhausted. In order to obtain quick results, airborne geophysical surveys would appear to be the most logical approach to this problem. Adequate provision should be made to help the small and medium sized miners through the use of better methods and techniques. Better education should gradually draw them away from their present feast or famine philosophy which has resulted in the ruining of so many mines for a quick dollar. To show how important it is to help the small miners we might recall the fact that many of the present large mines started out as very small operations. As a matter of fact, in his early days, Simon Patiño crushed ore with his wife; yet out of this grew Bolivia's large tin mining industry.

Another aspect which would seem to be important in helping the small and medium sized mines is to provide better roads and better transportation so that these miners will be able to get out their mineral. Allowing more realistic local currency rates to the Bolivian Power Company would also help since a greater incentive could induce this company to invest more money in additional power plants in certain areas thus freeing more power for the mines.

Another point to help the small mines would be to lighten the burden of their social legislation which now results in keeping them small. If a small miner employs more than a certain number of people he has to provide all sorts of social benefits including such items as a cheap commissary, a football field, a hospital, and facilities for a union. It stands to reason that to avoid all this, the owner will do anything to keep his labor force below the critical number.

In certain areas, the problem of miners' cooperatives would have to be given a serious review since the present policy has resulted in labor taking over properties from the owners without doing much with them in the way of production.

Of course, in order to backstop the small and medium sized mines, it would be most important for the government to establish a first class laboratory for the proper analysis of minerals, to set up a geological survey, and to open up adequate mining schools in various parts of the country. Along with this should go a competent statistical service to provide foreign investors with the necessary data.

So far as the Mining Corporation is concerned, one of the highest priority items would be to restore labor discipline and to transfer the care of sick miners from the Corporation to the Bolivian State. Even if the mines which have them on the payroll now would have to give them a pension, all would gain in the end. Internal migration is no solution for these people, for experience has shown that a lower altitude will kill them like flies in a matter of months.

Strong action should be taken to stop patronage and put the mines on a sound economic basis. A year ago in Potosí only 43% of the workers were engaged in production while 57% were "working" outside the mine. This proportion needs no further comment.

The Bolivian miner is still a good miner. He is highly respected in both Chile and Peru. Even today sick miners frequently try to keep up production alongside their fellow workers who respect them for it. Unfortunately, however, through his lack of education and excessive drinking he is an easy prey for all kinds of agitators. Therefore, strict measures should be taken to punish the negative elements. This problem may gradually take care of itself since many miners are beginning to realize that in the present set-up hard work is not being rewarded. The soft jobs go to the agitators and slick talkers.

In trying to remedy the present situation, one cannot stress enough the time element involved in exploring and developing new mines which require a minimum of three to five years under the most favorable conditions. It is obvious that to create a favorable investment climate through promulgation of a new mining code would at least take another year so that the period in which to do something is shortened even more. Therefore, the most immediate hope lies in helping the small miners who, with a little incentive and a few pieces of equipment, could probably increase output by about 30% in the span of one year. If they were allowed to reinvest their profits they could obtain in a relatively short time a much larger production which could be doubled again in a period of five years. For the medium sized mines, this picture is even better since if loans and supplies were available to more of these operators they could probably reach a 100% increase in production in a period ranging from three to four years 1/. That this is possible may be seen from the fact that only a few years ago these mines did produce considerably more than they do at present

The Problem of a Tin Smelter in Bolivia

The establishment of a modern tin smelter in Bolivia has been studied a number of times with a corresponding financial loss to the prospective investors who were interested in this problem. It is obvious that, if economical, a tin smelter would greatly enhance Bolivia's world position in the tin industry. Apart from saving freight, handling and payments to the foreign smelters, a smelter to treat low grade concentrates in Bolivia

1/ Estimate made by Ford, Bacon and Davis, Inc.

would increase ore recoveries which in turn would prolong the life of the presently known tin mines.

The establishment of a tin smelter in Bolivia has some disadvantages, however, which seem to outweigh by far the above mentioned advantages. First of all, metal produced from Bolivian tin concentrates is high cost in comparison with other pig tin. Foreign smelters now have the advantage of blending Bolivian concentrates with clean alluvial concentrates, which lowers their cost substantially. Secondly, Bolivia seems to lack the ore reserves to justify an investment of some $18 million in a tin smelter. Thirdly, the establishment of a tin smelter in Bolivia would call for substantial technical skills as well as for a very responsible type of labor which is hard to find in Bolivia. Fourth, since the government could never finance the construction of a tin smelter the project would have to be carried out by private industry which is not likely to be attracted to such a venture under present circumstances. Fifth, the construction of a tin smelter would take several years so that it would involve another longer range investment which is not going to do anything to help Bolivia's balance of payments during the next two or three years.

While eventually a tin smelter could become feasible in Bolivia, the Ford, Bacon and Davis engineers concluded that for the time being such a project is out of the question as an economical operation for reasons outlined above.

The Future of the Bolivian Mining Industry

As will have been noted from the above, the problem of the Bolivian mining industry is serious and undoubtedly the solution of the problem lies more in the political than in the technical sphere. While the situation looks pretty grim at the moment, especially because of the lack of time in which to put into effect any remedial measures, the situation is by no means hopeless. Neither is the problem new, since Bolivia, like many mineral countries, has gone through several cycles of feast and famine such as the silver boom and bust, the bismuth bonanza in 1916, and the ups and downs of tin.

At present it could well be that a boom in petroleum and gold mining could be around the corner. However, even if this were the case this is not likely to solve Bolivia's problem during the next few years.

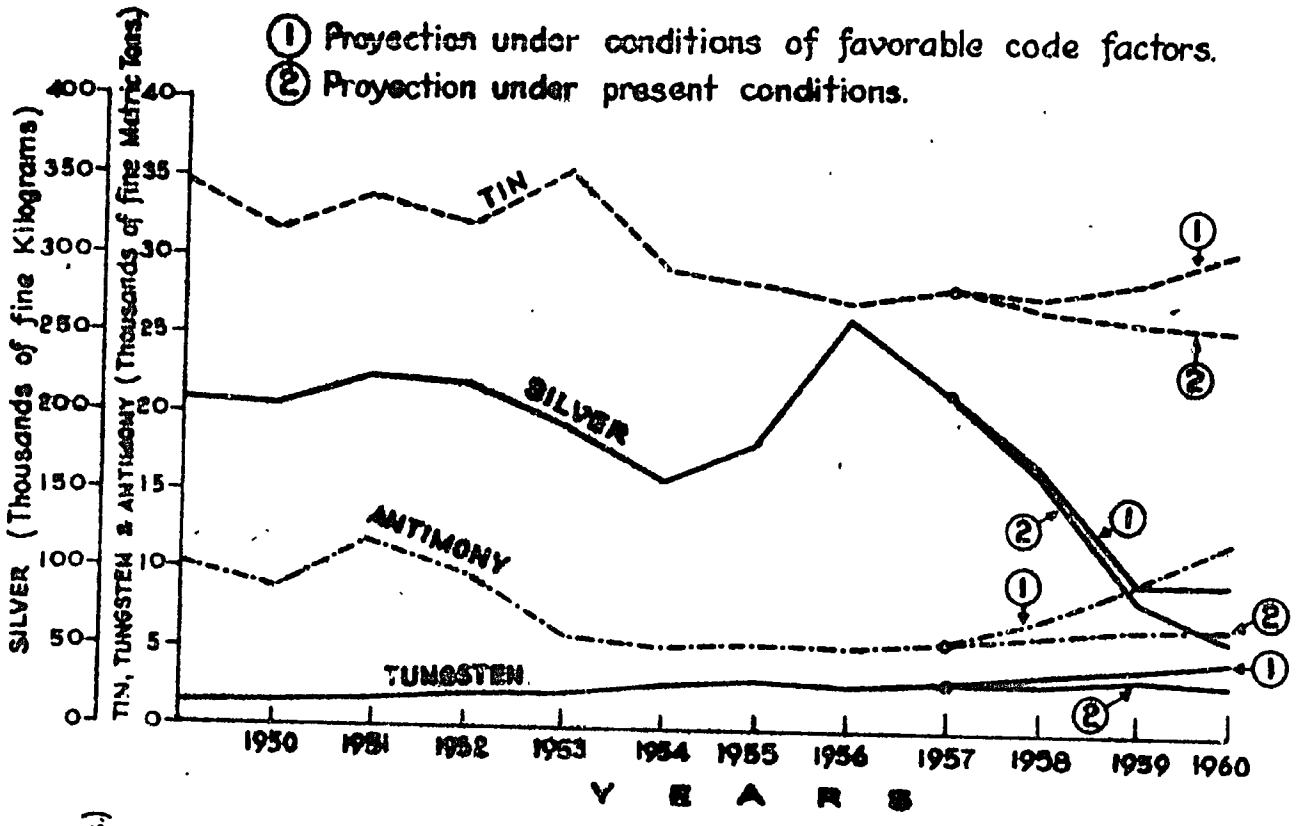
There are ample indications that Bolivia has minerals which can take the place of tin thus bringing about a certain diversification in the mining industry. Among these minerals are copper, lead, zinc, antimony, wolfram and gold. With respect to some of these minerals, Bolivia would face competition from excessive mining production in adjoining countries. In other cases such as tungsten and antimony it would face competition from outside sources such as China. The only way to face this competition would be to increase the efficiency of the mining industry. In time there are non-metallic minerals which may become important but which at present could not add much to the Bolivian economy because of the lack of domestic markets and difficult transportation. Among these are the numerous salt, soda and sulphur deposits which have been worked only to a very limited extent.

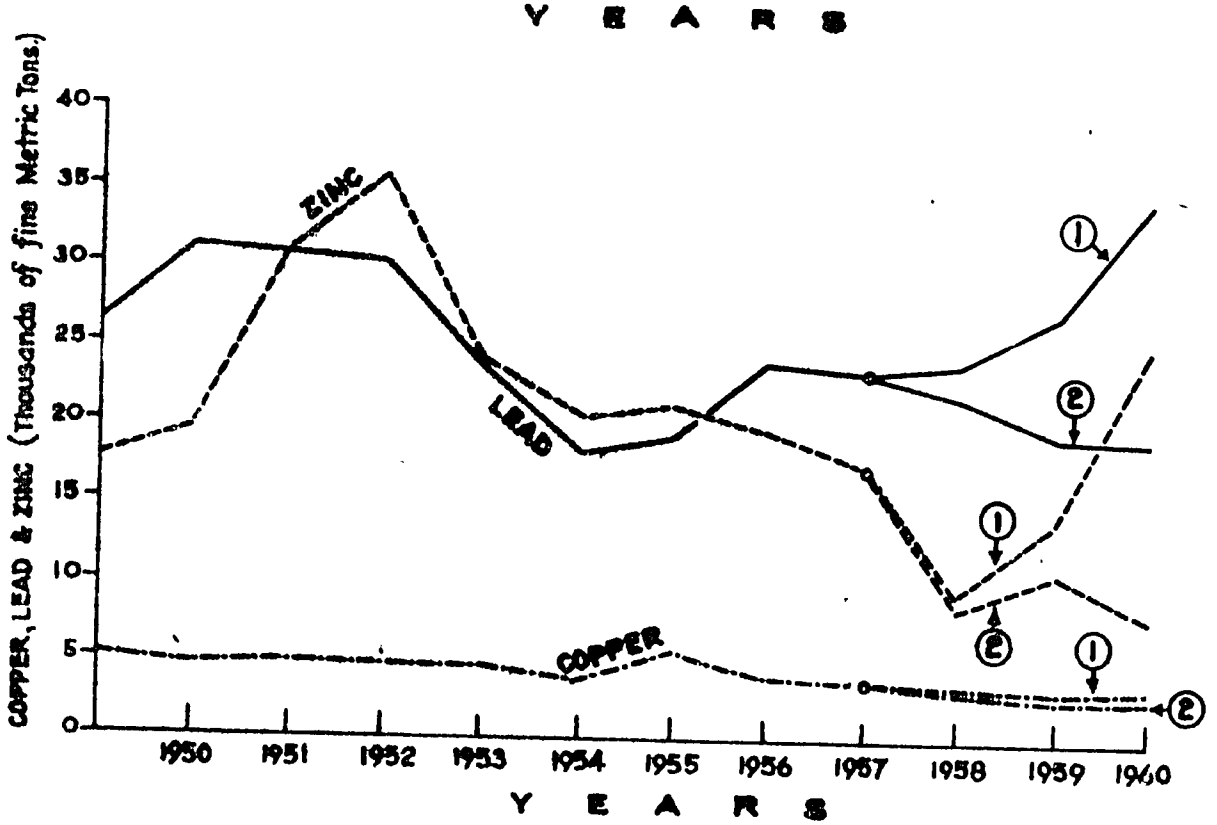
Perhaps the most promising prospects are in copper and gold. According to the Ford, Bacon and Davis engineers the potential reserve for copper in

BOLIVIAN MINERAL INDUSTRY

PAST TREND & FUTURE POTENTIAL FOR MINE OUTPUT PROYECTED UNDER PRESENT CONDITIONS AS COMPARED TO CONDITIONS UNDER SOUND INVESTMENT CODE.

① Proyection under conditions of favorable code factors.
② Proyection under present conditions.





Courtesy: Ford Bacon and Davis, Inc.

known Bolivian deposits appears to be in excess of 25 million tons of ore ranging from 1.5 to 6% copper, with good possibilities for increasing present reserves and for finding new ore bodies. The problem here would be that an efficient production would require large scale operations which in turn would require a considerable investment and know-how which only would be available if the political climate should become more attractive.

Recently there has been some interest in gold mining as evidenced by the contract just signed by the South American Gold and Platinum Co., for the exploitation of placer gold in the Tipuani region. It is estimated that once fully developed, a successful gold dredging operation could add an annual amount of $10 million to Bolivia's foreign exchange income.

Another possibility in working tin has been pointed out by the United Nations expert, Mr. Gouka. Mr. Gouka, who has had extensive experience in Indonesia and the Malay area, feels that some alluvial deposits in Bolivia could be worked at much lower exploitation costs than veined ores. Mining tin in this fashion would result in lower production costs, no drilling, no compressed air or dynamite, and no need for timber. Milling costs would also be considerably lower and, except for dredges, less capital would have to be invested in machinery, buildings and development. Another advantage would be that this type of operation would result in better social conditions since the labor force would work under healthier conditions in the open air. Alluvial tin deposits are by no means scarce in Bolivia. At least fifteen important deposits are known at the present time, having a total reserve which already exceeds all known reserves from the country's deep mines. Mr. Gouka feels that one of the reasons for the lack of development of this resource may be a certain lack of knowledge of this type of operation on the part of the local technicians, national as well as foreign, who have had experience only in deep mining methods. On the other hand, foreign companies with alluvial experience appear to be reluctant to go into Bolivia at this time because of the unfavorable political and social climate. Of course, alluvial mining cannot solve Bolivia's tin problem since even on a full-scale operation the maximum production from alluvials would not exceed 10% of the present production. However, 3,000 extra tons of tin produced at a profit would be quite interesting to the Bolivian economy.

Asbestos provides another new possibility in mining since an extensive zone of crocidolite asbestos mineralization is found in the Chaparé area. Several small mines, or prospects, are found along a zone extending for about 30 kilometers from Limbo to Palmar. The potential tonnage of asbestos-bearing mineral is extremely large. The fibers are very great in length and there is a considerable variation in the physical properties which poses a problem of quality control. So far the asbestos mining operations have been only on a small and rather primitive scale.

As said before, probably the quickest way to increase mineral production would be the promulgation of an adequate investment and mining code. In this connection it is interesting to compare mine output in Peru after the adoption of a new mining code with that of Bolivia for the same period. In Peru it took about two years to promulgate a proper mining code and to prepare a favorable investment climate. After this the entire mining industry started a vigorous expansion as may be seen from the following table:

COMPARISON OF THE PRODUCTION OF SELECTED MINERALS IN BOLIVIA AS COMPARED WITH PERU, AFTER THE INTRODUCTION OF A NEW MINING CODE 1/

% of Increase or Decrease, 1950-1954

	In Bolivia	In Peru
Copper	- 22.1%	∕ 37.8%
Lead	- 41.6%	∕ 77.7%
Zinc	∕ 4.2%	∕ 50.5%
Silver	- 23.2%	∕ 51.2%

Potential Over-All Capital Needs for Bolivian Mining Industry

The Ford, Bacon and Davis engineers have made an estimate covering the over-all future capital needs of the Bolivian mining industry under more or less favorable operating conditions. It is obvious that in view of the existing uncertainties such an estimate has to be extremely volatile. For instance to put all the Mining Corporation's mills alone back into shape would require an investment of some $16 million. Therefore, the following figures constitute only an approximation:

Entity	Total Capital Needs Five Year Period	Annual Average
Nationalized Mines	$ 11,253,000	$ 2,250,000
Private Mines	26,095,000	5,219,000
New Projects		
Mines	33,995,000	6,799,000
Industrial	3,050,000	610,000
Government		
Geophysical Surveys	1,000,000	200,000
Civil Service Administration	375,000	75,000
Total	$75,768,000	$15,153,000

Thus, it appears that the Bolivian mining industry could well absorb $15 million per year for a period of five years, or more, if it could attract the capital.

D. PETROLEUM

Petroleum has been called Bolivia's ace in the hole since the black gold could well prove to be a new resource for Bolivia, which in time might help to put the country back on its economic feet. While this possibility undoubtedly may exist, one should not forget, however, that no matter what petroleum might do for Bolivia at some future date, it is not likely to solve Bolivia's most immediate problem which is how to carry on during the next four years.

1/ Source: Ford, Bacon and Davis, Inc.

Brief History of the Bolivian Petroleum Development

The first reference to Bolivian petroleum was made in 1640 when an Andalusian priest, Alvaro Alonso Barba, in his famous book, "El Arte de los Metales," referred to numerous oil seeps in Bolivia. In 1864 the government of President Melgarejo granted some sort of a petroleum concession to a group of German industrialists. Although from the early days of the petroleum industry, it was clear that Bolivia might have some petroleum potential, it is equally clear today that most estimates are mere speculations since only the drill can give the final answer.

Bolivia's more recent petroleum history starts with the entry into the country of the Standard Oil Company of New Jersey during the early twenties. The country's first oil law dates from June 20, 1921. The Standard Oil Co. of New Jersey did considerable exploration work in the Camiri region which would later on become one of Bolivia's major producing areas. In 1937 Jersey Standard was expropriated. Yacimientos Petroliferos Fiscales Bolivianos (YPFB), the national petroleum agency, was established by the decree of December 21, 1936. At about the same time practically the whole territory of the Republic was declared to be a national reserve which was to be exploited exclusively by YPFB. For a number of years, YPFB carried on a rather inconspicuous existence. Production was never much over 1000 bbs. a day while hardly any new exploration work was carried out. The pipelines to Cochabamba and Camiri were built, together with small refineries at their terminals, but nothing very exciting happened.

When the government of President Paz Estenssoro came into power in 1952 it found itself in a most difficult financial position. Yet at the suggestion of the management of YPFB, it decided to take a gamble on oil. About $2 million of Bolivia's scarce dollar resources were set aside to buy some modern drilling rigs.

The deal paid off almost immediately. While production at the end of 1953 was about 1600 bbs. a day, productive capacity at the end of 1955 had grown to over 12,000 bbs. a day, more than enough to cover all the domestic petroleum needs of the country, and to leave enough of a margin for exports. The prospects for Bolivian oil are encouraging in view of recent new discoveries in the Camiri field, the high grade of Camiri crude, and the thickness of some of the producing sands. Furthermore, the volume of reserves proven so far may point to even larger and broader structures in the Chaco area.

Organization of Yacimientos Petroliferos Fiscales Bolivianos 1/

At present Yacimientos Petroliferos Fiscales Bolivianos has a personnel of about 1300 employees and over 2000 laborers, the larger part of whom are stationed at the Camiri camp. From top to bottom morale is excellent. The management is in the hands of Mr. E. Hinojossa, an American trained petroleum engineer.

In 1953 the agency organized a geological department for which two foreign and three Bolivian geologists were hired. In 1955 four more foreign geologists were added to the staff, which permitted the agency to carry out surface exploration work over more than 579 square miles during that year which resulted in the discovery of two new structures (Guayruy and Toro).

1/ For details on YPFB personnel and drilling equipment see Appendix IV.

Both discovery wells had an initial production of 1500 barrels a day. As of June 30, 1956, YPFB had eight geological field parties working. At the same time a substantial amount of seismic and gravimetric work was contracted out to two foreign companies.

Up till the end of 1955 aerial surveys had been carried out over an area comprising some 4,439 square miles. YPFB's exploration program for 1956 looks quite impressive since the agency plans to cover 579 square miles by surface geology while at the same time 772 square miles of gravimetric work and 579 square miles of seismic work will be done.

In order to train more people, YPFB has been sending a good many promising employees abroad. Likewise YPFB has shown a keen eye for the solution of various social problems.

Production 1/

The new and progressive spirit which has entered YPFB since the present management took over is even more clear from its drilling record. During the period 1938-1951, forty-nine wells were drilled having a total depth of 128,258 feet. From 1952 until June of 1956, 72 wells were drilled having a total depth of 260,030 feet, as a result of which two new producing sands were discovered. Nearly all of the present production is centered in the Camiri field which is now producing from thirty-five wells, while twenty-one wells are shut in because of lack of transportation facilities. Most of YPFB's producing wells are relatively shallow. The most important producing sands range from 2950 to 4900 feet, with some wells producing from 1800 feet.

Since the territory at Camiri is quite rough and would normally require a lot of expensive road building, YPFB recently introduced a program of directional drilling which will result in substantial savings. This program is now carried out entirely by Bolivians without any outside help.

The Camiri field has a controlled potential production of 12,000 barrels a day of 53° - 60° API crude with reserves estimated conservatively at some 50 million barrels. YPFB's total proven reserves in all fields amount to about 80 million barrels. Some production is coming from the Sanandita and Bermejo fields. The latter produces a heavier type crude (23° - 28° API) which Bolivia needs badly since the present demand for diesel and fuel oil exceeds supply.

Total gas production at Camiri amounts to about 7 million cubic feet per day, about 80% of which is flared. Since repressuring will be necessary to prevent the rapid in-flow of water, YPFB recently signed a contract with the North American Utility and Construction Company for the construction of a repressuring plant for the proper conservation of the deposits as well as for a natural gasoline plant, both of which will cost US $1.4 million.

Refining and Transportation

YPFB's principal refinery is located at Cochabamba. During 1955 it processed about 4600 barrels of crude per day. The second refinery at Sucre, which has a capacity of 4000 barrels a day, now treats another 1000 barrels a day. In addition to this there are small topping plants at Camiri and Sanandita. All

---

1/ For details on YPFB's oil fields and reserves, see Appendix V.

YPFB's refineries together have a capacity of some 12,000 bbs. a day.

Both the Cochabamba and Sucre refineries were completed in 1949 by the Foster Wheeler Corp., with partial financing from the Export-Import Bank at a total cost of about $11 million. Since the Sucre refinery has never been used to full capacity, YPFB is planning to move one of the plants (3000 bbs. a day) of the Sucre refinery to Santa Cruz where it will be connected with the Camiri field by a 4½" pipeline over a distance of some 186 miles. A contract for the delivery of $1,250,000 worth of pipe has already been signed with the Cia Commercio y Industria Mannex do Brasil, S.A. The total foreign exchange cost is estimated at $1.8 million. Through this line will be pumped about 3,000 bbs. a day. The excess production which cannot be absorbed by Santa Cruz will exported to Brazil. YPFB estimates that the construction of this line will increase its exports to the latter country to $1.8 million by January 1958.

YPFB's main pipeline runs from the Camiri field to the Cochabamba refinery with a branch line going to Sucre. The Camiri-Cochabamba line (6-5/8") has a total length of 331 miles, while the Sucre branch is about 44 miles long. The present capacity of the Camiri-Cochabamba line is about 8000 bbs. a day which could be increased to 12,000 bbs. a day by installing more pumping equipment. During 1955 a 6-5/8" pipeline from Camiri to Yacuiba on the Argentine border was completed to take care of YPFB's sales to Argentina. This line which is about 160 miles long was built at a cost of some US $4 million. Its present capacity is about 4000 bbs. a day which could be upped to 18,000 bbs. a day with the installation of additional pumping equipment.

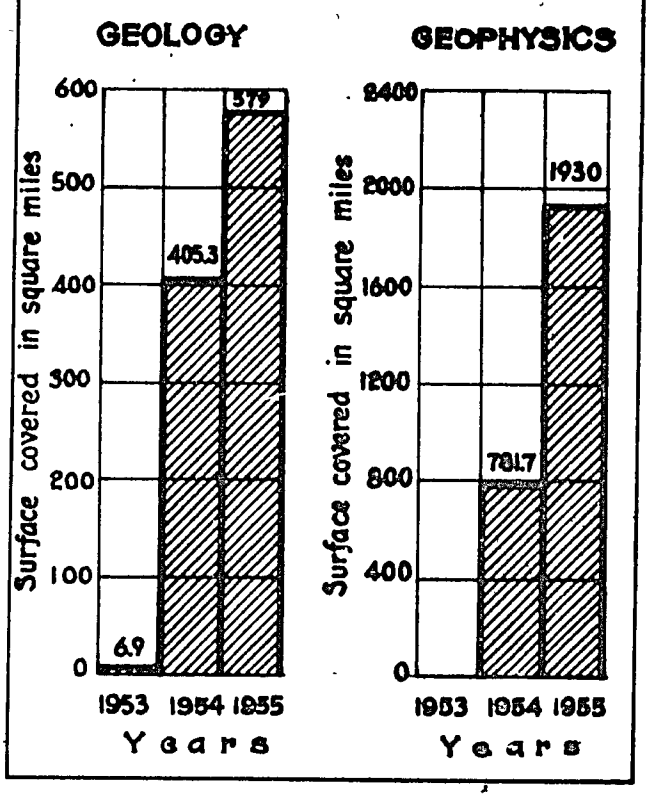
Another 6-5/8" pipeline going from Cochabamba to Oruro and La Paz was completed early this year at a cost of US $7.6 million. This line is about 232 miles long. It has a present capacity of 8000 bbs. a day, which can be increased to 12,000 a day. YPFB estimates that this latter line will save Bolivia about $1.2 million a year in foreign exchange since the Bolivian Railway Company, which used to carry this oil in tank cars at an annual cost of Bs. 1,400,000,000, had the right to convert 40% of its gross income into dollars at the official rate. In addition to this pipeline system, YPFB uses 160 tank cars which have an average turn-around of six days.

There are storage facilities at La Paz and Oruro, having a total capacity of over 4 million gallons while another 1.3 million gallons of storage facilities are now under construction at Potosí, Tarija and Santa Cruz. Overall storage capacity almost doubled since 1952. Recently YPFB opened up a drum factory in Cochabamba which was built at a cost of some $250,000, and which has a capacity to make about 7000 drums a day ranging from 5 to 50 gallons.

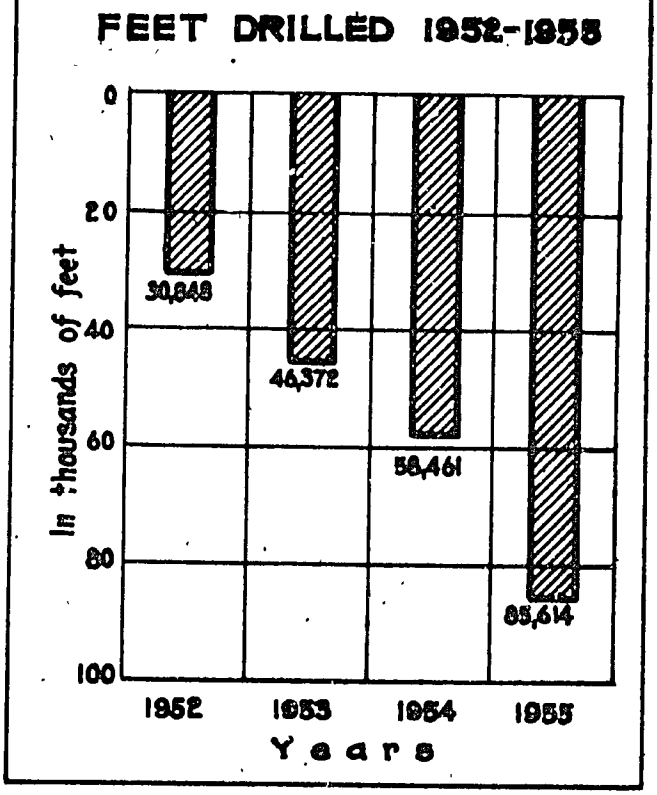
A lube oil plant which is being constructed at a cost of $160,000 and Bs. 163,000,000 at Cochabamba, is scheduled to go into production during the second half of 1956. Once in operation, it will completely fill Bolivia's internal demand for certain lubricants and waxes which will result in a foreign exchange saving of at least US $500,000 a year.

THE RECORD OF YPFB

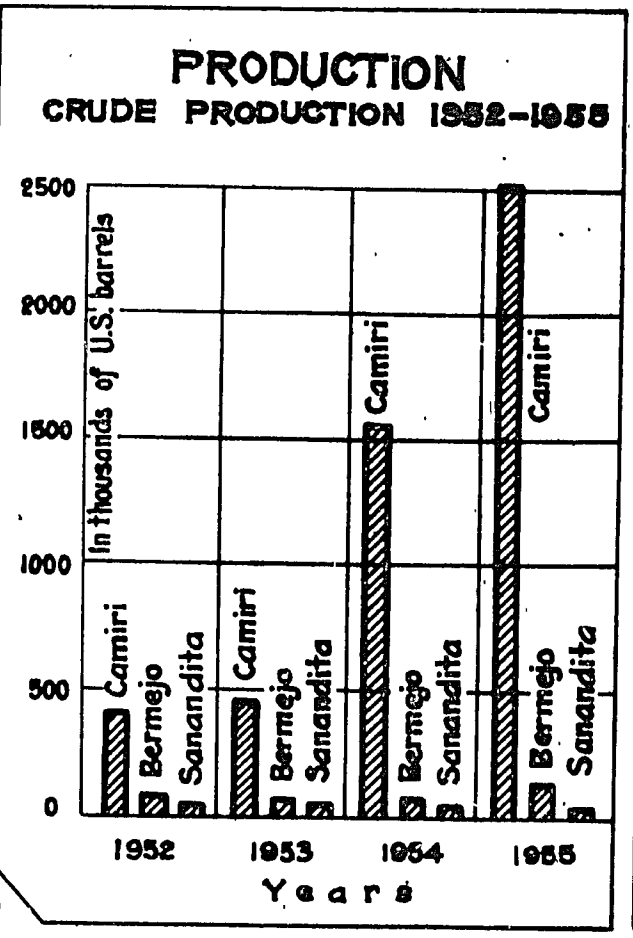
EXPLORATION



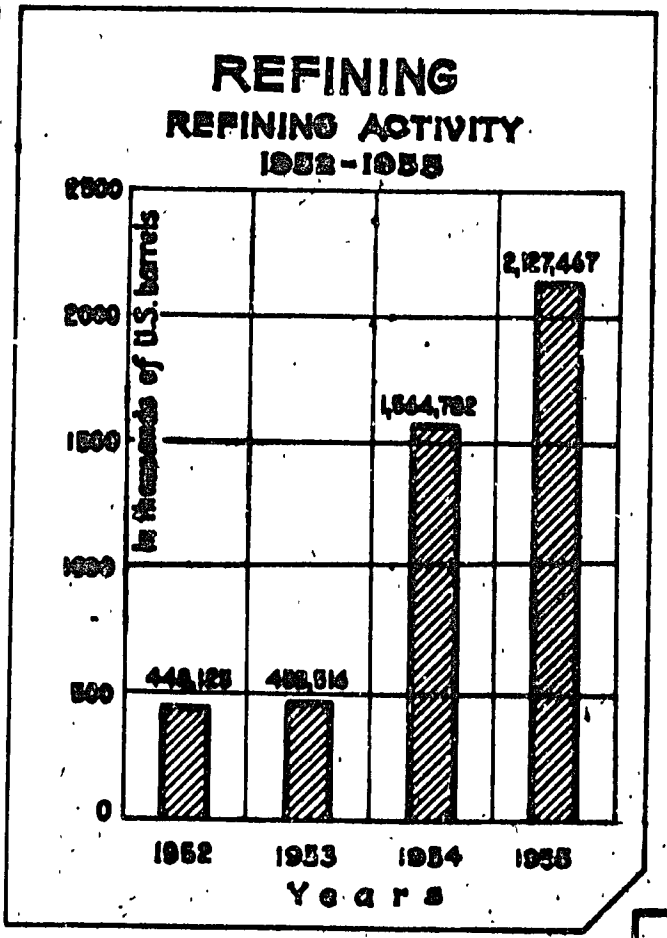
DRILLING



PRODUCTION



REFINING



Source: YPFB 1955 ANNUAL REPORT

Sales

At present YPFB is completely filling the demand of the domestic market except for lube oil and aviation gasoline. Tables XXXXI-A and B of the Statistical Supplement show both production and domestic consumption of petroleum products while Table XXXXI-C gives YPFB's 1955 exports.

Exports of petroleum products for 1955 remained far below the original estimate of US $6 million since Argentina was unable to take delivery. In accordance with an agreement signed at the end of 1954 with Argentina, Bolivia was to export petroleum products up to a value of $5 million a year to the Argentine to reach $15 million over a period of three years. In order to comply with this agreement YPFB built the pipeline from Camiri to Yacuiba. However, ever since the agreement was signed Argentina has had difficulty in receiving that much petroleum since it has to take delivery in tank cars which must travel some 180 miles to the Salta refinery. As a result, 1955 sales of crude to the Argentine did not exceed $1.6 million.

Estimated exports of petroleum products for 1956 are as follows:

To Argentina	US $ 4,817,000
To Brazil	693,748
To Chile	532,628
To Paraguay	17,965
To Peru	240,422
Total	US $ 6,302,463

Present Situation

As a result of its aggressive exploration and development, YPFB finds itself overnight in the position of a small but completely integrated oil company with severe growing pains. Over the years the agency has received substantial help from the government, either in the form of direct assistance or through the medium of differential exchange rates. Up to 1952, US $22.9 million had been invested in YPFB by various Bolivian governments. Of this amount, $4.11 million had been paid off. Of the remaining debt, or $18.8 million, the Central Bank took over $14.6 million at the rate of Bs. 60 to the dollar which left YPFB with nothing but a small local currency debt on this account.

Since 1952 YPFB invested another $24 million, bringing the total investment up to some $47 million. This latter investment program was largely financed through the granting of foreign exchange at the official rate of Bs. 190 to the dollar, while many of YPFB's sales are carried out at much higher rates. For instance, during the first half of 1956 sales to Argentina were carried out at the rate of Bs. 560 to the dollar; for trade with Chile, Paraguay and Brazil, YPFB's rate was fixed at Bs. 1790 to the dollar, while in selling to Peru it will receive free dollars.

An example may further illustrate this. In 1955 YPFB bought 20 tank cars worth $303,127.80 which cost the agency, at the Bs. 190 rate, Bs. 57,594,145. The annual operating cost of these cars alone during 1955 amounted to Bs. 86,168,072. Thus YPFB was able to pay off some of its more recent investments, such as the Camiri-Yacuiba pipeline in record

time. As a matter of fact most of the investments made since 1952, with the exception of some $6.3 million, have already been amortized. For this reason, it is rather difficult at this moment to separate YPFB financially from the Bolivian State since in addition to cheap dollars the agency was given valuable oil lands plus a distribution monopoly in the country without any charge. Up till 1956 YPFB has never had to charge any depletion.

The 1956 foreign exchange budget fixes YPFB's dollar quota at the Bs. 190 rate at about $14.8 million. Of course, a small part of this will be coming back to the government as a result of YPFB's export sales. For instance, last year YPFB exported $2.3 million of petroleum products. The agency's total profit for 1955 was Bs. 2.8 billion.

It is obvious that if YPFB had had to list all its properties at the parity rate on its books, it would have found it most difficult, if not impossible, to amortize these investments from profits obtained in the local market as well as from export sales. A quick look at YPFB's foreign exchange budget for 1956 is very revealing in this respect.

On the other hand, one should recognize the fact that in the domestic market YPFB is selling its product at a price which is below its realistic value. Furthermore, YPFB has now about 80 million barrels of proven oil in the ground. The agency is currently engaged in a drilling program to open up additional wells in a proven area which will bring its daily productive potential up to 17,000 barrels a day by the end of 1956. It has the personnel and the equipment to carry out this job.

Future Plans of YPFB

YPFB has accomplished its goal of supplying the domestic market with a full complement of petroleum products (except for aviation gasoline which would be uneconomical to produce in Bolivia). It now has its eyes on exports. By the end of 1957, YPFB expects to have a productive capacity of 17,000 barrels a day which it plans to distribute as follows:

7000 bbs. a day to supply the local market
4000 bbs. a day to Argentina
6000 bbs. a day to other markets abroad

In order to assure a sufficient volume of exports, YPFB has made detailed plans for the construction of a pipeline to connect with an ocean terminal. At present there exists a pipeline which connects the Camiri field in the eastern part of Bolivia with Oruro and La Paz. The projected new pipeline would connect at a place called Sicasica near Oruro with YPFB's existing pipeline system from where it would drop down to Arica on the Pacific Coast. Its initial capacity would be some 6,000 barrels a day. A detailed study of the project was prepared for YPFB by Williams Bros. Sudamericana, Ltd., of Tulsa, Oklahoma in May 1955. Williams Bros. recommended that the line consist of about 171.4 miles of 10-3/4" pipe, and 44.4 miles of 8-5/8" pipe. A portable pump station would be installed at Sicasica while a marine terminal would be constructed at Arica. The capacity of the Camiri-Cochabamba pipeline would be increased to 12,000 barrels a day by the construction of a new pumping station near Novillero and by the addition of one pump-engine unit to each of the five original pumping stations, all of which would cost some US $10.5 million.

Recently in May 1956, YPFB managed to arrange financing for this project when it entered into a contract with the Gulf Oil Corporation which agreed to put up half of the cost, or about $5 million as a loan to YPFB. The remainder will be financed by the firm of Williams Bros. which has agreed to take 70% of the construction cost in oil while the pipe can be obtained from a European manufacturer on four year credit 1/.

In time the Arica-Sicasica line may be connected directly with the Camiri field thus giving Bolivia the possibility of placing some 50,000 barrels a day at the ocean terminal to be constructed at Arica. Another contract gives Gulf an option for the possible financing of this project (which would cost some $35 million), if and when sufficient reserves have been established to justify its construction. In addition to this, Gulf was given the exclusive right to carry on exploration over an area of 3.7 million acres within the zone which the new petroleum code had assigned to YPFB in order to speed up the establishment of reserves of 200 million barrels which would be needed to make the construction of a direct pipeline from Camiri to Sicasica a worthwhile operation. All told, the investment which Gulf proposes to make comes to some $40 million.

The construction of the Arica-Sicasica pipeline - in addition to bringing in additional income - would help YPFB in achieving a better balance in its operations. At present YPFB has an operating problem in that it has a rather unbalanced ratio between its availability of light and heavy products. Its highly volatile crude which commands a premium in world markets is exactly the type of crude for which it has little use in the domestic market which needs a larger supply of diesel oil and fuel oil.

While the contribution to the overall economy of the Arica-Sicasica project would not be spectacular, it would mobilize a resource which is now present and which cannot be used to its full extent. In addition, it could represent a gross dollar income to the Bolivian economy of some $5-6 million per year.

Placing Bolivian oil at Arica may have other beneficial effects. It will definitely provide a nearby supply of petroleum to the growing markets in adjoining countries. For instance, Chile might find it advantageous to export its own production from Maghellanes in the deep south to Uruguay, and instead import Bolivian crude at a considerable saving, while the markets of Argentina and Brazil in time will be able to absorb all of Bolivia's excess production.

YPFB's Contribution to the Bolivian Economy

So far YPFB's efforts have saved Bolivia permanently an import bill for petroleum products amounting to some $6 million a year, (this calculation includes transportation costs from Antofagasta to the Bolivian border, and it takes into account that if Bolivia had no local production consumption would have to be rationed), and it has provided a new income of several millions of dollars derived from petroleum exports. It has also focused the

---

1/ Naturally these agreements are contingent upon approval by the Bolivian Congress as well as upon the ratification by Chile and Bolivia of the respective agreements concerning the admission of pipelines through Chilean territory.

attention of the international petroleum industry on Bolivia's petroleum potential. What may be of equal importance in all this is the morale factor. YPFB's success has served to build confidence. It has shown the Bolivians what Bolivians themselves can do if given a relatively free hand. It has made YPFB the first government-owned oil agency in Latin America which is in a position to export a sizable quantity of petroleum. This in itself is no mean achievement.

In spite of all these positive factors, however, one has also to recognize the fact that YPFB's development program has been carried out largely at the expense of the mining industry in which very little money was reinvested during the last four years. From January 1952 to June 1956 YPFB received some $36.3 million 1/ in foreign exchange at the official rate, which was produced by the mining industry. Of this money, it used roughly $24 million in new capital investments. The remainder was used for operational expenses including the purchase of aviation gasoline and lubricants.

It is absolutely necessary to put the above into proper perspective in connection with the question as to where YPFB should go next. If the present policy of providing YPFB with large sums of money at the official rate of exchange is continued, future returns are likely to be less immediate than those obtained in the past. These more recent spectacular successes of YPFB were possible to some extent because a lot of ground work had already been prepared; some pipelines and refineries had been constructed, and at least there had been some investment in exploration. Thus a few additional investments vindicated some of the past ones, making the whole investment policy pay off in a spectacular way by supplying all of Bolivia's petroleum needs.

The next step, however, of building YPFB into a big concern with exports in all directions is another story. It would be all right if YPFB had the money for such a project. But it would seem to be a mistake to finance a further growth of YPFB with public funds as long as private funds to do the job are available as is now clearly evidenced by the interest shown in Bolivia by several oil companies. This presses even more if one realizes that petroleum investment is likely to generate ever increasing demands for new investment making the whole thing a rather long range proposition.

On the basis of the above considerations, it seems that in the near future careful consideration should be given to the question as to whether from now on any future dollar allocations should go first to YPFB or to the mining industry. Cutting several millions of dollars from YPFB's foreign exchange budget will mean a drastic cut in exploration and drilling activities. However, since YPFB has already more reserves than it can handle, this type of activity, particularly where it concerns deep drilling for new structures in the Chaco area, does not appear to give the most immediate returns. As a matter of fact these returns are so long range that if this policy is continued, Bolivia in two or three years may well find itself in the position that it has no longer an adequate income from mining while its realizable income from petroleum has not yet arrived.

1/ El Diario, August 22, 1956

The Future of Bolivian Oil

As pointed out above, Bolivia's petroleum future may be quite promising. However, in discussing this future on a realistic basis, three points should be brought out:

1. Bolivia lacks the capital to develop on its own its petroleum potenti
2. The country's general instability has been a handicap in attracting serious petroleum development from abroad.
3. Unfortunately, according to an agreement concluded with Brazil some time ago, a part of Bolivia's most promising petroleum region can only be exploited jointly by Bolivian and Brazilian entities.

To start with the last point first, in 1938 Brazil committed itself to assist Bolivia with the construction of a railroad from Santa Cruz to Corumbá. Since the original payment of one million pounds sterling (gold) proved insufficient to complete the construction, Brazil committed itself to a further loan at 3.5% which Bolivia would pay back in 20 years in gold, crude oil or gasoline. It was further agreed between Brazil and Bolivia that the payment of the debt would be guaranteed by the petroleum which might be produced in the zone traversed by the railroad. In addition a certain zone was set aside which could only be explored by a joint Bolivian-Brazilian Commission and which in a later stage could only be exploited by joint entities controlled by both nations. The exploration cost calculated at $1.5 million was likewise to be paid out of Bolivian oil. At the same time, Brazil promised to consider all pending border disputes between the two countries as definitely settled.

In 1952 the above agreements were amended in this sense, that the loans made by Brazil would have to be repaid in the original currency (gold sterling) or in petroleum products. In addition the area on which Brazil had a petroleum claim was precisely defined. It was further agreed upon that both governments would put up another million dollars to continue petroleum exploration in the area. In lieu of its contribution in cash, Bolivia contributed the geological studies made by the Standard Oil Co., valued at $901,899. In August 1953, another agreement was signed between the two countries by which Brazil committed itself to pay US $4 million for the further exploration of the sub-Andean belt.

Brazil never complied completely with the above obligations. The 700 kilometer track from Corumbá to Santa Cruz has cost Bolivia £224,266, US $9,964,098, and Cr 814,759,205, not including the cost of the bridge over the Rio Grande which is yet to be completed. Recently the problem has been discussed again between the two countries. Since Brazil needs all its financial resources and since it is obvious that a mere petroleum potential hidden in the ground is no good to either country, there is now some hope that in the near future this problem may be solved in a realistic way between the two countries.

A somewhat similar deal was made by Bolivia to finance the Yacuiba-Santa Cruz Railroad which connects the latter city with the Argentine. In 1941 Argentina agreed to lend Bolivia some funds for the construction of the part going from Yacuiba to Villamontes. Bolivia again committed itself to repay in Argentine pesos, dollars or petroleum products. As guarantee for the deal, Bolivia agreed that some oil produced in the zone traversed by the railroad would be earmarked to repay the Argentine loan.

In 1942 Argentina agreed to lend Bolivia ten million Argentine pesos for the construction of a road from Oran to Tarija and Potosí, the repayment of which was likewise guaranteed by repayment in petroleum products. In 1945 Argentina loaned Bolivia another 40 million pesos for the construction of the railroad from Villamontes to Santa Cruz plus another fifteen million for further petroleum development south of the Parapeti River. A part of the petroleum which might be produced in the zone traversed by the railroad was again put up as guarantee for these loans. As a further guarantee, all profits resulting from the operation of the Yacuiba-Santa Cruz railroad were also to be turned over to Argentina. Later on, in 1945 Argentina agreed to lend Bolivia another 60 million pesos for the above projects, again guaranteed by petroleum to be repaid in 1952.

Early last year (1955) the total Argentine debt was consolidated and put at US $20,890,431 after which Argentina agreed to lend another 255 million pesos for the completion of the Yacuiba-Santa Cruz railroad and for the road from Bermejo to Tarija. Repayment of all these loans will have to come out of the production of YPFB.

As to the first two points mentioned above, lack of capital and general stability, both YPFB and the Bolivian Government have been keenly aware of this problem. As a result the government has been going out of its way to keep good relations with Glenn McCarthy who entered the country in 1953 under a special contract which gave the company a thirty-five year concession with all sorts of special privileges. So far, McCarthy has been drilling five wells, none of which have shown commercial production although the prospects in the zone granted to McCarthy appear to be excellent. This seems to be especially true for the Agua Salada structure where no test drilling has been done as yet since McCarthy has given priority to the Los Monos structure which is better known geologically in view of the work done on it by Standard Oil Co. of New Jersey.

New Petroleum Code 1/

YPFB realizes quite clearly that it is unable to develop by itself all of Bolivia's petroleum resources. As a matter of fact, all along the agency has been one of the strongest advocates that the country's petroleum potential be opened up to foreign capital by means of a new and effective petroleum code. The United States Operations Mission to Bolivia has had a keen eye for this problem. Early in 1955 the Mission contracted the services of the New York firm of Shuster and Davenport which drew up a petroleum code. From the beginning this project had the full support and interest of former President Paz Estenssoro who energetically pushed it across all hurdles until the final decree was signed on October 26, 1955.

The new petroleum code has received a most favorable comment from the industry. It has already resulted in attracting new capital in the form of the above mentioned contract with Gulf Oil Corp. However, the government has not stopped at this. It realizes clearly that in order to attract the kind of petroleum capital which it needs, it must pass the present code, which was issued as a decree, as a law. This in turn called for the establishment of a constitutional government. In order to do this, general

---

1/ A summary of the new petroleum code may be found under Appendix VI of this report.

elections were held last June and it is expected that the new parliament will approve the new law before the end of this year. From then on the answer will be up to the international petroleum industry which, in view of what is happening in the Middle East, may well become interested in increasing its reserves in the Western Hemisphere.

Oil versus Mining

Whether petroleum can ever replace mining as a source of income for Bolivia remains an open question. Apparently the hope is justified that with a sufficient investment from abroad, enough reserves could be found eventually to permit the exportation of some 50,000 barrels a day to Arica which could, in time, mean an annual income to Bolivia of some US $40-50 million, all in foreign exchange. Some experts believe that this would not be too difficult and that the establishment of 200 million barrels of reserves to supply a pipeline to Arica could even be accomplished in a relatively short time without excessive investments 1/.

Whether this estimate is too optimistic is hard to say in view of the present lack of geological data. Such production would most likely have to be developed in the southeastern part of Bolivia, by means of rather deep drilling. What can be said, however, is that in view of both the terrain and its location, Bolivian oil is not likely to be very cheap. It will not be competitive with Middle Eastern crude. Its main role should be conceived as a source to supply the ever-growing markets in adjoining countries with perhaps a possibility of exchanging light Camiri crude, of which Bolivia has an excess, for heavy California crude, which Bolivia needs badly.

E. ELECTRIC POWER

Bolivia's present electric power capacity amounts to about 110,000 KW, about 80% of which is derived from hydroelectric plants, the remainder coming from thermal operations. Total consumption during the year 1954 amounted to 353 million KWH which comes to a little over 100 KWH per capita. This compares with a per capita annual consumption of 4000 KWH in the United States and 400 and 600 KWH in Chile and Peru respectively.

Most of Bolivia's power requirements are provided by the Bolivian Power Company, a company with head offices in Montreal, Canada, which has been active in Bolivia since 1925. Its present installed capacity is about 60,000 KW. In spite of tremendous difficulties, the company, which started practically from scratch, has been expanding constantly. During 1955 it added 9000 KW to its power capacity, representing an investment of some $2.7 million. Present plans call for the addition of another 30,000 KW during the next five years at an estimated cost of about $9 million.

The company's Carabuco project near Oruro, which is now under construction, is scheduled for completion by the end of 1957. Representing an investment of some $2 million, it will add about 8000 KW to Bolivia's total power capacity. Another project near La Paz (Sainani), which added some 10,000 KW to the country's power capacity, was completed in August 1956 at a total cost of about $3 million.

1/ See Rassmuss in World Oil, May 1956.

At present the Bolivian Power Company's total investment in Bolivia amounts to some $25 million. Since the company has always been a strong believer in adequate maintenance, replacement needs are not likely to present a major problem in the foreseeable future. The remainder of Bolivia's power plants consists of a number of small municipal or cooperative plants while most of the mines and some industrial enterprises also have their own power facilities.

A serious power problem exists in the Cochabamba area where there is a constant shortage of power. Installed capacity at Cochabamba - which is not served by Bolivian Power - amounts to about 5000 KW. However, because of constant breakdowns the actual availability is hardly over over 2500 KW. Sometime ago the Bolivian Development Corporation ordered four diesels of 1000 KW each from England. Even the installation of these plants will only meet the most essential requirements and not leave any room for industrial expansion. To show that this matter is serious, it may be mentioned that when the General Tire and Rubber Company was investigating the possibility of establishing a tire factory in Cochabamba, the power situation presented a serious problem. Power is one of those items which has to be provided in sufficient quantity if one is to attract industry to a certain area.

While the actual power supply in the high plains may be more or less adequate to supply present needs, there certainly will be a sharply increased demand if private mining is to expand. Since a modernized mining industry is more or less a must for Bolivia, the implication is fairly clear. At present the Bolivian Power Company is supplying power to the mines at a cost of US 1.3 cents per KWH, while power to the urban centers is provided at a cost of Bs. 20 per KWH. Since most of the company's earnings have been plowed back into Bolivia, it has not paid a dividend since 1929. Only recently the company was allowed to convert one-third of its local currency income into dollars at the official rate which, coupled with its dollar income from sales to the mines, has enabled the Bolivian Power Company to carry out some expansion.

Although Bolivia's potential for hydroelectric power is vast - some United Nations technicians have estimated it at some 7,000,000 KW - the question arises whether Bolivia's immediate needs should not be met by a number of thermal plants in strategic locations, particularly since there is now an excess production of both petroleum and natural gas. Once Bolivia's more immediate needs are covered and the country has its feet on the ground economically, a serious study could be made to see how Bolivia's vast potential for hydroelectric power, which in the long run should be cheaper than thermal power, could be best put to use. Since power needs can never be determined a priori, this would also have the advantage of delaying important hydroelectric projects which might later on become white elephants until the course of Bolivia's future economic development becomes somewhat clearer.

As to the method of developing more power facilities, probably the best way would be to give a greater incentive to the Bolivian Power Company, which now has shared Bolivia's ups and downs for quite a few years. The Keenleyside Mission suggested that perhaps the Bolivian Power Company be set up under the Ministry of Mines and Petroleum as an independent entity, to develop more adequate power facilities for Bolivia. This suggestion still appears to be a good one.

As to future possibilities, several projects may be mentioned:

a. Corani. At 60 kilometers from Cochabamba there is a possibility of building a small 160 feet dam which could retain some 20,000,000 cubic meters of water to provide 16,000 KW. The first stage of installing about 10,000 KW is now being studied by the Bolivian Development Corporation with the aid of an American engineering firm. The construction of the project is scheduled over a period of five years at a total cost of some $8 million.

b. Another project, definitely long range, is the well-known Monte Puncu project which is situated some 130 KM from Cochabamba and which could generate from 40,000 to 60,000 KW at a construction cost of some $14 million not including road construction. This project could be of importance in supplying power to new industries in Cochabamba and perhaps to the mines on the Altiplano. A similar project is the Bala project which will be discussed in more detail in the section on transportation.

c. Still longer range would be the much talked about Titicaca project which would divert the waters of the world's highest lake for both power and irrigation purposes. A more modest version of the original project was studied by Hochschild in 1930, principally to provide power for the mines. Some of the studies now in existence contemplate a tunnel, diverting the waters from Lake Titicaca towards the Pacific, while others consider a diversion towards the Bolivian side. All studies concur that the amount of energy which could be captured this way would be immense. However, apart from political considerations - the lake is right in the middle between Bolivia and Peru - Bolivia at present lacks both the resources as well as the markets to consider such a project seriously.

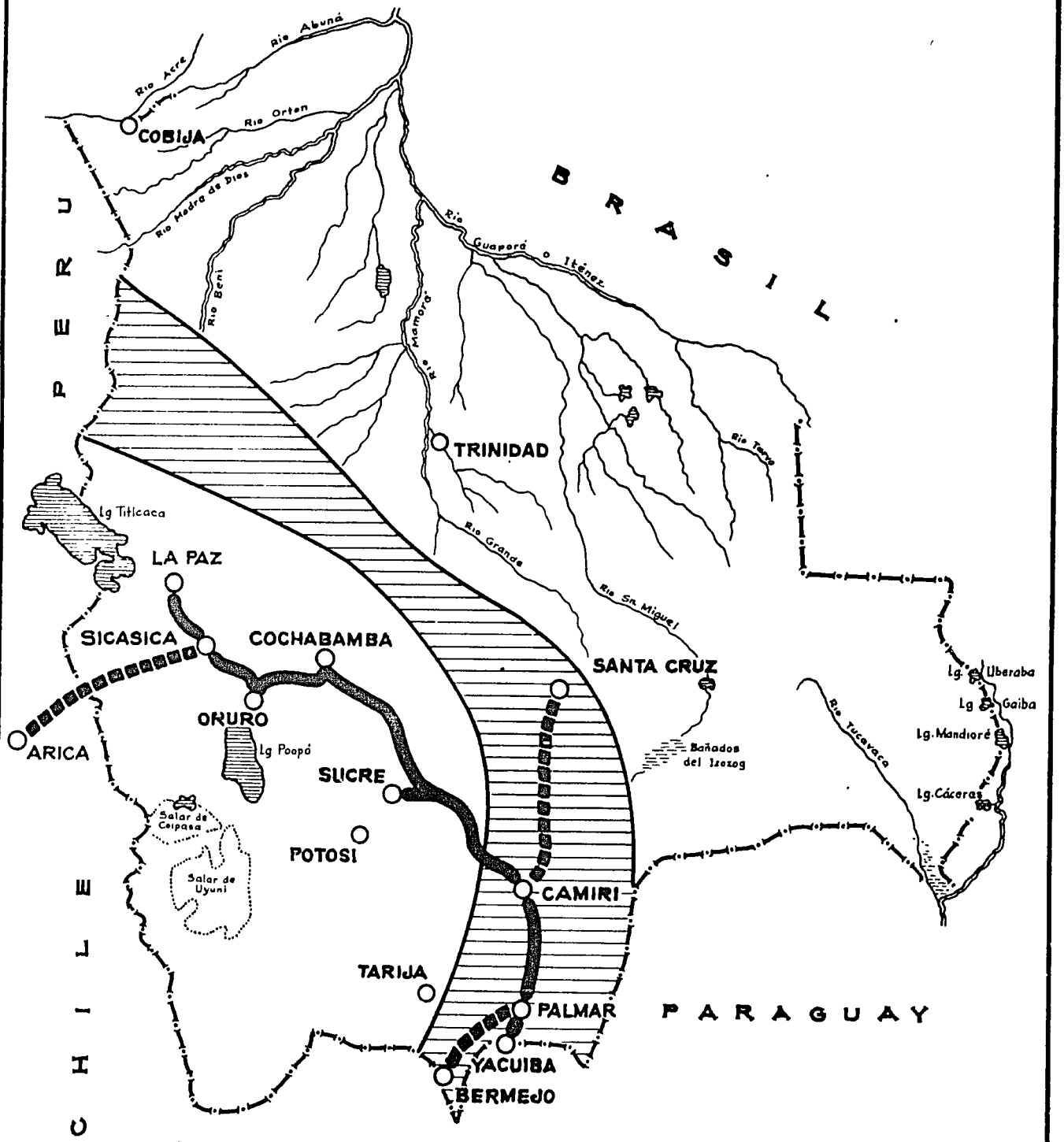
F. INDUSTRY

As has been shown before, many people in Bolivia are concerned - and rightly so - with the need to increase production. Yet to raise the standard of living from the present desperately low level, consumption must be increased also. An early increase in real wages would be one of the best methods to do this - which in turn calls for vastly increased productivity. If Bolivia's plans for economic diversification are to be a success, industry - and particularly those industries using domestic raw materials - will have to expand along with agriculture.

In spite of all the talk about internal migration, it will not be possible for Bolivia to move a substantial part of its population on the high plains to the lowlands within the very near future. Furthermore, many people do not want to leave the high plains. As agriculture in Bolivia will gradually become somewhat less "biblical" and more mechanized, industry will have to provide new opportunities for those forces which will be released from agriculture.

For the expansion of Bolivian industry there are abundant domestic raw materials available while the Bolivian worker shows great promise in working at manual and mechanical jobs. What is lacking, as we have seen above, is internal markets and an adequate investment climate. To cope with the problem of markets, Bolivia would be well advised to concentrate - at least initially - on those industries in which it has a strong comparative advantage so that any surplus can be readily exported.

THE FLOW OF BOLIVIA'S OIL



REFERENCE

Pipelines in operation .....

" to be constructed .....

Petroliferous zone .....

During the past 20 years Bolivian industry has shown a considerable increase. According to the National Chamber of Industry the industrial labor force more than doubled during the years 1937-1950 while investment in industry increased in a somewhat lesser proportion during the same period. Considering its general stage of economic development, Bolivian industry is already relatively well diversified. A total of 461 industrial establishments employing some 22,000 workers were visited by the Industrial Hygiene Division of the Health Servicio.

Naturally a substantial percentage of Bolivia's local industry relies heavily on the import of raw materials or semi-finished products. During the past few years about $15-18 million annually was allotted by the government to attend to the necessities of Bolivia's manufacturing industry in spite of the acute shortage of foreign exchange.

Under the impact of ever increasing import restrictions, Bolivian industry has become more and more diversified. Total output rose from Bs. 2 billion in 1949 to Bs. 9.7 billion in 1953. While a large part of this increase is, of course, due to the inflation, the actual physical output of goods and services shows a small increase also. Naturally, some of this expansion is unsound and based on the present emergency situation, which practically eliminates all imports. In June 1955 the total amount invested in industry established in the Department of La Paz where most of Bolivian industry is located, was Bs. 4.2 billion.

Principal Industrial Activities

Coming now to an analysis of the present scope and nature of Bolivian industry the following basic industries should be mentioned:

Textiles

There are about fifteen mills producing cotton and wool textiles. The latter employ to a large extent domestic materials such as vicuña, alpaca and sheep wool. Cotton is practically all imported although domestic production is now rising as a result of the agricultural diversification program. The seven largest factories which employ some 2800 workers produce an average of 9.4 millio yards of cotton and 1.5 million yards of woollen textiles. In addition, some rayon textiles are being manufactured from imported raw material. Plans for the establishment of a rayon factory are now being studied, lack of dollar financing being the principal obstacle.

Cement

At present there is only one cement plant in operation in Bolivia, which is controlled by the Grace interests with a substantial participation from Bolivian and Peruvian investors. The plant, which is located at Viacha, near La Paz, has been in operation for about 30 years. It employs about 300 workers and produces a total of 36,000 tons of cement a year. The factory also produces fibre cement, using local asbestos material, which shows great promise for roofing material as well as for sewerage pipe. Another cement plant is now under construction in Sucre, having a planned capacity of some 36,000 tons of cement per year.

Although there exist some plans for the establishment of a cement factory

near Cochabamba, no serious study has been made as yet of this project. The establishment of another cement plant is of extremely high priority in Bolivia since cement is continuously in short supply. Apart from this, the Viacha plant is in constant danger of breaking down because of the lack of parts and replacements. Modernizing this plant to double production would involve an outlay of some $800,000.

Food Products

Some 51 firms are active in food processing, employing about 1800 workers in various parts of the country. Principal products are wheat flour, canned foods, noodles, and sweets. As the agricultural diversification program expands there will be an increased need for more food processing facilities such as a refrigeration plant near Santa Cruz, flour mills on the high plains as well as grain storage facilities in various parts of the country.

Liquor and Soft Drinks

There are more than 46 firms engaged in this type of activity employing a total of 2500 workers. Beer is produced in La Paz, Oruro, Cochabamba, Tarija and Sucre. Total annual production amounts to 28 million bottles of beer, 1.2 million gallons of alcohol and 6 million bottles of non-alcoholic beverages. Insofar as the production of alcohol is concerned, it is obvious that artificially low prices of sugar have greatly contributed to the growth of this activity. While Bolivia used to produce some acceptable wines, lately production of wine seems to have decreased sharply which may be due in part to the agrarian reform.

Shoe Manufacturing

There are about 15 small establishments engaged in this type of work, employing some 1300 workers, which annually produce about one million pairs of shoes. Prospects for expansion of this industry are quite good as a result of the integration of the Indian into the national economy. Furthermore, in the tropical regions, such as the Beni area, a greater use of shoes is essential to raise general health standards (hook worm).

Printing and Paper

There are about 43 small establishments representing this type of industry which all in all employ a little over 1000 workers. One of the larger establishments, "La Papelera," has been in existence for some 25 years. It has been working for some time on a project for the establishment of a chemical pulp and paper mill in Bolivia. At present this plant makes only cardboard, while all other papers, newsprint, etc., are being imported.

The company intends to produce its paper from the sub-tropical woods situated close to the consumption centers A considerable amount of money has already been spent on initial investigations of raw material sources. The mill site would be located at about 140 KM from La Paz. Once established, the plant would cover all of Bolivia's needs for bleached printing and writing papers, cardboard, covers, cheap tissues and sanitary papers, amounting to a total of some 5,000 tons per year. The cost of the imported machinery would amount to some $4 million. Both domestic and private foreign financing are said to be available.

Tobacco

There are three cigarette and tobacco factories in Bolivia employing about 130 workers. While these plants are at present dependent on imported tobacco, domestic production of Virginia-type tobacco could be greatly increased. With proper equipment and technical assistance, both involving a very small expenditure, it might be possible to eliminate these imports (which amount to some $400,000 a year) within a period of from three to four years.

If a local tobacco somewhat similar to Virginia tobacco could be produced in Santa Cruz and provided more cigarette making machinery could be imported from the United States an interesting export market could perhaps be developed in Argentina. Production costs are extremely low and it is estimated that the present price would not have to be increased much if domestic tobacco were used.

Tanning and Leather

The leather industry is established in La Paz, Cochabamba, Santa Cruz and Tarija. There are about 30 small plants engaged in this type of industry employing a total of some 850 workers. Leather is one of Bolivia's traditional industries since abundant raw material of good quality is available.

According to a recent study by Mr. J. E. Alfaro, a member of the United Nations Mission for Technical Assistance to Bolivia, Bolivia is importing every year about $350,000 in hides and leather while about $140,000 is being received from the export of raw hides. The United Nations expert feels that while the first item could be completely eliminated, the second one could be vastly increased by the introduction of better methods to cure leather. Among these hides there are a number, such as rentile skins, which are available in large quantities and which are of little use to the average Bolivian; yet they command a very high price in export markets.

Another item is quebracho. Bolivia has considerable resources of quebracho which could be exploited quite profitably. Several proposals for the establishment of a quebracho industry have been received during the past year, two of them from United States concerns. One of these projects is now under serious consideration.

Electric Light Bulbs

Recently the Philips Lamp people of The Netherlands bought an existing lamp factory and modernized it. Annual production is now around 500,000 electric light bulbs ranging from 25 - 200 watts. The plant employs some 60 workers including the office staff. Although everything for the manufacturing of lamps is being imported - it is simply an assembly plant - the annual dollar saving is considerable. It amounts to some $30,000 a year. Ultimately the plant is scheduled to produce some two million light bulbs a year.

Batteries

A few years ago a battery factory was established in La Paz which is now engaged in the manufacture of automobile batteries. These batteries

are made entirely of domestic raw materials except for a few minor items and the case which is imported from the United States. Since breakage of these cases is quite a problem while Bolivia has the crude rubber which is required to make them, the company is now trying to obtain about $78,000 worth of machinery from Germany to eliminate this import.

Tropical Hardwoods

Lumber and woodworking is another traditional industry in Bolivia which shows promise for expansion. At present there are a number of small saw mills and woodworking establishments which employ about 900 workers.

Foundries

There exist several foundries in La Paz which are mainly engaged in repair work. In addition they make pumps, simple agricultural tools, cheese presses and a variety of other metal items. Since exchange rate manipulation for many years tended to discourage an investment in this type of activity, a further expansion of this industry would now seem quite feasible.1/ If petroleum exports to Chile should expand, Bolivia will receive more and more iron and steel under its barter arrangement with Chile to supply its local metal industry. In addition to this some of the mines have excellent workshops and metal working facilities.

Rubber Products

There are two small factories in La Paz which process about fifty tons of domestic rubber a year, into a variety of things such as rubber boots and raincoats (for the miners), hose, medical supplies, recapped tires, etc. In total the industry does not employ over 1200 people. Recently the General Tire and Rubber Company pronounced an interest in establishing a tire factory in Bolivia within the next few years. As a first step the company has been considering an investment to improve the actual facilities to produce and wash crude rubber.

Glass and Ceramics

There is a glass factory in La Paz and there are a few small ceramics factories in La Paz and Cochabamba. All in all, the industry employs some 1200 people. The industry uses largely domestic raw material but no plate glass is being manufactured so far.

Chemical and Pharmaceutical Products

Representative industries of this type are established in La Paz, Oruro and Potosí. In total there are some thirty small plants engaged in this type of activity which employ about 700 workers. Recently a new laboratory to produce vaccine for livestock was opened up in the Reyes (Beni) area, while another laboratory to produce a vaccine against hoof and mouth disease and some hog diseases is now being constructed with Point Four help in La Paz.

A phosphate plant as well as an ammonium sulphate plant could be a help in expanding agricultural production, but both seem to be out of the question for the moment. The first one, because of lack of adequate deposits

1/ Assuming the introduction of a successful stabilization program.

157

of phosphate rock and the second one because of the heavy investment involved.

As time goes on there will be an increased demand for sulfuric and hydrochloric acid for the production of all of which there are abundant raw materials available. At present there exists a small sulfuric acid plant near La Paz which was financed by the military from retirement contributions. While the final product is not very pure, it serves for a good many purposes, particularly in the mining industry. The plant, which has been showing a good profit ever since it started operating, could easily be improved to obtain a better product. In Oruro there exists a hydrochloric acid plant which belongs to South American Chemical Corp., and which more or less covers the demands of the mines.

Sugar Refining

At present there are two sugar mills in the country which together produce about 5000 tons of sugar a year. Both employ about 1000 workers. A third sugar mill having an ultimate capacity of some 16,000 tons a year was put into operation during the summer of 1956. This plant was built by the government which intends to turn it over to private industry through the sale of shares.

It is estimated that an investment of not over $1 million in the two private mills could increase their productive capacity up to 16,000 tons a year which combined with the Guabirá mill would go a long way towards filling Bolivia's realistic needs for sugar. A more complete discussion of Bolivia's sugar problem will be found in the agricultural and investment sections of this report.

Smelting and Refining

Although Bolivia is a typical mining country, very little processing is done in Bolivia. The firm of Metabol operates a smelter near Oruro which has a present capacity of 250 tons of lead and 300 kilos of silver per month, representing an annual foreign exchange income of about $1 million. For some time the Export-Import Bank has been considering a loan to Metabol for $600,000 to expand the present smelting capacity to 700 tons of lead and 1700 kilos of silver per month which could result in an additional dollar income to Bolivia of about $900,000 a year. In addition there is a small tin smelter in Oruro while another one recently opened up in Potosí.

There are two small oil refineries in Sucre and Cochabamba which can handle about 12,000 barrels of crude per day and which presently cover the country's principal needs for petroleum products. An oil drum factory with a daily capacity of about 7,000 drums ranging from to to 50 gallons was recently completed while a small lube oil plant near Cochabamba is scheduled for completion during the second part of this year.

Yucca Mills

In order to reduce the importation of wheat somewhat by mixing wheat flour with yucca flour, a few yucca mills will be established in the Santa Cruz area on a cooperative basis.

Banana Flour

Banana flour would seem to offer possibilities in several parts of Bolivia. Bananas are grown more easily than yucca and, if ripe bananas are used, the flour has a higher nutritive value. Banana flour has been mixed up to 25% with wheat flour which resulted in a somewhat inferior color and texture of the bread 1/ to that made of wheat alone; yet this type of bread might be quite acceptable in Bolivia under present circumstances. In addition, banana flour offers some possibilities for export. One very small German firm in Cochabamba is now engaged in this type of activity.

Dried Milk Plant

A dried milk plant is at present under construction near Cochabamba. The plant is being built with assistance from both UNICEF and Point IV. It is scheduled for completion by the middle of 1957.

Rice Mills

The increasing domestic production of rice will call for more storage and processing facilities. Although rice production is now centered in Santa Cruz, it is not as yet established as a typical crop for the Santa Cruz area. Rice production may even shift to entirely different parts of Bolivia.

Although in time there would be room in Bolivia for a rice mill having a capacity of some 25,000 tons a year, for the time being portable rice mills appear to be indicated.

Industrial Projects

Apart from existing plants, the following industrial projects should be mentioned:

Match Factory

This project is scheduled to go into operation by the middle of next year. The factory is a mixed undertaking with the government holding a controlling stock interest of 51%. Forty-nine percent of the stock is held by one private investor. The construction of the building is now under way. Once in operation the factory will be able to produce 240,000 boxes of matches a day on three 8-hour shifts which will leave some margin for export to neighboring countries. The total investment is said to be in the neighborhood of about $450,000. The annual dollar saving, because of the elimination of imports, would be substantial.

Explosives Factory

At present the country is importing 2400 tons of explosives for the mines, representing an expenditure of some $2 million a year. Plans for the establishment of an explosive factory using domestic raw material are now under way.

1/ J. A. Leclerc and M. L. Wessling, U.S. Dept. of Agriculture Bulletin No. 701 (1918)

Opportunities for New Industries

Evidently the best opportunities for industrial development lie in the improvement and expansion of those industries already mentioned above. Yet there are a number of new industries which could easily be developed in Bolivia provided the right investment climate were available as follows:

Animal Feed

To improve the production of beef cattle and poultry, better protein is essential. All of the material to produce a good animal feed is presently available in Bolivia. Some of it is wasted every day as is the case with the blood from the La Paz slaughter house cattle which could very well be used for making tankage.

Starch

Yucca is generally produced for home use in the lowlands. Recently some organized production was started to supply the yucca flour mill in Santa Cruz. It seems that there would also be room for a modern plant to process yucca root to make starch. There exists a considerable demand for starch in Bolivia, both for family use as well as for use in the domestic textile industry.

Caustic Soda and Related Products

Several serious investors, mostly local ones, have been considering the establishment of a caustic soda plant which would make use of Bolivia's vast salt deposits. Up till now lack of power and dollar financing have been the principal obstacles. Transportation and marketing also present a problem since the efficient production of these products would call for a rather large scale operation with exports to neighboring countries.

Fibers

Bags are important to Bolivia since the mines need a substantial quantity of bags every year. In addition, more bags will be needed as the agricultural diversification program expands. With the help of the Agricultural Servicio some experiments have been carried out with kenaf which has proven to be an excellent fiber for the production of bags. At present there exists a small kenaf rope factory which is expected to cover the needs of the country at some future date.

Several people appear to be interested in setting up a kenaf bag factory, one of them an American. A bag factory would call for an investment of at least $500,000. Once established, however, it would eliminate the present imports of bags for both mineral and agricultural production which amounts to over $1 million a year.

Vegetable Oils

About $0.5 million of vegetable oils are imported into Bolivia every year which could easily be produced within the country. There exists a small processing plant near Cochabamba which has been idle since it was built because of the lack of incentives to produce the raw material under a controlled price system.

Brazil Nuts

Brazil nuts offer an excellent export item to Bolivia. At present the harvest is collected by small groups of people or families who break and peel the nuts in small hand operated machines. This type of work gives a daily output of about ten kilos per worker which is not very promising, not only because of the time involved but also because of the scarcity of people in the Beni area.

Although Bolivia's resources of Brazil nuts appear to be incredible, most of the production is now smuggled out to Brazil, both because of better prices and better processing facilities in that country. To put this industry on an export basis, production would have to be mechanized which should be relatively simple.

Paving and Roofing Material

In view of Bolivia's need for roads and new dwellings in the lowlands, there will be a substantial demand for this type of material. Unfortunately, YPFB produces hardly any asphaltic crude, a condition which could change as a result of YPFB's intensive drilling program.

Plate Glass

Traditionally the Indians have a superstition about having windows in their huts. As education takes hold and as more and more people move to other parts of the country, the demand for plate glass is likely to increase.

Specialty Furniture and Handicrafts

Although there are some good furniture shops in the country, there may be an interesting field in exporting special types of furniture which can be shipped knocked down, as well as in exporting certain kinds of woodworking. Likewise, there may be a possibility in exporting handwoven rugs, etc., of Indian design.

Vicuña Products

Since the vicuña is in danger of extinction, the Bolivian government has taken measures to protect this precious animal. As a result, the export possibilities of vicuña are quite limited. However, it should be possible to grow vicuña commercially for wool production while the possibility of mixing vicuña wool with domestically produced wool from angora rabbits should be looked into.

Agricultural Tools

Because of the agrarian reform there is a clamoring demand on the part of the Indians for simple agricultural tools. By pooling the resources of several existing foundries or by setting up a new plant, these tools could be manufactured locally. Initially local scrap could be used as raw material. In a later stage, Chilean steel which is now being exchanged for petroleum products from Bolivia could provide the necessary raw material. It is estimated that with the importation of some $300,000 worth of machinery, imports which would be of lasting use to the economy anyway, about an

equal amount of annual imports of much needed agricultural tools could be saved.

Quinua Flakes

Quinua is a cereal which grows on the Bolivian highlands. Its nutritive value is excellent because of its high vitamin and protein content. The owner of a successful La Paz noodle factory has been interested for some time in developing a market for quinua flakes (like cornflakes) in the United States, which would require some imported machinery.

Cottage Industries

Cottage industries could easily be developed in Bolivia. This would constitute a first step in the development of a sound small industry program.

Problems of Bolivian Industry

The above potentially new industries are only a few.

There are undoubtedly a number of other industries that could have been included. However, before leaving this subject a reference should be made to the many problems facing the development of industry. One of the main problems of Bolivian industry is, of course, the general lack of labor discipline coupled with the burden of unrealistic social laws and excessive government control. These more general problems will be discussed in more detail in Chapter VII/ dealing with investment. Insofar as the more specific industry problems are concerned, the following may be mentioned:

a) Lack of Equipment

Because of the ever increasing shortage of dollars very little new machinery has been imported into Bolivia in recent years. For the same reason, it has not been possible to maintain the present industrial plant and equipment properly.

b) Lack of Technology

Many industrial operations in Bolivia are carried out in a rather primitive manner. This is due partly to a lack of capital to modernize and partly because of the impossibility of bringing foreign technicians down to train Bolivians in more modern methods and techniques.

c) Tax Structure

While the problem of taxation will be dealt with somewhat more in detail in Chapter VII/ dealing with investment, we might stress again at this point the problem of the number of taxes which industry has to pay, resulting in confusion and loss of time, as well as the inequality of the burden of taxation. Since there are so few people in Bolivia from whom taxes can be collected conveniently, there has been a tendency to tax certain groups or individuals to excess as compared with others.

d) Excessive Imports of Raw Materials

While Bolivian industry has become more diversified, as we saw above, the relative use of imported raw materials has been increased also as may be seen from the following figures covering the years 1937-1950:

RAW MATERIALS USED 1/ (In Millions of Bs.)

	Domestic Raw Materials	%	Index	Imported Raw Materials	%	Index
1937	40.7	38.4	100	65.2	61.6	100
1940	107.5	39.6	264	163.8	60.3	251
1945	242.5	33.8	596	475.8	66.2	730
1950	354.7	31.7	871	765.5	68.3	1,174

e) Decapitalization

By far the biggest problem of Bolivian industry, however, has been the general and ever increasing decapitalization, as a result of the inflation. Closely linked with this problem is the fact that because there is less and less capital available seeking employment in a sound, long term enterprise, more and more of the small amount of capital available is getting directed into highly speculative types of enterprises.

G. TRANSPORTATION

Although not as bad as it looks at first sight, lack of transportation constitutes a serious problem in Bolivia. Both because of the country's difficult geography and its poverty, it has been difficult to provide it with more adequate transportation facilities.

The surface transportation system consists of a few railroads which were constructed long ago, a road net which is highly deficient, and a water transportation system which at present is hardly being used. Until the development of the Santa Cruz area was started, most of the existing overland transportation system served only the high plains and the valleys.

Railroads 2/

As of December 1955, there are some 3,132 kilometers of railroads in existence in Bolivia, all of which are of one meter gauge with the exception of the Uyuni-Huanchaca line (39 kilometers).

The network in operation includes the following private railroads:

a. The Antofagasta (Chile) and Bolivia Railway Co., Ltd.

The main line of this privately owned railroad connects La Paz

---

1/ Camara Nacional de Industrias
2/ 1955 traffic figures for the principal Bolivian railroads may be found in Table YXXXII of the Statistical Supplement

and the high plains with the important Chilean port of Antofagasta, running through Viacha, Oruro, Rio Mulatos, Uyuni and Ollaguë (Bolivian border). The extension of this line is 1.173 kilometers, of which 729 kilometers are in Bolivian territory. The Viacha-Oruro Section, of 202 kilometers, is operated by the Antofagasta and Bolivia Railway Co., Ltd., under contract with the Bolivia Railway Company, Ltd. The total original investment in this railroad is estimated at some £1,225,000. Its principal income is derived from the transport of minerals, which is paid for in dollars.

Last year the railroad bought ten new locomotives [redacted] costing £370,000 and three pullman cars costing £23,000 each, plus a certain amount of other traction material coming to some £25,000. For this purchase the Bolivian Government made available foreign exchange at the official rate.

To understand the operation of this railroad a little better, a word must be said about the Bolivia Railway Company which owns some sections of the La Paz-Antofagasta line. This company was formed on May 22, 1906 as a result of an agreement between the Republic of Bolivia, the National City Bank of New York and Speyer and Co. to build a number of railroads in Bolivia within a period of ten years, including the important Oruro-Cochabamba branch. The above contractors subsequently transferred their right to construct railroads to the Bolivia Railway Company, a Connecticut company which started the construction of the Oruro-Viacha line in 1907. Due to the high cost of the operation, the Bolivia Railway Company entered into a rental agreement with the Antofagasta and Bolivia Railway Company for the Oruro-Viacha line, already constructed. Another agreement was signed for the construction of other railroads as projected. Subsequently the Antofagasta and Bolivia Railway Co., Ltd., started operating all the lines of the Bolivia Railway Co., which now is a subsidiary of the Antofagasta and Bolivia Railway Co. The Antofagasta and Bolivia Railway Co., Ltd., pays annually to the Bolivia Railway Company an approximate amount of £950,000 for its rental arrangement (depending on traffic) which it receives from the Bolivian Government at the official rate of exchange.

The second most important branch of the Antofagasta and Bolivia Railway Company is the Oruro-Cochabamba line comprising some 205 kilometers. The railroad's rolling stock used on this branch is generally in a satisfactory condition. However, to maintain the track will require sizable investments in the near future at the risk of very serious accidents.

b. Guaqui-La Paz Line

The construction of this railroad was authorized in 1900. Within Bolivian territory it has a length of only 96.4 kilometers, of which 89.5 kilometers are steam traction and 8.9 kilometers are electric. It was constructed with public funds. By contract dated May 31, 1904, the exploitation concession was given to the "Peruvian Corporation" which company subsequently bought the railroad in 1910 for £350,000. At the same time the company was given the right to exploit the port and quays of Guaqui against payment of 40% of the gross receipts.

The Guaqui-La Paz line joins La Paz with the Peruvian Ports of Matarani and Mollendo. It consists of 829 kilometers of railway and about 200 kilometers of lake transportation (across Lake Titicaca). This railroad offers principally an international service to Bolivia. Last year international freight tonnage into Bolivia amounted to 80 per cent of total

tonnage carried.

In addition to the above two private railroads, Bolivia has a number of railroads that are owned and operated by the State, as follows:

a. Arica-La Paz Line

This railroad, which is 448 kilometers long, was constructed as a result of the Treaty of Friendship signed by Bolivia and Chile in 1904. The Bolivian section going from La Paz to Charaña is some 233 kilometers long with a branch of eight kilometers going to Corocoro. On the Bolivian side the line runs smoothly; however, the Chilean section runs over very uneven country which required the construction of some 40 kilometers of rack rail. Apart from connecting La Paz with the free port of Arica the line has a certain economic importance in serving the Corocoro copper region. The track is generally in bad condition to such extent that serious accidents can occur at any time. Average safe speeds are between 20-25 kilometers per hour which could be increased to 40 kilometers per hour if the track were in good condition. The equipment is well-maintained.

b. Villazon-Atocha Line

The construction of this railroad was contracted in 1915. The 198 kilometers stretch was completed in 1925 at a total cost of £2,803,568. The condition of the track is fair. Rolling stock is in satisfactory condition.

c. Potosí-Sucre Line

This line, which is some 174 kilometers long, was initially constructed with the proceeds received from the sale of the Guaqui Railroad. It was completed in 1936 at a cost of £2,771,009. The branch from Sucre to Tarabuco, having an extension of 78.2 kilometers was completed in 1944. Its equipment is generally in a very bad state of repair. The condition of the track is fair.

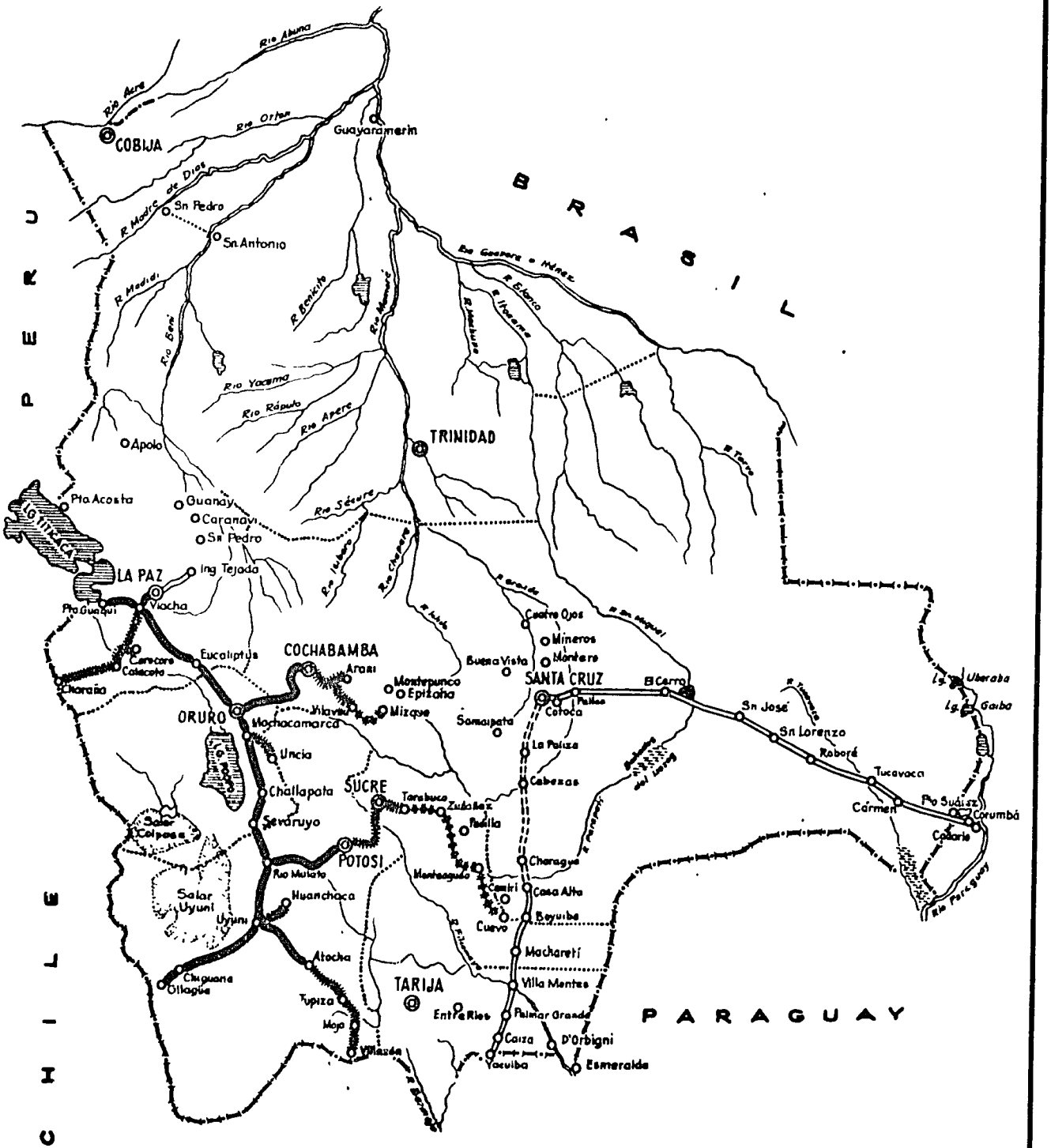
d. La Paz-Beni Railroad

This railroad was supposed to connect La Paz with Rurrenabaque from where the Beni River is navigable. At present a mere 54 kilometers are in operation and the railway is incurring losses every year. The original project is not likely to be completed in the near or even remote future for reasons shown elsewhere in this section (roadbuilding, Balas project). It was constructed at a cost of £866,909. The present stretch from La Paz to Ing Tejada was completed in 1924. Its traffic is insignificant.

e. Machacamarca-Uncia Railroad

This line, which connects Oruro with the important mining center of Catavi, was completed in 1924 by Patiño at a cost of £1,085,424. It has 96.2 kilometers of main line and two branches, one of 7 kilometers to Catavi and another of 4 kilometers to Siglo XX. At present this railroad belongs to the Mining Corporation. Its freight consists almost entirely of ore and mining equipment.

RAILROAD TRANSPORTATION SYSTEM



REFERENCE

Railroads owned by the Government

Railroads owned by Private Companies

Railroads Managed by International Joint Commissions

Railroads under Construction

f. Cochabamba-Santa Cruz Railroad

The construction of this project was authorized in 1928. In essence, it is a prolongation of the La Paz-Cochabamba line. At present 136 kilometers have been constructed up to Vila Vila after which the project was halted for lack of funds. There are another 18.9 kilometers of branch lines to Cliza and Arani.

After the construction of the Cochabamba-Santa Cruz Highway, further railroad construction takes on a low priority. Yet last year the railroad spent almost $1 million on new rails. It is operating at a heavy loss due to its slowness and general competition from road transportation.

g. Corumba-Santa Cruz Railroad

This line was constructed under the supervision of a joint Bolivian-Brazilian body under the terms of various treaties. The line is 651 kilometers long. It was completed in 1954 although a bridge across the Rio Grande is still missing.

h. Yacuiba-Santa Cruz Railroad

This line, which is still under construction, constitutes an extension of the Argentine line which joins La Paz-Oruro and Villazon with Buenos Aires. Its construction is being financed by the Argentine Government under the terms of a Treaty dated February 10, 1941. At present the stretch from Yacuiba to Boyuibe is in operation. The laying of the track has now advanced to some 70 kilometers from Santa Cruz but the entire line will not be in operation for some time since it lacks several bridges.

i. Sucre-Tarabuco-Boyuibe Railroad

This line is to connect Sucre with the Yacuiba-Santa Cruz line. It is being constructed under the terms of an agreement of December 22, 1945 with Argentina. Hardly any work is being done on it at all for lack of funds.

Problems of the Railroads

As the Keenleyside Report pointed out, one of the main problems of the Bolivian railroads is lack of organization. At present the 3,132 kilometers of railroad are being operated by six different bodies and two private companies. The lines are generally in bad condition and the equipment is rather heterogeneous. There exists a certain duplication in workshops.

At present Bolivia has three international railroads which link the high plains with the Pacific, while traffic requirements would seem to justify only one good railroad which then could be operated at a profit.

Another, most serious problem of the railroads is the lack of labor discipline. Since this problem has been mentioned in some detail in the section on mining, a further reference to it will be omitted here.

Another problem constitutes the lack of investment. To put the Bolivian section of the La Paz-Arica line in good condition would cost

some US $200,000 plus Bs. 1.5 billion. To keep the La Paz-Cochabamba branch in operating condition and avoid serious accidents would call for an investment of US $3.5 million plus Bs. 2.5 billion. Additional investments would have to be made in some of the other railroads.

The Railroads in the Bolivian Economy

One cannot easily underestimate the role of railroads in the Bolivian economy. At one time the railroads were of great benefit to Bolivia since they made transportation less costly, which enabled the country to find a market for its lower grade minerals. At the same time, however, this contributed to the importation of foodstuffs at differential exchange rates which has done so much to prevent the development of a balanced economy in Bolivia.

From a superficial analysis it would appear that at present the general rate structure of the Bolivian railroads is antiquated and quite damaging to the over-all economic development program and thus to the railroads themselves.

This problem is now being investigated by the United Nations railroad expert, Mr. Rey Alvarez, who was kind enough to provide a number of data for this section. In view of the importance of an adequate rate structure, it is hoped that in the near future this problem will be given some serious consideration so that a new rate structure can be developed which will be beneficial to both the railroads and to Bolivia. To acquaint the reader with this problem we shall only give a few examples.

Rate Structure for Imports

To carry a ton of wheat into Bolivia involves the following costs:

Antofagasta-La Paz	US $ 5.34, and Bs. 4,964
Arica-La Paz	" 13.44, and ". 2,075
Mollendo-La Paz	" 18.31, and " 4,341

From these figures it is clear that, although the distance is considerably shorter, transportation via Arica and Mollendo costs considerably more respectively than via Antofagasta. As a matter of fact, Bolivia has to pay the following amounts per ton-kilometer in foreign exchange in each case:

Antofagasta	(444	kilometers)	US Cents	1.2	per ton-kilometer
Arica	209	"	"	6.4	" "
Mollendo	732	"	"	2.5	" "

Naturally, the rates vary in connection with the product transported.

In addition to this, the government has to pay the Bolivian Railway Company on its domestic lines 40% of the basic local currency freight charge in dollars at the official rate of exchange which comes to $2.10 for every 1,000 bolivianos.

Thus, to carry wheat from Mollendo to La Paz costs about as much as the ocean freight from New Orleans to Arica. Furthermore, the local currency freight charge on the La Paz-Arica line (Chilean section) has to be converted at the official rate of exchange which gives one the following picture:

FREIGHT RATES, ARICA-LA PAZ (CHILEAN SECTION) IN DOLLARS

Type of Cargo	Apparent Cost per Ton	Real Cost per Ton	Real Cost per Ton Kilometer, US Cents
Category 1a	Bs. 5,589.42	US $29.13	14
Category 2a	4,767.02	24.84	12
Category 3a	3,829.30	19.95	9.5
Category 4a	3,213.85	16.75	8
Category 5a	2,578.20	13.44	6.4

The anomaly of this situation is clearly reflected in a comparison of several Latin American freight rates per ton-kilometer as follows:

FREIGHT FOR TRANSPORTING A CARLOAD OF WHEAT SOME 209 KILOMETERS (Distance from Arica to the Bolivian Frontier

Country	Freight for 209 Kilometers in US$	Freight per Ton-Kilometer, US Cents	Index
Chilean State Railway North & South	1.52	0.7	100
Argentine State Railway	1.62	0.8	114
U. S. Railroads	1.68	0.8	114
Uruguayan State Railway	2.40	1.1	157
Brazilian State Railway	3.38	1.6	229
Chilean Railway, Arica-La Paz	13.44	6.4	914

If we compare the actual rates prevailing on both the Bolivian and Chilean sections of the Arica-La Paz line, we obtain the following picture:

RATES NOW PREVAILING ON THE CHILEAN AND BOLIVIAN SECTIONS OF THE ARICA-LA PAZ RAILWAY (In Dollars)

Category	Chilean Section		Bolivian Section	
	Per Ton US $	Per Ton-Kilometer US Cents	Per Ton US $	Per Ton-Kilometer, US Cents
Category 1	29.13	14	0.81	0.35
Category 2	24.84	12	0.69	0.3
Category 3	19.95	9.5	0.55	0.24
Category 4	16.75	8	0.46	0.2
Category 5	13.44	6.4	0.37	0.16

As may be seen from the above the freight per ton-kilometer on the Chilean section is about 40 times higher than on the Bolivian section, while both sections are about equally long although the Chilean section requires more maintenance work. As a result of this, it should surprise nobody that the Chilean section is using the most modern type of diesel equipment while the Bolivian section of the road is nearing a complete breakdown. Furthermore, since Bolivian freight rates have to be converted at 190 to the dollar, the Chilean section has a direct interest in the Bolivian inflation as higher boliviano rates mean an even higher dollar income to the Chilean section.

To show once more how irrealistic this situation has become, we might mention the following case.1/ To import an automobile into Bolivia from Arica

1/ Case cited by Mr. Rey Alvarez, United Nations railroad expert.

(weight 2,000 kilos) costs Bs. 78,000 in freight to the importer. Yet the Bolivian section of the railroad has to pay US $235.37 to the Chilean section because of the above mentioned conversion feature for which it must obtain dollars from the Bolivian Government. As a result of this situation, last year the Bolivian Government subsidized the importation of automobiles to the tune of $80,000.

Rate Structure for Exports

The rate structure for the export of minerals shows similar distortions. As is well known, railroad freight for minerals must be paid either in dollars or pounds sterling from the station of loading until the port terminal. These rates are usually based on the maximum which the mineral can pay. Thus the rates start with the lowest grade material that still can be exported to increase drastically in the case of high grade ores. The sharp progressions in these rates may be seen from the following table:

Mineral	Freight per Ton from Soledad to Antofagasta 961 kilometers 1/	Index	Per Ton Kilometer
Low Grade Ore	US $ 21.84	100	US$ 0.023
Tin, 25%	26.35	121	0.027
Tin, 25-30%	29.11	133	0.030
Tin, 30-35%	31.87	146	0.033
Tin, 35-40%	34.65	159	0.036
High grade ores	42.44	194	0.044

From this table it may be seen that even if the cost of transport to the railroad is the same, high grade ores command twice the freight of low grade ores. Furthermore, the rates are discriminatory in accordance with the company or agency served, as may be seen from the following detail:

FREIGHT RATES FOR HIGH GRADE ORES, ORURO TO ANTOFAGASTA

Index			
100	Mining Corporation - ex-group Patiño	$36.65	per ton
111	" " " Aramayo	40.52	"
123	Mining Bank	44.96	"

FREIGHT RATES FOR HIGH GRADE ORES, POTOSI TO ANTOFAGASTA

Index		
100	Mining Corporation - ex-group Hochschild	$39.26
103	" " " Patiño	40.42
118	Mining Bank	46.19

In other words, for the shipment of the same type of mineral the Mining Bank pays 23% more than the Mining Corporation. The discrimination does not stop with discrimination in accordance with the shipper, however. There is

1/ Without Taxes

also discrimination in accordance with the length of transport, in other words, rates are higher on certain runs than on others.

Of all the Bolivian railroads, the 198 kilometer Villazon-Atocha road appears to be the most expensive one. It charges US $39.63 per ton of high grade ore and $25.90 per ton of low grade ore, which comes to 20 and 13 dollar cents per ton-kilometer respectively.

It is interesting that the La Paz - Guaqui Railroad which has the lowest rates for minerals carries the least ores. Since the ocean freight is the same with very little difference in handling costs in the three ports, it is strange that the Mining Corporation prefers to pay US $33.35 from Viacha to Arica instead of $16.34 from Viacha to Matarani, and $36.65 from Oruro to Antofagasta instead of $28.10 from Oruro to Matarani.

In considering the rate structure of the Bolivian railroads, several things should be kept in mind. One can find little fault with railroads trying to charge what the traffic will bear; after all, this is the railroad's business. Furthermore, the amounts involved are not too damaging in themselves. Whether the mining industry pays annually $2 million of freight instead of twice this amount may seem rather insignificant; however, for the Bolivian economy the effect of this is quite important since it tends to discourage the export of minerals. In most mining countries, mineral exports enjoy special low freight rates to encourage exports. Most of the present rates were fixed at times when the Bolivian economy could stand a lot of abuse, which presently is not the case. Thus, it becomes most important to establish at the earliest date a more equitable rate structure which will boost mineral exports from the private mines instead of discouraging them.

From the railroads' point of view it must be said that to operate a railroad in Bolivia is not an easy thing to do. Thus, what may sometimes look like an outrageous rate structure at first sight may become more understandable if this advantage is balanced against a number of serious disadvantages such as the present labor situation, excessive controls and the problem of keeping foreign railroad technicians in Bolivia.

The Solution of this Problem

The solution of this problem is relatively easy since it involves nothing more than a thorough revision of the present rate structure. To do this will take time. Drawing up a new rate structure which will be more or less uniform and fair for all the Bolivian railroads might take a group of specialists over a year. Furthermore, in the case of the foreign controlled roads such as the Arica-La Paz line, there would have to be some talks which might take even more time.

Conclusion

In view of the importance of the problem we would like to stress once more the position of the railroads in the Bolivian economy. Although highways are coming up, railroad transportation is still carrying the full load in Bolivia. It would show a lack of foresight if Bolivia's efforts to increase petroleum, mineral or agricultural production were not coupled with

a more realistic approach to the problem of rail transportation. In order to do this, labor discipline on the railroads must be restored and the over-all efficiency must be increased by giving the railroads new incentives in the form of an equitable rate structure. According to several competent experts, if the present situation is to last much longer important sectors of the Bolivian railroad transportation system are likely to break down at some time in the future. To a country so dependent on a few transportation media this could mean almost disaster.

Highways

At present Bolivia's roads network comprises a little over 31,000 kilometers. Of these, 12,214 kilometers are principal roads, 10,492 kilometers are secondary roads, and the remainder, or some 8,510 kilometers are third class roads. Of all these roads, only about 1,000 kilometers can be considered as being in good condition while about 2,500 kilometers are open all year round. The remainder are virtually impassable during the rainy season. About 230 kilometers are asphalted while some 600 kilometers are macadamized. Most roads, even the better ones, are not over four meters wide, with places here and there where cars may pass each other. There are very few permanent bridges, fording being the usual way to cross the rivers. There are frequent danger spots on nearly all roads, hardly any of which are marked.

In the plains there are almost no all-weather roads with the exception of the Montero area where a road building program is now being carried out by the Thompson Cornwall Co., under contract with the Bolivian Development Corporation. Since 1954 about 50 kilometers of highways, 141 kilometers of farm-to-market roads, and 25 kilometers of access roads were built in the area. There is an over-all lack of new construction and an even greater lack of proper maintenance. Rather than keeping them in proper condition, roads are allowed to fall apart, after which they are rebuilt.

It is obvious that the lack of adequate roads constitutes quite a drain on the Bolivian economy. According to a most recent calculation made by the Highway Servicio, the cost to run a 4½ ton truck over the types of roads now in existence comes to about Bs. 711 per kilometer, while with improved roads this figure could be reduced to Bs. 277 per kilometer, making a saving of over 60%.

Putting the number of trucks which the country should have at some 1/ 20,000 and assuming a maximum life per truck of 100,000 kilometer with a yearly run of 20,000 kilometers, it would be necessary to import annually some 4,000 trucks not considering spares and tires at a cost of some US $12 million. It is estimated that with proper roads the life of a truck could be doubled which would result in an annual saving of some $6 million.

Road Building

Although the construction of better roads takes on a very important aspect in the Bolivian economy, very little has been done about it. During 1955 the Department of Highways had a budget of not more than Bs. 700 million with only 30 pieces of heavy equipment in not too good a condition.

1/ Estimate made by the Highway Servicio, based on future road transport.

In addition, there are some other agencies such as the provincial highway departments whose budgets are far less and which altogether have not over twenty pieces of heavy road equipment.

The Bolivian Government is now carrying out a certain amount of new construction; however, the construction of new roads, no matter how necessary, is likely to lag behind in view of more urgent over-all demands. The problem is complicated by the fact that road building in Bolivia is at best a difficult job. In many places - particularly those which connect the high plains with the lowlands - the ground is unsettled, resulting in continuous landslides. Good road building material is scarce in many areas and labor properly trained for road building is practically non-existent. The general problem is even more complicated by torrential rains which flow in narrow valleys which are constantly subject to a deep erosion.

At present the following roads are under construction:

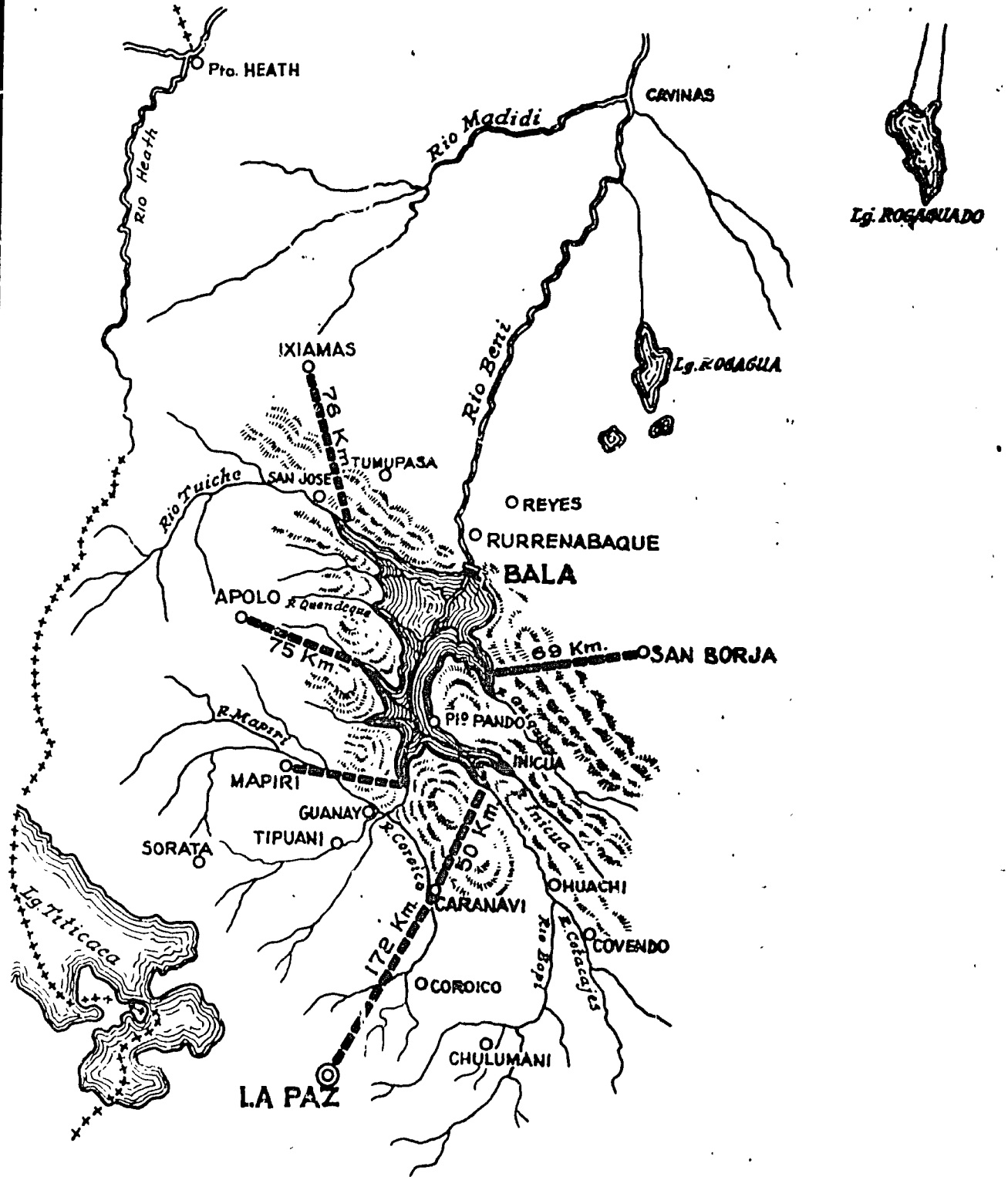
1. Beni Road Project. The first stage of this project consists of the construction of some 34 kilometers of very difficult roadbuilding connecting San Pedro with Caranavi. It is being constructed by a local concern under contract with Point IV. The total cost of this part of the project which calls for the construction of a number of bridges over fast flowing rivers has been estimated at Bs. 2.5 billion and $415,000. The second stretch of relatively easy road building will connect Caranavi with Inicua on the Beni River over a distance of about 90 kilometers. The cost of this part has been estimated at Bs. 3 billion only. If the road should go as far as Inicua, it would open up a vast area of fertile valleys.

A more remote project is the construction of a road from Inicua and Puerto Pando to Rurrenabaque. This road has not been studied in detail as yet. At present there are several alternatives which we may briefly mention here. One projection follows the plan made for the Beni railroad which would result in a road of about 170 kilometers. Another projection was made by the Bolivian Gold Mining Company which would be about 125 kilometers.

Before any work is undertaken on the Inicua-Rurrenabaque stretch, However, an alternative solution should be studied, namely the Bala project. This project boils down to the construction of a small dam some 80 meters high and 150 meters wide at Bala on the Beni River which would create a 60 kilometer long artificial lake having a surface of some 1,800 square kilometers. As may be seen from the map on the next page, such a lake would cut the roads which would have to be built eventually from 930 to 220 kilometers, making a difference of 710 kilometers. The project is now more or less academic since it is definitely long range. Apart from the fact that Bolivia has already more agricultural land than it can handle, the country would be unable to put up any cash for it. However, as a long range project it would seem to have considerable merit since it would:

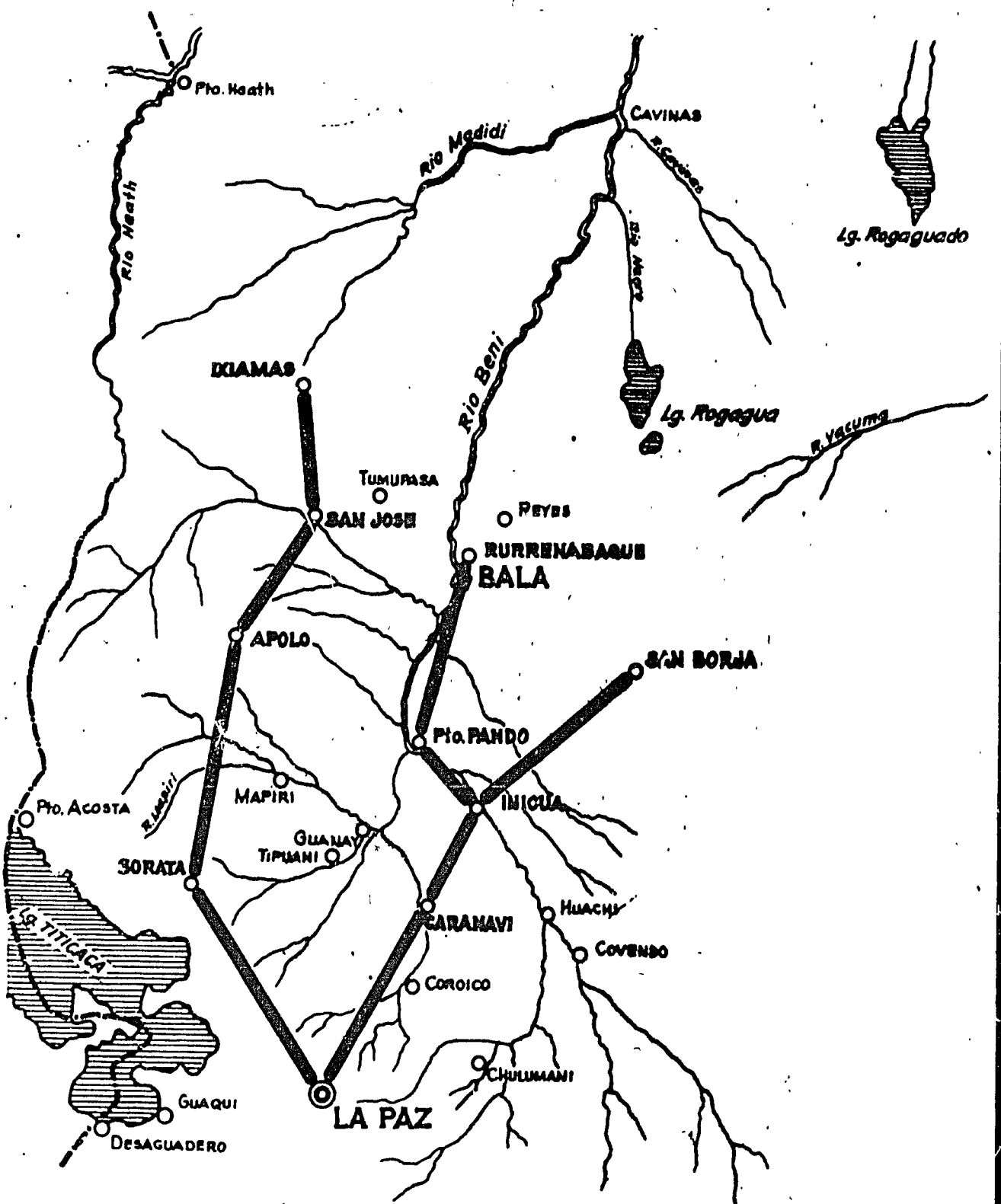
a. Involve a saving of several millions of dollars in roadbuilding.
b. Connect the high plains with the Beni by means of road and river transportation, thus eliminating the present costly transport of meat by air.
c. Reclaim some one million hectares of lands which are now periodically flooded.

REDUCTION IN ROADBUILDING THROUGH BALA DAM



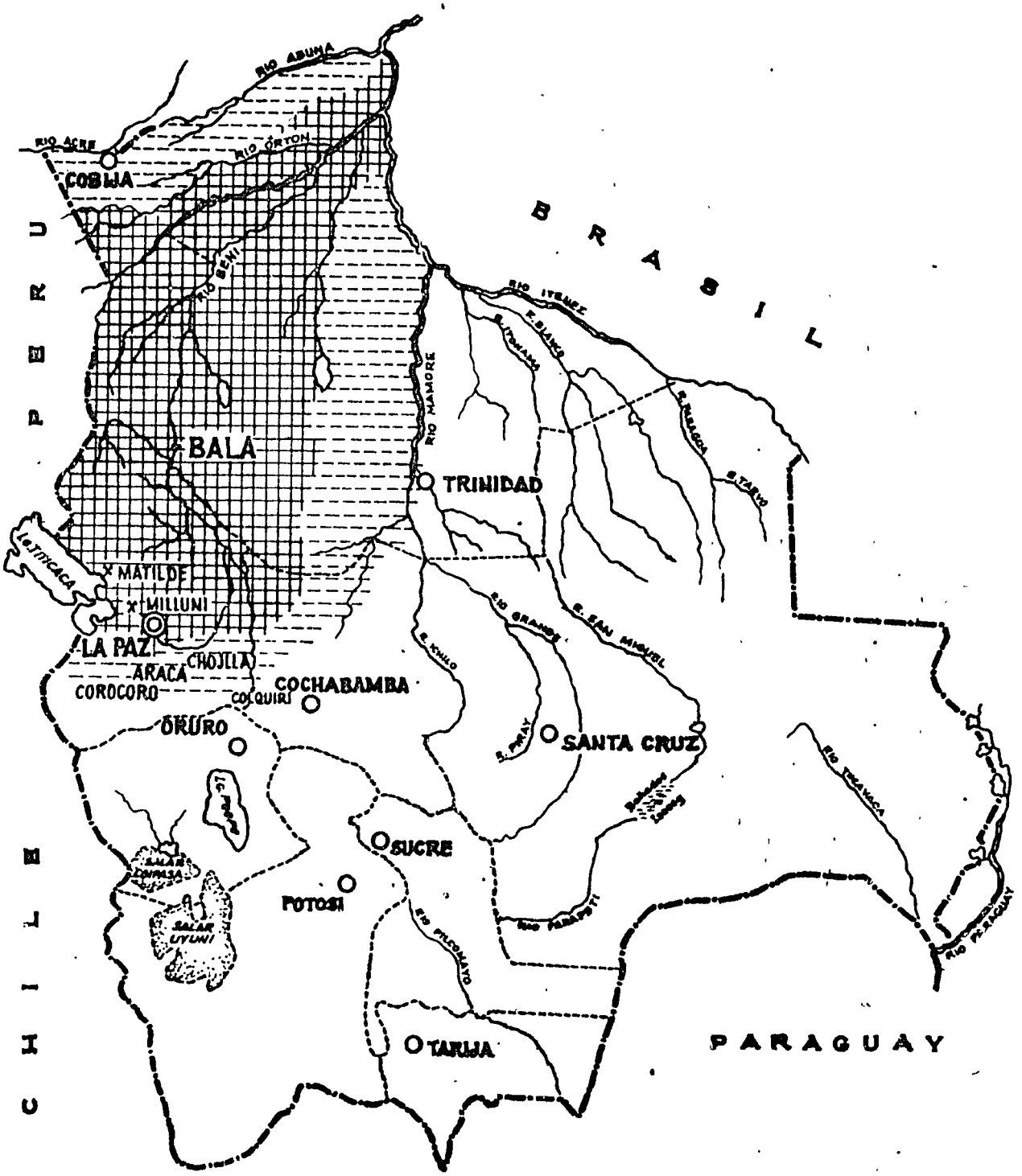
TOTAL ROADS: 220 KILOMETERS
SAVING: 930 - 220 = 710 KILOMETERS

PRESENT ROADBUILDING PROJECT

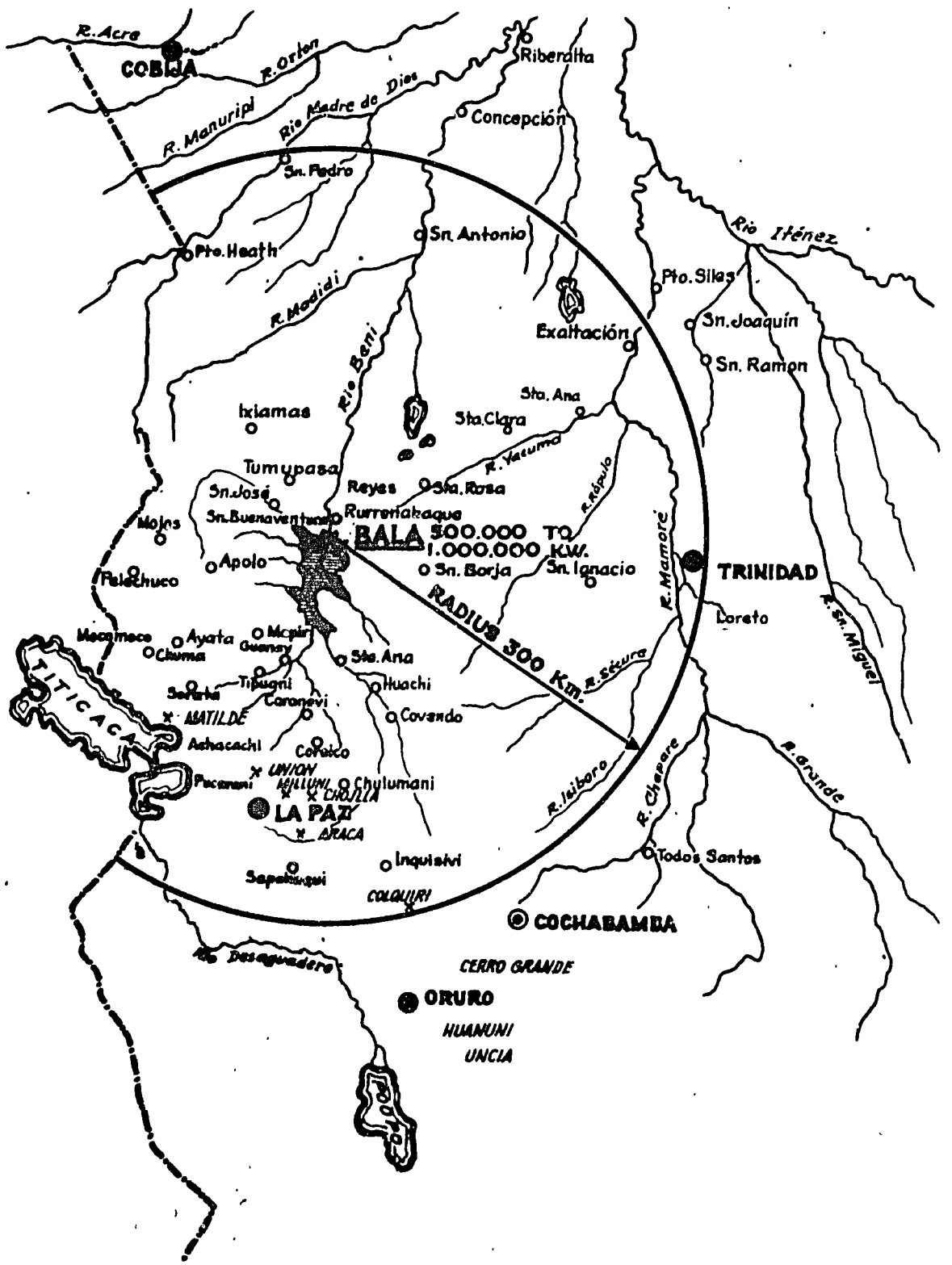


TOTAL ROADS: 930 KILOMETERS

BALA PROJECT
ZONE OF INFLUENCE



BALA PROJECT
ELECTRIC POWER POTENTIAL
500.000 TO 1.000.000 K.W.



d. Provide good transportation in a petroliferous zone.
e. Open up vast agricultural areas which would be a natural for growing rice and sugar at a distance of only 400 kilometers from La Paz resulting in a considerable saving in transportation costs as compared with the Santa Cruz area which is situated at a distance of some 1,000 kilometers from La Paz.
f. Create a hydroelectric potential of some 500,000 to 1,000,000 KW.
g. Permit the exportation of possible deposits of bauxite from the Beni region.

The cost of this project would be about $10 million, about two-thirds of which - not considering a hydroelectric plant - would be local currency expenditures. As compared with the Monte Punco project mentioned hereafter, which is also long range, this project would appear to provide a lot more return for about the same amount of expenditure, particularly since it is so much closer to Bolivia's principal centers of population.

2. Monte Punco-Puerto Villarroel Project. This project is under construction by the Bolivian Development Corporation. It consists of the construction of a road from Monte Punco at some 116 kilometers from Cochabamba on the Santa Cruz-Cochabamba highway to Puerto Villarroel on the Ichilo River over a distance of some 180 kilometers. By means of road and river transportation it would link Cochabamba with the Beni area thus connecting the more populated parts of the Beni such as Trinidad with Cochabamba and the high plains.

According to a recent United Nations study to provide adequate river transportation on the Ichilo and Mamoré Rivers over a distance of some 1,250 kilometers would cost about $2 million. The cost of the road from Monte Punco to Puerto Villarroel was estimated by the Bolivian Development Corporation at $7 million, of which about $3.5 million was to be used for the purchase of sufficient equipment to build the project in thirty months. Last year the project was presented to the Export-Import Bank for possible financing. The Bank turned it down presumably because of insufficient preparation and low relative priority.

The principal merits of this project appear to be that it:

a. Could contribute to alleviating the demographic pressure in the Cochabamba area, thus helping to solve a political problem.
b. Would open up a new agricultural area.
c. Would connect the Beni with the high plains, and
d. Would make available a new site for hydroelectric development.

It will be seen from these four points, however, that they are all quite long range. Although the hydroelectric potential is there, present markets do not justify an additional $14 million investment in a Monte Punco power project. As to new lands for agricultural development, it is clear that Bolivia has not yet been able to develop the lands which are available now. The linking of the Beni with the high plains is perhaps more a political than an economic question, a question of national integration since a lot of its export products could also be shipped out through Brazil. Finally it is hard to see why, if the Cochabamba Indians should refuse to travel 500 kilometers to Santa Cruz they would be so eager to travel 180 kilometers to Monte Punco.

3. Montero Road Net. This project consists of the construction of new roads in an area presently under development which could result in an immediate increase in agricultural production. During the next two years a number of roads will be constructed in this area north of Santa Cruz which will open up a large number of new lands.

Road Maintenance

Far more important, however, than constructing new roads is the maintenance of the network of existing roads. At present there are relatively large areas in Bolivia which are more or less isolated because of the lack of year-round transportation. To fix up these roads would not be a major problem and yet the result of such a move would be almost immediate. For example better road maintenance in some of the mining regions could enable a number of now marginal mines to sell their production, which in turn would add to Bolivia's foreign exchange income.

To help with this problem, the International Cooperation Administration agreed, last year, to establish a "Highway Servicio" which will maintain some 2,000 kilometers of existing roads in accordance with the plan shown on the map on the next page. In doing so, it will also endeavor to train an adequate force of Bolivian highway engineers which in time will be able to take over both maintenance and new construction activities. Once fully equipped, the new servicio will have a Bolivian personnel of about 1500 persons and $2,500,000 worth of equipment.

Traffic Density

Traffic counts in Bolivia are of questionable validity. According to the Highway Servicio the most heavily traveled routes in order of importance are the following:

La Paz - Huarina	70	kilometers	7200	vehicles	per month (average)
La Paz - Yungas	230	"	2800	"	"
Cochabamba - Santa Cruz	501	"	1200	"	"
Sucre - Camiri	435	"	1020	"	"
Tarija - Camargo	290	"	275	"	"
Tarija - Villazon	209	"	270	"	"
Sucre - Cochabamba	355	"	240	"	"

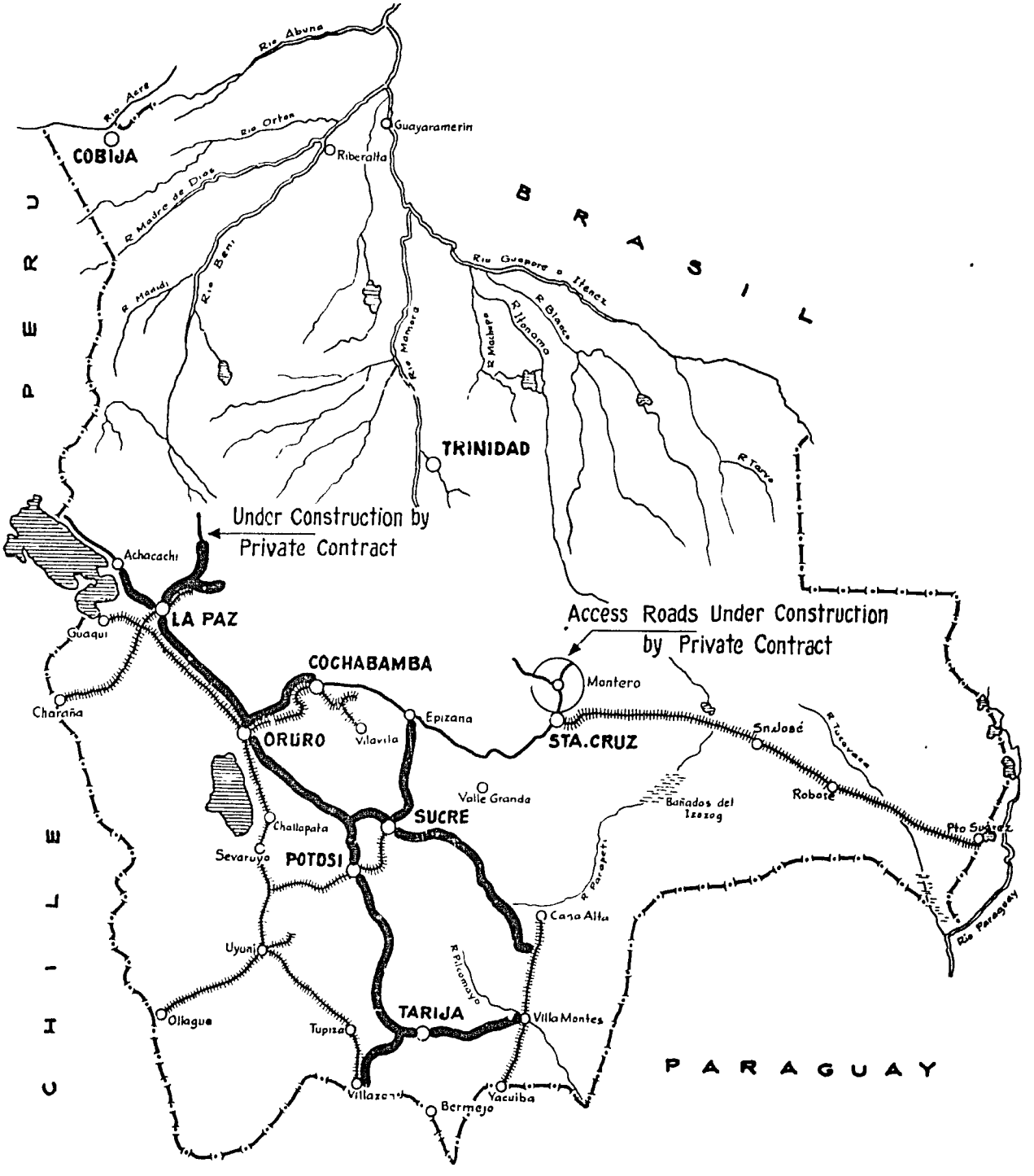
Although traffic on the La Paz to Huarina road and the La Paz-Yungas road is much more dense because of the economic factors involved - nearby markets, etc. - traffic on the Santa Cruz-Cochabamba road has been steadily increasing. According to a road count made by the Thompson Cornwall Co., the number of trucks going from Santa Cruz to Cochabamba increased from 3,058 a year in 1953 to 7,900 in 1955.

Vehicles in Operation

In view of the inadequate records, it is rather difficult to obtain a correct picture of the number of vehicles circulating on Bolivian roads. In order to make a comparison of the respective increase or decrease of motor vehicles, perhaps the best we can do would be to compare the number of vehicles shown in the 1949 census of vehicles, mentioned in the Keenleyside Report, with Bolivian motor vehicle registrations as of December 1955 1/.

1/ Source: Dirección General de Transito y Rodaje.

CURRENT MAINTENANCE PROGRAM OF THE HIGHWAY SERVICIO



REFERENCE

Maintenance Program.....

Railroads.....

The respective figures are as follows:

	1949	1955
Automobiles	3,970	6,779
Trucks	18,499	7,858
Pick-up Trucks and Station Wagons	n.a.	4,145
Others	404	1,525
Total	22,873	20,307

While the above data are admittedly unreliable, they would seem to confirm the general impression one gets in Bolivia that during the past few years the number of passenger automobiles has increased while the number of trucks has gone down. In a country like Bolivia which, as the over-all development program expands, is becoming increasingly dependent on truck transportation, this would appear to be a rather serious development. What is even more serious is that of the reduced number of trucks now in operation the majority is of very old vintage. A recent check of all trucks registered in Cochabamba by the United States Operations Mission proved that on the average these vehicles were about ten years old.

Furthermore, imports of trucks have been declining to a much greater extent than those of passenger cars as may be seen from the following import figures covering the period 1950-1955:

TOTAL IMPORT OF VEHICLES 1/

	1951	1952	1953	1954	1955
Trucks	1,158	752	182	100	167
Light Trucks	496	371	87	27	105
Automobiles	507	400	146	401	347
Carryalls	-	54	7	61	35
Jeeps	35	93	49	115	30
	2,196	1,670	471	704	684

The implication of all these figures should be crystal clear. Unless something is done about it rapidly, the lack of importation of essential cargo vehicles is likely to have quite serious repercussions on Bolivia's entire transportation system, thus offsetting a good deal of the results obtained from better road maintenance. An immediate improvement in this situation could be made by importing essential parts to rehabilitate old trucks. A check made in Cochabamba last year revealed that to maintain the local trucking services adequately, an immediate importation of some $300,000

1/ Source: 1951-54 - Survey made by the U.S. Operations Mission to Bolivia which does not include certain imports made by persons living in the interior and which are estimated at 15% of all imports.
1955 - Dirección Nacional de Estadística Boletín No. 77.

worth of parts was essential. The problem with importing parts, however, is that these parts are usually distributed through local unions at the official price which results in the fact that a large proportion of them immediately disappear across the border.

To lower transportation costs it would seem to be important to bring in a somewhat larger truck than the ones presently in use. In view of YPFB's considerable excess of light crude, for the time being they would have to be gasoline trucks, even if a gasoline truck might be somewhat less economical at high altitudes. Furthermore, diesels could easily involve new maintenance problems since this type of engine is not too well known in Bolivia.

From the above figures, it is clear that even on the present scale of operation Bolivia will have to import a good many trucks during the next few years. If the road maintenance program expands and if agricultural production increases, there will be even more demand for trucks. For this reason, the Highway Servicio has projected a future need of 20,000 trucks to take care of Bolivia's truck hauling needs.

Air Transportation

Considering the size of its population, Bolivia has an excellent air transportation system. International air transportation services are provided by two American companies, to wit, Braniff International Airways, and Panamerican Grace, which come to Bolivia several times a week. In addition there are the services of the Chilean Airline (LAN), connecting La Paz with Arica, the Uruguayan Airline (PLUNA), which connects Montevideo with Santa Cruz, Aerolineas Argentinas, which has a service from Buenos Aires to Santa Cruz, three Brazilian services, namely, Cruzeiro do Sul, Força Aerea and Correo Aereo Militar (CAM) which connect Santa Cruz with the interior of Brazil, and Lloyd Aereo Colombiano, which recently has provided a service from Cochabamba to Bogotá.

Local air transportation is provided by Panagra on its La Paz-Cochabamba-Santa Cruz-Puerto Suarez line. The greater part of domestic air transport is provided by Lloyd Aereo Boliviano (LAB) which has been operating in the country for over twenty-five years. At present it has a fleet of four DC3s, 2 DC4s, 7 C47s, and 2 B17s, while negotiations have been concluded with the United States Department of Defense for the purchase of four more B17s. LAB's services are supplemented by the Bolivian Development Corporation which operates three C46 aircraft which are used both to haul meat and for general development work, and by Transportes Aereos Militares (TAM) an air service provided by the Bolivian Air Force which operates four C47 cargo planes, Frigorifoco de Los Andes which operates one B17 plane to haul meat from the Beni, Frigorifico Ballivián which is engaged in the same activity with one B24 plane, and YPFB which at present has one C47 and two Cessna 180s in operation.

Lloyd Aereo Boliviano is a mixed company of which the government holds about 69% of the shares, the remainder being in private hands. The company has been growing steadily. It started operations in 1926 with three small airplanes which, during that year, carried a total of 1,583 passengers and 8,516 kilograms of cargo. During 1955 the company carried 158,002 passengers over a distance of 5,232,000 kilometers. Table XXXIV, of the Statistical Supplement shows the air traffic statistics for Bolivia's domestic airlines during 1955.

At present there are some 25 airfields 1/ and 20 landing strips. Some of these, such as the Cochabamba field, are badly in need of repairs. It is estimated that to put the Cochabamba runway in safe condition would cost about $150,000. This expense appears to be necessary if future accidents are to be avoided at this airport.

Due to the lack of a central authority, there is a general lack of coordination all over Bolivia in both transport service and maintenance. Maintenance facilities are scattered all over the country. In addition to LAB's workshops at Cochabamba, the Bolivian Air Force maintains a shop at La Paz while the two meat companies and the Bolivian Development Corporation also maintain some repair facilities of their own. If all these shops were combined into one central maintenance plant, practically 95% of all repair work could be done in the country at considerably less expense. At present a substantial part of all repair and maintenance work is done abroad which means an unnecessary dollar expenditure.

If all air transport services could be brought under central control, a considerable saving would result also.

LAB's Role in the Bolivian Economy

From all evidence it appears that LAB's contribution to the Bolivian economy could be greatly increased. At present the company is carrying on its most intensive service on the La Paz to Cochabamba run in competition with adequate train and deficient road transport. In view of LAB's extremely low fares, a lot of non-essential passenger traffic is handled which should use other facilities thus freeing some of LAB's planes for service into the interior. To illustrate, we may just mention that LAB's passenger fare from La Paz to Santa Cruz amounts to Bs. 41,910 while first class rail and bus transportation would come to Bs. 28,900. With this small difference, which becomes even less significant in view of the inflation, it is obvious that people prefer these heavily subsidized flights to any other form of transportation. (Two hours flight as compared with two days surface transportation)

This situation is clearly reflected in the increase in LAB's passenger traffic which went up from 89,099 persons carried in 1953 to 158,002 in 1955, a period which coincides with a very substantial increase in the inflation. Furthermore, instead of providing adequate service into the interior of Bolivia where people are clamoring for service, LAB is providing international services to Chile and Argentina in competition with other airlines which are a direct loss to the economy because of the low rates charged.

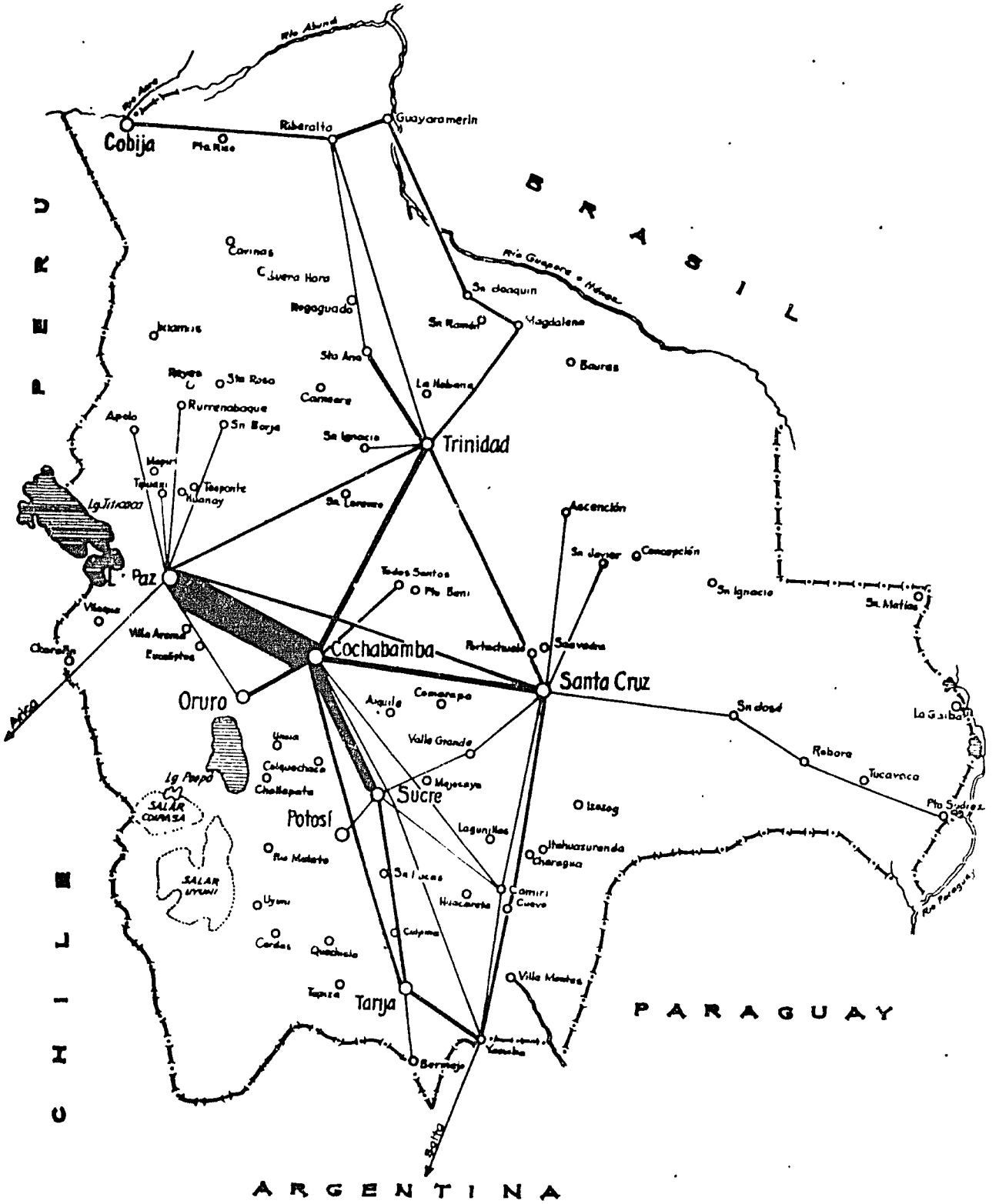
At least some part of LAB's freight consists of low priority cargo, part of which leaves the country as contraband. To subsidize all these operations, LAB received during the past two years, when its passenger traffic nearly doubled, an amount of $3.1 million of foreign exchange at the official rate of exchange.

To remedy this situation the United States Civil Aviation Mission has proposed that:

1/ This figure is subject to variation depending on one's definition of the concept of airfield.

178

LLOYD AEREO BOLIVIANO
DOMESTIC SERVICES



(Intensity of traffic shown by thickness of lines)

1. LAB should make a revenue-expenditure analysis by routes and aircraft in order to determine:

   a. Which routes are losing money
   b. Which if any aircraft cost too much to operate
   c. What changes are necessary in their rate structure
   d. What changes are desirable in the organization.

2. The Bolivian Department of Civil Aviation should be authorized and required to reduce competition by approving routes, rates and services.

3. Transportes Aereos Militares, the Air Force airline, should not engage in commercial airline operations.

4. All major overhaul facilities should be concentrated in one shop. This is now being done with the assistance of United States technical and economic aid. (centralized maintenance base) Aircraft used in Bolivia are of United States manufacture. Practically all of the replacement parts and raw material for repairs to these aircraft are purchased in the United States with dollars. Concentration of all overhaul will permit greater scope of work, purchase in quantity and better stock of parts all of which will tend to reduce dollar purchases.

5. Several airports and landing facilities should be improved. Take offs and landings on unpaved airstrips greatly increase the maintenance problems and thus dollar expenditures. The "El Alto" airport in La Paz is a classic example. The small stones, gravel and sand do considerable damage to the propellers and skin of the airplanes. The dust causes a great deal of unnecessary wear on the engines.

TAM's Role in the Bolivian Economy

What has been said about LAB is also true for Transportes Aereos Militares (TAM), the Air Force airline. TAM constitutes a squadron of the Bolivian Air Force which is sometimes used for economic development. At present it operates four C47 planes which are in bad condition. It provides a highly irregular service frequently in competition with LAB. During the past two years TAM received $400,000 of foreign exchange at the official rate of exchange.

Type of Air Transportation Needed

Owing to the vast expanse of the country and its demographic situation, as well as the lack of adequate overland transportation facilities in nearly half of the country, air transport will have to play an important role in Bolivia's economic development for a long time to come. It is, therefore, most important that this type of transport be organized in a most efficient manner, as is not now the case. Instead of trying to provide first class transportation on certain routes Bolivia's national air transportation system should provide just a plain, safe, type of transportation for all of Bolivia.

River Transportation

Until recently data on inland navigation were almost nonexistent in Bolivia. During the latter part of 1955 a United Nations study was made of the possibilities of opening a 1,250 kilometer navigation route on the Ichilo and Mamoré Rivers which would connect some of the larger towns of the Beni by river with Puerto Villarroel. This latter town in turn would be connected by means of the Monte Punco - Villarroel road, now under construction, with Cochabamba. According to this study the establishment of a river transportation system would involve a cost of some US $2 million not counting, of course, the cost of the road in question. A similar study will be made in the near future of the possibilities of the Beni River between Rurrenabaque and Riberalta, which will include a study of the Bala project.

While adequate river and road connections with the Beni would substantially lower the cost of bringing in Beni products, it is obvious that in view of the cost involved the establishment of modern river transportation systems is of low priority in the light of Bolivia's more urgent needs. Even if for the time being this is true, it would seem that a comprehensive study of Bolivia's river transportation systems and their connections with other parts of the country could be of considerable value for future planning.

Comparative Transportation Costs

In view of the general distortion of all economic data because of differential exchange rates and other subsidies, it is almost impossible to compare real transportation costs. However, if we compare three types of transportation on the La Paz-Cochabamba run, which should be most efficient because of the density of traffic, we get the following figures:

Truck	Bs. 100,000 per ton
Rail	38,913 "
Air	204,000 "

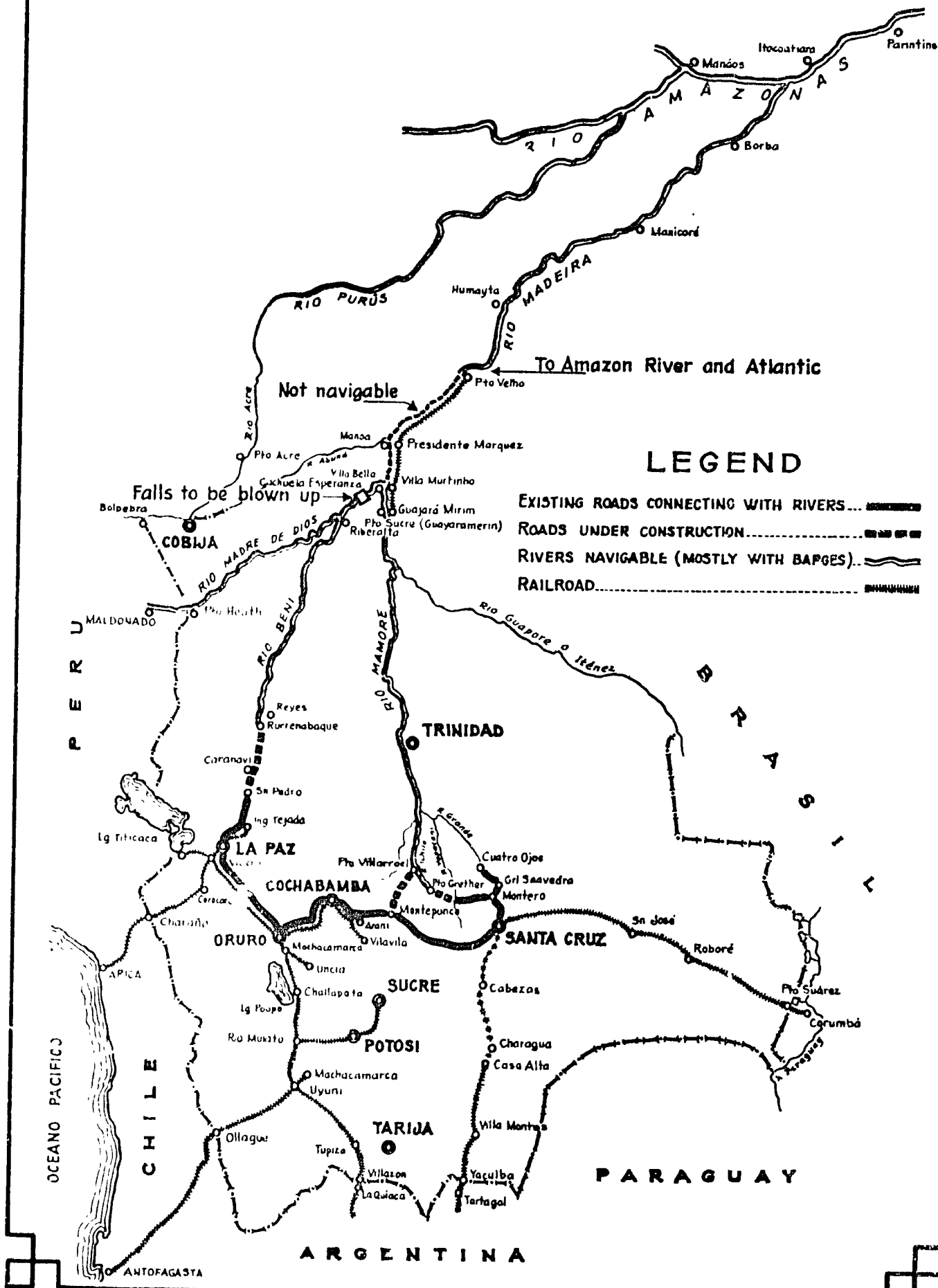
It is obvious from these figures that there is a crying need for an overall rate study for the various types of transportation in Bolivia.

H. FORESTRY

Bolivia is one of the most important forest countries in the world. It is estimated that the forests of Bolivia comprise some 200,000 square miles or 128,000,000 acres which at present constitute an unused resource. Yet the country has only 150 sawmills, 99% of which use a circular saw. Together these mills produce about 14 million board feet a year and production is decreasing. One single mill accounts for a little less than a third of the total output. The inefficiency of present production is obvious if we consider that if the 150 mills would work only 20 days per month on an eight hour shift cutting as little as 800 board feet a day, they would produce more than 24 million board feet of lumber which would be sufficient to fill almost all local demands.

The proper exploitation of Bolivia's forests, together with the operation of related industries, will require the elimination of a number of obstacles that are now present. Unfortunately, these obstacles cannot be removed within a short time. Forest development will have to be adapted to the unique conditions found in the Bolivian forest area where limited

BOLIVIA'S RIVER TRANSPORTATION SYSTEM



transport facilities, weather conditions, diseases, and the scarcity of adequate labor constitute a considerable handicap.

Probably the greatest obstacle to the development of forest industries will be the lack of semi-skilled and skilled labor, in other words, people who are familiar with the operation and maintenance of modern logging and sawmill equipment which is now practically nonexistent in Bolivia. To train these people will take time, money and foreign technicians. Lack of transportation is another problem which can only be solved gradually, while weather conditions with heavy rainfall in certain areas will tend to paralyze logging operations for a substantial part of the year.

Another serious problem has been Bolivia's defective pattern of land ownership, which results in the utmost insecurity as regards titles and boundaries which can only lead to endless litigation as land values increase.

According to existing surveys, the amount of timber which now exists in Bolivia, as well as its quality, is quite impressive. Most of it consists of evergreens and hardwoods. The richest forests exist on the eastern slopes of the Andes and along the large rivers which connect with the Amazon. Estimates as to the available amounts of timber go as high as 25,000 to 30,000 feet of good timber per acre with an average of 4,000 feet. However, as is the case in many tropical areas the composition of the stand may be a problem because of the number of species which may be found in a certain area. Furthermore, there are a number of species which are not very well known commercially so that it would take time to establish a market for these products in the local or foreign markets. On the other hand, the amount of mahogany which can be found in Bolivia is substantial, and the exploitation of this resource alone could very well pay for the cost to commercialize lesser known products.

On an over-all basis, it is estimated that about 125 billion feet of salable timber are now present in Bolivia which at current prices would represent a wealth of at least some US$25 billion. Using a conservative figure, about 500 million board feet could be cut each year without damaging the forest, which represents a value of $100 million a year, not counting the additional benefits in the form of work for now unemployed Bolivians.

A large part of these valuable forest resources of Bolivia are being depleted every year through bad management and wasteful cutting. For instance in the Santa Cruz region, Bolivian mahogany (mara) has been cut so indiscriminately that available trees are already as far away as 150 kilometers from the center of town. The destruction of forest resources on the high plains and in the valleys was mentioned in the section on agriculture. Recently some steps have been taken to protect those forests which are situated more closely to the population centers. In some areas such as Cochabamba and Sucre, eucalyptus has been planted to grow wood for fuel and mining props on a commercial scale. The Yungas area used to be a valuable source of high grade quinine bark but these trees are now largely destroyed as a result of careless and improvident cutting. In the southeastern part of Bolivia there exist valuable stands of hardwood such as quebracho and walnut. One of the best stands of tropical hardwoods exist northwest from Santa Cruz.

The Beni area has been a constant but limited source of high grade rubber which, during World War II, resulted in exports of about $4 million

a year. It also could provide sizable exports of Brazil nuts as was mentioned previously in the section on agriculture (see the Annex to this chapter - section on Agriculture).

In some areas, burning for agricultural clearing and high grading for especially valuable timber has already done considerable damage. As a result there is now advanced erosion in quite a few areas of Bolivia. This problem is particularly serious in the Yungas area which contains potentially one of the most productive areas of Bolivia. A similar situation, however not as acute, exists in the Beni and Chaco areas where extensive fires as a result of bad management have taken their toll.

Overcutting has been a problem in almost all producing areas of Bolivia. To cope with this problem, measures should be taken to stop uncontrolled cutting and to draw up a program to make proper use of this national resource.

Although certain laws showing at least some concern for the conservation of forest resources now exist, very little provision has been made for their proper implementation. Perhaps increased education as to the proper use of this resource might be the best answer to cope with this problem.

It is believed that the harvesting of timber will not constitute a serious problem for some time to come. It will not require any heavy road construction for main roads to reach desirable stands, while the stand density appears to be sufficient to make the cost of access roads very low per thousand feet of logs produced. In the development of Bolivia's forest resources, probably the biggest item will be the cost of transporting the lumber from the forests to the local or foreign market. Since there exists in Bolivia a sufficient amount of high quality timber which could be sold profitably both in the domestic and foreign markets, it would seem to be desirable that immediate steps be taken to start developing this resource which should not be allowed to lie dormant.

Among the areas which should be considered first for the establishment of sawmills are the San Antonio-Todos Santos area and the Piray area. These mills should initially concentrate on supplying the domestic market with lumber products such as boards, timber, flooring, etc. It may be expected that the domestic demand for wood - a large part of which is now being imported - is likely to increase continuously as a result of the increased needs of the mines and railroads. If construction increases there will also be more demand for flooring, veneer and furniture wood. In a later stage the high grade product, veneer, etc., could be exported to the United States while low grade material could be used for the domestic market. Insofar as immediate export possibilities are concerned, it seems that in view of available transportation, the Chaco area would offer the best prospects. Lumber could be shipped from there to Argentina while it might also be possible to ship logs to Uruguay by means of the Paraguay River.

ANNEX TO CHAPTER V - AGRICULTURE

The Outlook for Specific Crops

Wheat

Wheat is one of the basic items in the Bolivian diet. It is the principal source of calories for the urban population and, therefore, large quantities of it have been imported every year in order to fill the gap between domestic production and consumption. During 1955 imports of both wheat and wheat equivalent (flour) amounted to 87,850 tons. The wheat varieties which are at present grown on the high plains are not well suited to the area. Both frost and rust can cause severe damage to the crop. It is estimated that with the increased use of phosphates and dry farming techniques, yields could be increased substantially. Irrigation might also be the answer but irrigation would be considerably more expensive than the dry farming methods which have already been tried with great success in Peru. 1/

The Agricultural Servicio has done extensive experimentation with new wheat varieties which over a period of three or four years of testing have averaged an 80% higher yield than the native varieties. In addition this seed has been proven to be rust resistent and highly resistent to frost. It should be kept in mind, however, that from all appearances wheat is not a crop in which Bolivia could do best.

It is estimated that the area planted to wheat in 1948 was about 60,000 hectares.* Of this area, perhaps less than 2,000 hectares were located on the high plains, while the remainder was grown in the sheltered valleys of Cochabamba, Sucre, Potosí and Tarija. It is obvious from the above that with the right varieties, production on the high plains could be increased sharply which would free the valleys for other crops which cannot be grown on the high plains.

It is estimated that at present about 33,000 hectares are devoted to the production of wheat, distributed roughly as follows: Cochabamba, 60%; Potosí, 30%; Sucre and Tarija, 10%; and the remainder on the high plains. In these several areas there are roughly 90,000 hectares of land suitable for growing wheat on which other crops, principally corn and other small grains, are now grown. These potential wheat lands are, by areas: 40,000 hectares in the Department of Cochabamba; 15,000 in Potosí; 25,000 in Tarija, and 10,000 in Chuquisaca (Sucre).

Under the existing conditions, corn production is much more profitable than production of wheat which has to be sold at a controlled low price while the price of corn is subject to much less control. Furthermore, a hectare of land now produces about 2,000 kilograms of corn as against 500 kilograms of wheat, without as great a risk of crop loss or damage due to disease, cold or excess moisture.

1/ See H.J. Dion, Agriculture in the Altiplano of Bolivia, 1949 (FAO Report, May 1950)

* Estimate made by the Agricultural Servicio.

Since Bolivia's wheat requirements are likely to continue to increase, it seems to be of the utmost importance to boost the production of this crop to the extent possible. More adequate prices would be vital in any wheat program. To produce annually 120,000 tons of wheat in Bolivia would call for about 130,000 hectares planted in this crop, a goal which certainly could be achieved with the right price incentives.

No problem exists with respect to milling capacity in Bolivia. Bolivian flour mills are capable of milling about 100,000 - 120,000 tons per year while present purchases of domestic wheat are not over 10,000 tons a year. Even at the present low extraction rate of 75 kilos of flour per 100 kilos of wheat this part of the process should be reasonably satisfactory. Making whole wheat flour with high speed hammer mills would increase the food value of the present supply of wheat by some 15% to 20%.

Potatoes

Since potatoes are used directly by the Indians and, more important, are free from price control, potato production seems to have kept up with population growth except for the last two years when production dropped sharply as a result of land reform. At present potatoes and corn are about the most important crops in Bolivia. The fact that the potato is the staple food of the high plains calls for an early improvement in the rate of production of this crop in the highlands, both from the viewpoint of increased food supplies as well as to release more lands in the valleys for other purposes. It is estimated that in 1949 the last best year of agricultural output, about 50,000 hectares were planted in potatoes. As experiments by the Agricultural Servicio have shown, present production could be increased by four times by the use of fertilizer alone. In similar areas of Peru, yields as high as 30 tons per hectare have been obtained with modern methods and controls.

On the high plains, potatoes are preserved largely as "chuño" or frozen dehydrated potatoes, which method has been inherited from Inca times when it was used to save potatoes for years of poor harvest. In most places, potato yields are extremely low which is probably due to a combination of factors, such as low soil fertility, poor varieties, poor seed, and various diseases and pests.

Recently potato output has been dropping sharply which may take on an even more serious aspect in the immediate future since this year the Indians have been eating their seed potatoes instead of planting them. This drop has generally been attributed to the confusion created by the agrarian reform and therefore may be only a temporary phenomenon. To make matters worse, an early frost and a serious drought have ruined about 30% of the 1956 crop.

Potato production on the high plains can be increased very easily. For this purpose a program aimed at a much higher potato production through the use of better seeds and improved methods, coupled with an increased use of fertilizer as well as with the distribution of research information gained at the Agricultural Servicio's research station at Belem would be most essential.

Barley

Barley constitutes another one of the staple foods of the Indian who eats barley roasted as well as ground in his primitive hand mill. Although a large part of the cultivated area of the high plains is planted in barley, Bolivia recently has been importing considerable amounts of this cereal for brewing. Contrary to wheat and potatoes, barley has few diseases or pests that can cause serious damage to the crop. The crops grow well and the relatively low yields obtained can probably be attributed to low soil fertility which could be cured through the use of fertilizer containing both nitrogen and phosphorus.

There seems to be absolutely no reason why Bolivia cannot produce all its requirements of barley on low nitrogen soils and a program to achieve just this would be of real value to the economy of the country. Furthermore, growing barley for forage could be a help in any livestock program on the high plains where the shortage of winter feed on the badly over-grazed grass lands frequently constitutes a problem. Another similar crop which could offer some prospect in the high plains is rye, which, because of its nutritive value, might be an interesting addition to the diet of the Indian.

Quinua

Quinua is an extremely vitamin and protein rich cereal which grows on the Bolivian highlands and which has been part of the basic diet of the Indians for many centuries. Chemical analysis indicates that, except for corn and oats, quinua is superior in fat content to wheat, rice, rye and barley. Its content of protein and fat approaches that of meat, while its large content of mineral substance, particularly phosphates and calcium, puts quinua on top of the list of most vegetable foods. Quinua is used extensively by the Indians for whom it contributes a basic ingredient to supplement their otherwise deficient diet. Little of it finds its way to the commercial market.

Quinua might have some possibility for export as a breakfast cereal (quinua flakes). Actually Peru is exporting small quantities of quinua to the United States where there appears to exist a certain demand for this product. Since no special experience is needed in growing quinua, production could be stepped up fairly rapidly. It is felt that in Bolivia an additional 10,000 tons of quinua flour could be produced within a period of five years which, once used as an additive to wheat flour, could reduce wheat imports by 5 to 10%. The area now planted to quinua is estimated at about 14,000 hectares. The yield is not high, averaging 400 kilos per hectare, but the plant withstands frost and can be grown where other crops do poorly. The price of best quinua is consistently above that of wheat, indicating a good demand for the product.

Sheep

At present, all livestock on the high plains is rather poor in quality with the possible exception of such native animals as llamas and alpacas. Sheep have always been of great interest to the highland Indians. Many areas are over-grazed by decadent flocks of sheep which yield very little meat (12-15 kilos of meat on the average) and even less wool (1-1.5 kilos

of low quality wool per year). It is estimated that at present the number of lambs born equals the number who die each year. This low rate of reproduction together with the pasture limitations have tended to keep the number of herds at a rather fixed figure.

Pasture management is difficult on the high plains. A system of controlled grazing to permit the range to re-grass itself is virtually impossible. Sheep are maintained primarily for wool. The improvement work with pure-bred rams coupled with better feeding practices and pest control could have spectacular results in producing large sheep with good mutton characteristics, as well as good quality wool which in turn would contribute to reducing Bolivia's present imports of both meat and wool.

Coca

Coca has been traditionally one of the main crops grown in the Yungas of La Paz. However, recently and for well-known reasons, international agencies have been using more and more pressure to reduce the production of coca. While Bolivian exports of coca have been decreasing - Argentina cut coca imports from 500,000 kilos to 300,000 kilos in 1953 - local demand is also likely to drop as a result of the fact that the younger generation of Indians seem to indulge less in the habit of chewing coca. According to the most recent statistics, exports of coca went down from $684,750 in 1954 to $196,472 in 1955.

Fruits and Vegetables

Fruits and vegetables grow in the valleys of La Paz and Cochabamba which provide nearby markets for these products. It is interesting to note that since the producers of fruits and vegetables have never been subject to price control, production of both has kept in close touch with demand. A breakdown in transportation is the only cause for an occasional shortage of these products. As the standard of living of the Bolivian population rises, there will be more and more demand for fruits and vegetables which could be grown successfully in the valleys close to the population centers.

In view of the high quality of the product, it seems likely that in time the Santa Cruz area could develop an interesting export trade with Argentina in citrus fruit and pineapples.

Coffee

Coffee production both in the Yungas of La Paz and in Santa Cruz could be increased rapidly by better management and greater incentives. At one time Yungas coffee was quite an export item, commanding a premium in world markets. Since 1942 the Agricultural Bank has been encouraging the production of coffee in the Yungas mainly by means of agricultural credit. Production increased from 750 tons in 1942 to 1,600 tons in 1953, which just about covers the need of domestic consumption, leaving only a small margin for export.

While costly and inadequate transportation as well as the hazards in curing coffee during the rainy season have been a handicap, inadequate price policies and excessive export controls have been the main factors in holding back coffee production in Bolivia. Recently the govern-

ment has tried to remedy this situation by drawing up an ambitious coffee program which would give Bolivia a foreign exchange income from coffee (annually) amounting to $10 million by 1965. The previous rigid control of coffee prices was also relaxed somewhat. Unfortunately as a result of a domestic shortage during the last part of 1955, coffee exports had to be suspended again which put a damper on the enthusiasm of a number of people who had shown a revived interest in growing coffee for export.

To increase production effectively, increased research and extension work would be necessary, while the provision of tools and implements as well as credit facilities would take on a high priority in any coffee program. A most important factor would be to see that the Agricultural Bank buys the coffee at the right time during harvest time and provides the necessary transportation facilities.

Increased roadbuilding, a central processing plant and proper grading facilities would be essential if exports of any size are contemplated. It may also be necessary for the government to facilitate the movement of migratory workers from the highlands to the Yungas of La Paz (a distance of some 120 kilometers) at harvest time as well as to promote the formation of farmers' cooperatives. Some changes would also have to be made in the agrarian reform law in connection with a Yungas coffee growing program.

Bolivia offers virtually unlimited possibilities for the production of coffee. The mountain valleys of the Yungas can produce excellent coffee at elevations up to 2000 meters above sea level, while in time a large production could be developed in Santa Cruz.

As mentioned before, one of the greatest attractions in expanding coffee production in Bolivia lies in the fact that this can be done relatively quickly and without a large capital investment. The people in the Yungas have their plants and know how to handle coffee. They have simply neglected their trees because of the low (controlled) prices received. At present five or six plants in the Yungas produce as much as one plant could produce under proper conditions.

The rather gloomy near-term outlook for coffee in world markets should be of little concern to Bolivia, since Bolivia could be an extremely low cost producer of quality coffee ($0.20 a pound compared with the present price of $0.60 in New York, which is considered a low price; not so long ago coffee sold in New York for $0.95 a pound).

The fact that coffee harvesting generally requires a lot of labor may also work to the advantage of Bolivia in the long run. While labor costs in Brazil are steadily rising, the fact that coffee growing in the Yungas is largely a family affair may ultimately become a factor in keeping costs down. With proper incentives, particularly free export privileges at world market prices, and with the provision of more technical help to growers, including proper processing and standardization, coffee exports could mean an annual income to Bolivia of some US$5million within the next six years.

Discounting the possibility of selling to the United States market for the time being, Bolivia could enter into an interesting coffee barter

trade with its neighbors, Chile (iron), and Argentina (wheat), which at least would relieve some pressure on the foreign exchange budget. Furthermore, coffee consumption in Bolivia is increasing rapidly. The Indian will be getting more and more used to drinking coffee as the economic integration progresses. Increased domestic consumption will call for the careful planning of a coffee program regardless of the outlook of world markets.

Tea

Tea growing would seem to offer some very interesting possibilities in Bolivia. 1953 imports amounted to about 155 tons, representing an expenditure of some $200,000. To produce 350 tons of tea per year, a quantity which Bolivia could easily absorb, would require about 700 hectares. Both climatic and labor conditions in the Yungas are very favorable for tea. Like coca, tea growing is highly labor intensive which makes it an ideal crop for the small farmer of the Yungas and his family. Thus, since coca as a crop appears to be on the wane tea may well prove to be an ideal substitute and a more profitable one too.

In Peru tea is now being grown commercially in areas which are in all respects comparable to the Yungas (the Convencion Province). Tea production grew from 31 tons in 1940 to 400 tons in 1950.

Tea is grown commercially in Bolivia near Mapiri and in the Yungas of La Paz. However, until now the quantities produced have been small, mainly because of lack of processing equipment, inadequate price policies and transportation difficulties.

Pyrethrum

Pyrethrum grows in regions which combine a subtropical climate with altitudes of not less than 2500 meters, much like the valleys of Bolivia. For centuries it has been grown in Persia and the southern part of Russia. At present the most important production centers are Kenya and Japan. The flowers of the plant are dried and ground to form a powder which constitutes an insecticide. The product is a dollar earner which commands a good price in world markets.

Bolivia is now carrying out some experiments both in the valleys and on the high plains to grow pyrethrum for export. Present world production amounts to 17,000 tons, of which the United States imports 50%. Although competition from chemical insecticides may increase, the demand for pyrethrum is likely to continue for specific uses. Even if prices should drop substantially, pyrethrum would still be an interesting export item. As agricultural development progresses there may even be some use for this product in the domestic market.

Bananas

Banana flour, properly prepared, offers another substitute for wheat flour. Banana flour has one advantage over yucca flour in that it is a lot easier to grow while it is considerably higher in food value. At present a few farmers are starting banana growing on a small scale in the Montenuncu region with the ultimate object of producing banana flour in commercial quantities.

Corn

Although corn is now grown extensively in the Cochabamba valley, Cochabamba corn is likely to be replaced in time - at least to some extent - by corn from Santa Cruz which is cheaper and of a better quality. This shift is already noticeable right now. Thus more land will become available in the Cochabamba region for the growing of wheat and potatoes. Corn is a basic element in the diet of the rural population of the lowlands of

Bolivia. Its second most important role is in the manufacture of alcoholic beverages (chicha).

Under the auspices of the Agricultural Servicio, a new variety of corn - Cuban yellow corn - was introduced in the Santa Cruz area a few years ago. This corn which is now abundant produces at least 100% more than the local Criollo types of corn. The wheat flour millers are starting to use some of this corn to make corn flour, which is being sold in the markets to assist in reducing the consumption of wheat flour. Apart from its use as flour, corn may play an important role in both poultry and hog growing which latter has to be stepped up to eliminate the present substantial imports of lard.

Rice

Until 1942 rice production was quite insignificant in Bolivia. However, as world prices went up under the impact of the Second World War, production of rice rose sharply, particularly in the Santa Cruz area. Present plans call for the elimination of about 11,000 tons of annual rice imports in a period of about two more years.

Since the lack of rice processing facilities has been a bottleneck, the Agricultural Servicio has prepared some plans for setting up more rice storage facilities at Santa Cruz including a number of portable rice mills. A new bridge over the Pirai River, now under construction, will open up additional rice lands so that by 1958 about 20,000 hectares could be planted in rice.

Sugar

Sugar is said to be a natural for the Santa Cruz area. Production has developed slowly over the years and up to the present day almost all sugar cane is being used in the manufacture of alcohol, both because of the higher price of the latter as well as because of the lack of sugar mills. At present there are two small mills in Santa Cruz, "La Belgica" and "La Esperanza," which have been in operation for a number of years. Their combined production is about 5,000 tons of refined sugar a year.

The Bolivian Development Corporation has just finished the construction of another sugar mill at Guabirá near Santa Cruz at a total cost of some $4.5 million in foreign exchange alone. Its potential production is about 18,000 tons of refined sugar although the actual production is likely to be lower. At the same time, the Belgica mill expects to expand its processing capacity from the present 3600 tons of refined sugar per year to about 5,000 tons, for which purpose it is importing equipment from Germany at a cost of $186,000. To increase the capacity of this mill to 16,000 tons of sugar a year would require an investment of some $2-3 million in foreign exchange.

The Esperanza mill also has plans for expansion through the purchase of French machinery on long-term credit which could bring its production up from the present 1,400 tons of refined sugar per year to 6,000 tons.

The Bolivian Government has repeatedly stated its intention to sell the Guabirá mill to private enterprise through the forced sale of shares to both industry and government employees. In view of the present situa-

tion in Bolivia, however, it is likely that the latter will sell these shares as fast as they receive them so that the ownership of the mill will wind up in the hands of a few people anyway.

Putting the ownership of this mill into private hands is of vital concern to the Bolivian sugar industry since under present day conditions private industry could never compete with the government mill for any length of time. For example, the Guabirá mill pays no CIF surcharge on its machinery imports which private industry does; the mill has facilities to obtain long-term European credit; the mill is surrounded by excellent roads, all newly constructed while the two private mills suffer from very bad access roads all around. If the Guabirá mill hires a foreign technician at $200 a month, it is out of pocket Bs.40,000 at the official rate while private industry would have to pay the same technician Bs. 1,600,000 at the free rate. Add to this the fact that the government mill has all sorts of facilities to expedite the transportation and custom clearing of its imported equipment as well as the fact that the government can set the sugar price at will, the consequences of a government operation alongside private industry are obvious.

At present the sugar processing problem in Bolivia is still far from solved. As will be seen from the above, even with the proposed expansion of La Belgica Bolivia would only be able to produce half of its annual sugar imports, which are admittedly higher than the actual needs because of the losses through contraband traffic. However to take care of all future requirements an additional sugar refining capacity of 32,000 tons a year would seem to be necessary.

Although an investment in sugar mills could perhaps pay for itself in two or three years, it still would require a dollar expenditure of some $4-6 million, an investment no private individual is going to make as long as the present policy of controlled prices and interference with the industry persists.

Only time can tell whether building two or three large sugar mills instead of many small ones will be the answer to Bolivia's problem. A large mill needs a lot of good sugar land right near the mill, while in Santa Cruz good land is usually found in spots and not in large areas. How the soils around the new mill will stand up after five or six harvests is still an open question. The same uncertainty exists with respect to the long-term availability of water supply which has already been a problem. Apart from these technical considerations there is the point that from a social point of view a few small mills in different parts of the country would be of far greater benefit to Bolivia than one or two large mills placed closer together.

At this point one can only say that the existing two small mills have proven to be the right type of development in connection with Bolivia's available resources. Whether the same holds true for large mills only the future can tell.

Yucca

There are a number of substitutes for wheat flour which can be grown in the Santa Cruz region. Yucca, corn and bananas are all very good possible substitutes. Yucca flour can be mixed with wheat flour in varying

amounts up to 5% - 10% to give a corresponding saving in wheat imports. The production of the raw product is not a difficult problem for all farmers know how to grow this crop and a relatively small area gives a large yield (15 to 30 tons per hectare). About 300 hectares planted in this crop will keep a small mill going.

A yucca mill is now under construction at Santa Cruz which will have a capacity of some 1200 tons of flour during the first year, working an eight hour shift. The mill is being developed with Point Four assistance on a co-operative basis with the growers. A second mill will be built in Bolivia within the near future and plans are underway to organize a farmers' cooperative to take over the programming, planning, and operation of this second mill. The combined capacity of these two mills will be approximately 4500 tons of flour compared to the country's annual need of 5,000 - 10,000 tons. The investment of $80,000 in one mill will eliminate annually a corresponding amount of wheat imports.

Vegetable Oils

The production of oil seeds could be increased rapidly in Bolivia with adequate price incentives to the farmers. At present the production is virtually nil, although there is a very good oil plant at Cochabamba that can produce nearly 750 tons of the refined oil if the products were grown. The capacity of this plant, which was completed in 1951, could easily be doubled. It has never been in commercial production since, under the present controlled low prices, it cannot afford to pay the farmer an adequate price for the raw materials.

Castor beans, peanuts, soybeans and sesame all do well in the Santa Cruz area. The importance of increasing the production of edible oils is twofold. First of all it would eliminate imports and secondly it would provide cake for a growing cattle industry. For this latter purpose it would be necessary to establish an oil press in Santa Cruz to save transportation costs.

Tobacco

Tobacco is of great potential interest to Bolivia, both as a dollar saver and as a dollar earner. In November 1954, Casa Kavlin, the makers of "Derby" cigarettes, started growing tobacco near Santa Cruz on an experimental basis. The first results appear to be promising insofar as the quality of the product is concerned, but the lack of technical know-how in curing the leaf constitutes a serious handicap. A lot could be accomplished by importation of the necessary technical assistance and machinery combined with a policy of limiting the importation of tobacco.

Hard Fibers

The Santa Cruz area is well suited to the production of hard fibers, both because of climate and soil. At present the importation of bags for the mining industry represents an annual outlay of about $1 million for Bolivia. As the agricultural development program progresses these imports are likely to increase. Thus the need for a domestic fiber industry is obvious.

Among the various fibers which could be grown, such as ramie, jute,

sisal and manila hemp, kenaf has been selected by the Agricultural Servicio as likely to give the best results. At present there exists a small rope factory which uses kenaf as a raw material and which about fills the local demand while there are several plans in the mill for the establishment of a bag factory by private capital.

Hogs

Hog production was once quite significant in certain parts of the Chaco area. However, because of the competition from imported lard, many farmers lost interest in hogs. Although Bolivia is annually importing some 3,000 tons of lard, hog production has increased very little over the years partly for the above-mentioned reason. The 1946 cholera epidemic killed a large percentage of the herd while in 1955 a similar epidemic took place which fortunately was less disastrous in its effects.

One of the principal bottlenecks in the production of hogs is the lack of animal proteins and proper feed. The latter deficiency will be cured in time as the greater availability of corn at lower prices will be a great help to hog breeders; however, the first deficiency is likely to be a problem for some time.

An adequate coordination of credit and extension on this project could materially expand the population of pigs in the Santa Cruz area. A considerable amount of education is needed to show farmers how to handle hogs. Work is also needed on training of individuals in the conservation of the lard as well as in the production of it.

Cusi

The Cusi palm is exploited widely in Brazil. Bolivia has large stands of this palm northeast of the Santa Cruz area which could be exploited commercially for the production of vegetable oils. It is estimated that i some places the Cusi belt is some 60 kilometers wide with a total area of some 20,000 square kilometers. In Brazil some 66,000 tons of nuts were harvested in 1953 resulting in a production of some 27,000 tons of Cusi oil 1/. On the basis of present yields, Bolivia could annually obtain 70,000 tons of Cusi oil, provided some 120 kilometers of roads were built first to open up the Cusi country.

Honey

Honey could become an interesting export item for the Santa Cruz area since the yields appear to be quite high. Due to the attractive prices paid in foreign markets production has been steadily increasing. With proper methods and techniques, exports of honey should easily reach a value of $200,000 a year.

Turmeric

Turmeric is another specialty item which could be exported from the

---

1/ Dir. General de Estadistica do Brasil

Santa Cruz area since there appears to be a good demand for the product in Argentina.

Cotton

Near the town of Villamontes in the southeastern part of Bolivia at a point where the Pilcomayo River leaves the mountains and enters the Chaco country, the Bolivian Development Corporation, in cooperation with the Agricultural Servicio, is carrying out an irrigation project principally for cotton cultivation. Present plans call for the irrigation of 5,000 hectares of land over a period of four years. In a latter stage the irrigated area could be increased to 40,000 hectares which, however, would require the construction of a diversion dam as well as a large system of irrigation canals. Although the area is ideally suited for cotton, the project is likely to be handicapped for some time by both the lack of people and transportation facilities.

Caranday Palm Wax

The caranday palm grows in the Chaco. Allegedly solid stands occur around Puerto Guarani (Paraguay) extending back from the river for 200 to 250 kilometers into Bolivia. The same high density continues beyond Bahia Negra and into Bolivia for an unknown distance. The caranday palm is presently exploited as a source of timber and fiber but potentially it is much more valuable as a source of hard vegetable wax, like carnauba wax. Brazilian carnauba is almost indistinguishable from caranday wax according to reliable analytical tests.

Caranday wax can be used in the manufacture of metal and wood polishes, printing and carbon paper inks, leather dressings, shoe cream, phonograph records, chalk and crayons, dry batteries, explosives and a number of other products. The value of United States imports of carnauba wax has ranged from $10 to $20 million a year during the period 1940-1950. Caranday wax, like carnauba, is a low bulk, high priced commodity and as such an ideal product for export from a relatively isolated country such as Bolivia.

Quebracho

The quebracho tree grows in the Chaco area. The bark is used extensively in both the tanning and petroleum industries. Paraguay has been exporting large quantities of bark for quite a few years; however, since it takes a great many years to grow a tree, the Paraguayan raw material is becoming scarcer which should give Bolivia a chance to enter the market.

Livestock

Although Bolivian cattle breeding is more or less spread all over the country and has not reached a stage of specialization, the present emphasis appears to be largely in the Beni where many cattle are still wild. Since the demand for meat has been increasing all the time, in 1946 the Ministry of Agriculture and the Bolivian Development Corporation organized a plane service to haul meat from the Beni. It is estimated that from 1947 to early 1956, some 35,000 heads of cattle were flown to La Paz. This has resulted in a gradual but steady decline of the wild herds which do not replace easily because of their high mortality, low fertility, and in

general because of the unfavorable conditions - poor pastures, contaminated water - under which they live.

At present cattle are an important item on Bolivia's import bill since about $5 million worth of cattle is being imported every year. To remedy this situation the Bolivian Government has started a cattle project in Reyes through the importation of Zebu bulls as well as through cattle breeding under controlled conditions.

It is believed that a better control of screw worm could have spectacular results in lowering the mortality rate of Beni cattle. Since Beni cattle are already resistent to tropical conditions and since the Zebu strain does not improve the quality of the meat materially, there might also be some merit in trying out a few crosses with high quality beef producers such as Brangus cattle.

Cattle production on the high plains could also be increased somewhat, perhaps not too much, since any significant expansion would cut down the area now grazed by sheep. At the present time, the number of cattle in the area is very low with the exception of a few herds which are practically all found in the region around Lake Titicaca. In view of the significant price differential, a high proportion of highland cattle is now exported clandestinely to Peru.

Cattle on the high plains are maintained mostly as draft animals. At present they do poorly because of internal parasites, poor grazing and the lack of phosphorus. However, with improved pasturage, intelligent grazing practices, and the use of phosphate mineral supplements they should be well adapted to much of the interior and eastern part of the high plains and the valleys.

Livestock production on the high plains is important for soil fertility reasons since the use of farmyard manure could vastly improve the yields of potatoes and grains on the highland soils. It is impossible to stress this phase of the livestock enterprise too strongly; in fact, improvement work in potatoes and small grains would be of limited value unless farmyard manure is available as a soil amendment.

Unfortunately the development of the dairy industry around La Paz and Cochabamba, which was just beginning, was delayed again by the agrarian reform which resulted in the elimination of a number of large breeders. In some cases the Indians took over these properties, resulting in the butchering of a number of priceless purebred herds.

The Santa Cruz area offers good possibilities for cattle raising in conjunction with various crops. The Agricultural Servicio has brought a small herd of Brangus and Santa Gertrudis cattle to Santa Cruz, the production of which will be sold to local farmers to improve their stock.

It is estimated that with proper methods Bolivia could produce one million steers a year for export which would represent an annual net income of at least $10 million.

Price policy has again been the major problem in increasing livestock breeding. Unfortunately, to get rid of its excess petroleum Bolivia rec-

196

ently signed a barter agreement with the Argentine whereby substantial amounts of crude oil are sold for Argentine beef. Since this beef reaches the market at a price which cannot be met by the domestic breeder, the outlook for the industry is again becoming highly dubious. An example may be in order: while a Beni carcass brings about Bs. 400,000 in La Paz under the present controls, the same steer exported clandestinely to Brazil would bring about Bs. 2,000,000. For the same reason cattle from the high plains is finding its way across the Peruvian border.

If cattle production is to be increased effectively, one of the first steps would have to be for the government to pay the domestic producer the equivalent of the price paid in adjoining countries.

With further incentives, domestic cattle production could be increased rapidly. Providing a cattle trail from Caranavi to Rurrenabaque to connect the latter region with the high plains would likewise be of major importance to the cattle industry since it would eliminate the present costly transport of beef by air.

Increasing cattle growing in the Santa Cruz area coupled with a rotation program is likely to have the most immediate effects. Once built up sufficiently, cattlemen should be allowed to export their cattle for dollars which would probably give the greatest boost to the industry.

Rubber

Rubber is now being grown as an experiment at the Riberalta Experimental Station of the Agricultural Servicio. There are no rubber plantations in Bolivia to speak of although there are a lot of wild rubber trees (about two per hectare) in the forests around Riberalta and other parts of the Beni. In 1946 Bolivia exported about $4,000,000 worth of rubber. Today official exports are negligible although a lot of rubber is still being smuggled out to Brazil.

Bolivia produces a high quality rubber which is excellent for high grade products such as gloves, medicinal items, etc., and which is not likely to be replaced by synthetic rubber. Even today current world consumption is at the rate of 1/3 synthetic and 2/3 natural rubber.

A well organized natural rubber production could be of great significance to the development of the Beni. Since rubber plantations would take the "siringueros" or rubber tappers out of the forest where they now make a very difficult living collecting wild rubber, both the social and economic benefits of such a move would be quite important since it would make it possible for these people to be reached by health and education, as well as to combat the disastrous effect of excess drinking which constitutes their only form of entertainment.

A small rubber planter and his family working an individual farm could earn even at half the present price about U. S. $1,800 a year which is far above the average earnings in Latin America. Other crops, such as coffee or cacao, could be grown along with it. It is interesting in this connection that when the General Fire and Rubber Company studied the possibility of establishing a tire factory in Bolivia, it found that it could not do so at the moment for lack of an adequate production of plan-

tation rubber.

Cacao

While short-term prospects may appear a bit bleak, the longer term outlook for cacao is promising. World consumption of cacao increased eight times in the post-war period. Last year Latin America produced 635 million pounds of cacao or 35% of the world production 1/. Exports were around 435 million pounds, about two-thirds of which went to the United States, bringing in some US $150 million in foreign exchange earnings.

Although cacao originated in Latin America, African production has been rising sharply during the earlier part of the 20th century until it was hit by the swollen shoot disease and reached a sort of steady level. In very recent years, the main growth in cacao production has been in Latin America. World production is now around 1.8 billion pounds, an increase of 2% over last year. Production is likely to go up further over the longer term, particularly in Latin America where the hard to control swollen shoot disease has not hit as yet.

It is expected that with new varieties and better farming practices, Bolivian yields could be raised to one ton per hectare which should tend to make cacao an attractive crop. As a result of this there appears to be an increasing interest in cacao in Bolivia. Several firms are now studying the possibility of exporting to the United States. Unfortunately, the wild cacao which these people are trying to export commands a very low price in New York.

There exists an interesting cacao project in Covendo which was started by the French Redemptorist Missionaries a few years ago. This Mission, among relatively wild Indians, more or less follows the pattern of the old Jesuit Missions in Paraguay, with the difference that it puts more emphasis on developing small private properties. The Covendo Mission comprises some 70 families who now have a small number of hectares of cacao under cultivation. The Mission buys the production directly from the Indians. It has a small processing plant which last year bought about 13 tons of cacao from the Indians for domestic consumption. 1956 production is estimated to be around 16 tons. The Mission expects to establish a small chocolate factory in the future for which it has already planted sugar cane.

Cacao is of interest both as an export item and as an item for the expanding internal market since the greater availability of sugar will offer more scope to the chocolate industry.

Brazil Nuts

The export of brazil nuts has always been an interesting item in the Beni region. Unfortunately a large part of the production is traditionally smuggled out to Brazil as contraband. The nuts grow wild on tall trees up to 35 meters high, some of which have a diameter of over 2 meters, which makes it hazardous to walk under them when nuts are falling. They have a hard case that protects them from deterioration for some time after they

---

1/ United Nations Economic Commission for Latin America, Bulletin Economico de America Latina, 1955.

fall to the ground. They are picked up in January and February and brought to the gathering centers for storage and drying to prevent moulding. The main problem is processing the nuts since from four to five kilograms of nuts in the hull produce only one kilogram of meat of export quality. Most of the shelling is done by hand since no adequate machinery exists to process the nuts without damaging a large part of them.

Since Brazil nuts are worth about $1.25 per pound in New York, and since nuts of good export quality can be produced at considerably less cost in Riberalta, the establishment of a few processing plants combined with an adequate price incentive could have immediate effects in the form of increased exports.

VI. CONSUMPTION

The Pattern of Change

At present the problem of production is being stressed all the time in Bolivia. This is quite logical since the lack of production is the principal driving force behind the galloping inflation. However, to increase its wealth and its standard of living, a nation needs not only an increase in production, it must have an increase in consumption also. This problem appears so vital that it should constitute a separate chapter in any discussion of the economy of Bolivia.

Until the 1920's when tin production started to create a new wealth and new problems for Bolivia, there existed neither a problem of production nor of consumption since the two were in balance. The highlands and the valleys produced food in sufficient quantity. Such basic items as potatoes, quinua, pigs and cattle were produced on the high plains, supplemented by wheat, corn, fruits and vegetables from the nearby valleys. According to a report from the United Nations Economic Commission for Latin America 1/, Santa Cruz produced all the sugar and rice to satisfy the local demand.

With the rise of tin, all this changed. After the railroads had been built, Bolivia was able to export its minerals more cheaply, which gave a tremendous boost to the mining industry. Attracted by higher wages, many subsistence farmers left the land and became miners. At the same time the income from the mines, combined with low exchange rates, made it possible to import food more cheaply than it could be produced in the country. For the railroads it was convenient also to have a return freight after minerals had been deposited on the coast. Gradually the production of rice and sugar declined to a point where it did not even supply the producing areas any longer. This is quite understandable if one takes into account that the imported food items were generally of a much higher quality than those produced locally.

Slowly in Bolivia there came to be two civilizations, one highly mechanized and highly capitalized with lots of foreign personnel who built their own world with modern comforts, and one based on the old ways which had not changed for thousands of years. With the advent of the Chaco War in the thirties, the problem was aggravated. Since production lagged, more food had to be imported. At one time things went so bad that potatoes had to be brought from Holland. The Chaco War also created a drastic change in eating habits since thousands of Indians who never left their villages where they eked out an existence on potatoes and quinua, suddenly acquired a taste for many articles which were previously not used by them such as sugar, rice, meat, bread, cigarettes. Likewise shoes and modern clothing gradually began to replace sandals and homespun garments.

The increase of industrial production as a result of the over-all economic activity drew a further number of subsistence farmers away from the land. It was the time during which the construction of two new railroads was started, a time of boom for the private building industry and a time of much public construction. The gradual improvement in communications, the lowering of transportation costs, the early appearance of a national airline in Bolivia (in 1925) as well as the influence of the movies did their part to change the century-old habits of the Indians.

Backed by a relatively strong boliviano, Bolivian students started to go abroad and brought back new demands. The miners found in their cheap

1/ Economic Commission for Latin America - Development of Agriculture in Bolivia, E/CN/2°218 and E/CN/12/218 add 2; May 1°, 1951.

commissary all sorts of articles which their families had never seen before. The following table demonstrates quite clearly that until 1952 per capita imports were increasing more rapidly than exports which would seem to confirm the trend that the Indian was gradually being integrated into the national economy.

PER CAPITA FOREIGN TRADE OF BOLIVIA, 1940-54 1/

Year	Exports in Thousands of U.S. $	Imports in Thousands of U.S. $	Population in Thous. of Inhabitants	Exports per Capita in U.S. $	Imports per Capita U.S. $
1940	49,828.9	20,378.0	2,690	19	8
1941	60,649.7	27,747.2	2,721	22	10
1942	65,656.8	33,234.8	2,753	24	12
1943	81,600.6	39,177.1	2,785	29	14
1944	77,553.8	37,451.3	2,817	28	13
1945	80,431.6	40,369.8	2,850	28	14
1946	73,650.2	51,365.6	2,883	26	18
1947	81,429.3	59,557.4	2,916	28	20
1948	112,825.9	68,735.8	2,950	38	23
1949	102,970.1	78,359.4	2,984	34	26
1950	94,072.4	55,842.7	3,019 2/	31	18
1951	150,646.0	85,837.6	3,054	49	28
1952	142,106.9	92,620.4	3,089	46	30
1953	124,522.1	68,006.2	3,125	40	22
1954	103,694.7	65,483.1	3,161	33	21
1955	102,374.6 3/	84,390.- 3/	3,198	32 3/	26 3/

Thus, while in 1951 per capita exports were about 2.6 times those of 1940, the corresponding import figure was more than 3.5 times as high as in the base year 1940.

Import figures of basic foodstuffs clearly tell the story as may be seen from the following table:

AGRICULTURAL IMPORTS (In Tons) 4/

	1940	1945	1950	1955
Sugar	30,010	30,168	36,824	42,766
Rice	11,640	10,920	8,210	10,739
Wheat	42,067	50,186	33,881	51,935 5/
Flour	7,022	18,110	17,399	25,859 5/
Powdered Milk	NA	NA	750	4,614
Condensed Milk	NA	NA	861	3,648
Cattle	9,831	11,325	3,331	8,040

1/ Source: Tables XXII and XXIV
2/ According to 1950 census
3/ Approximate figures
4/ Boletín Estadístico No. 76 & 77, Dirección Nacional de Estadística, 2d semester, 1955 and 1st semester 1956.
5/ Adjusted with Point IV Figures.

To remedy this situation production premia and high artificial prices for agricultural products were given a try in the late forties which, in some cases, had spectacular effects. However, for political reasons the present government was forced to go back to the old system of importing substantial amounts of agricultural commodities at the official rate of exchange.

The Bolivian Diet

The average Bolivian diet is still far below normal standards of nutrition. During the middle of 1955 a dietary study was made by the Health Servicio in the area of Montero near Santa Cruz 1/. The people of this area generally enjoy a higher standard of living than that of the average Indian from the high plains. They are mostly of old Spanish stock mixed with more recent immigrants. Although no more than twenty families were comprised in this study, their diet is considered to be fairly typical for the whole area. Twelve of the families studied lived in the town of Montero while the remainder were taken from the surrounding country. Of the latter eight, two were independent farmers, while the remaining were employed. The twelve families of Montero represented the various strata of the local society.

The average calorie intake of these families was found to be 1674 calories per day as compared with a recommended calorie intake of 2061 calories per day. Still worse is the lack of iron, calcium, vitamin A, thyamin and riboflavin in the average diet. Particularly, the diet of small children (1-4 years old) was found to be quite inadequate. More detailed figures may be found in Tables XXXXV to XXXXVII of the Statistical Supplement.

A similar study on the consumption of bread, comprising some 1444 persons living on the high plains and in the valleys, was carried out by the Health Servicio early in 1956. For several reasons this study had to be completed in a relatively short time without much preparation. Therefore, these findings cannot be taken too seriously. The highest level of bread consumption was found in La Paz with an average per capita consumption of less than three units (of 100 grams each) of bread a day while in other communities such as Warisata, consumption is not over two units a month. On the whole, bread is consumed mostly in the urban areas while in the rural areas it is generally eaten on special occasions such as holidays, fiestas, etc.

Both studies showed clearly that the people themselves are quite dissatisfied with their dietary levels. A typical diet for the Cochabamba area is coffee and toasted corn for breakfast, corn meal soup and cooked corn for lunch, coffee and toasted corn, together with corn meal soup in the evening. Many families eat a hot meal only once a day. Nearly all families polled complained about the lack of basic food items and the high prices which they had to pay to middlemen.

Quite recently the Health Servicio made another study in the village of Kalaque which is more or less typical for conditions in the Lake region. As a matter of fact it is one of the high plains areas where people live a little better since they consume a certain amount of fish in addition

---

1/ Investigacion Alimenticia en el Area de Montero, published by the Health Servicio.

to the usual diet. It was found that in this village the average daily intake was 1682 calories as compared with a recommended level of 2000. The study showed that the respective Indians were deriving about 58% of their caloric intake from potatoes and barley.

Another way to look at the Bolivian diet is to take the principal imports of food items into Bolivia during 1955 and convert these into a per capita calorie figure as was done in Table XXXXVIII. Adding to this, the principal domestic production as estimated by the Agricultural Servicio we come to a total daily intake of 1221 calories per person as compared with a recommended level of 2000 calories per day (for the high plains). Of course, people eat additional items which brings up the over-all figure of caloric intake. It should be kept in mind also, however, that of these imported commodities a substantial part leave the country as contraband while a large part never reaches the Indians. There appears to be at least some consensus among Bolivians that of the three million population about 1.5 million are Indians who hardly ever use or consume any items which they have not made or produced themselves, such as sugar or rice.

The Bolivian Standard of Living

As mentioned elsewhere in this report, during the past few years over-all production appears to have decreased which has been made up in part with United States aid. Although over-all consumption in the country seems to have followed more or less the decline in production, it would be interesting to analyze how this "smaller pie" is now being divided.

From all appearances it seems that the Indian has gained most in the present social struggle. At least the revolution made him the owner of his land, while serious price distortions in basic commodities gave at least those Indians living near the border an incentive to engage in a very profitable contraband traffic; yet the standard of living of the average Indian family is still desperately low as may be seen from a recent study on the subject, prepared by a member of the United Nations Mission of Technical Assistance to Bolivia 1/. The results of this study, which are summarized in Table XXXXIX of the Statistical Supplement, are all the more interesting since they give a good idea of the needs and wants of a typical highland Indian family of whom there are some 175,000 (1,047,000 persons) on the high plains (excluding the valleys).

Insofar as the miners are concerned, the relative gain in economic position appears to be less significant since the miners - at least until recently - have been able to make up for the drop in real wages by reselling commissary items in the black market. From a socio-political point of view, however, the miners have undoubtedly gained a good deal in status since they now constitute one of the stronger political forces.

The population that has been hardest hit by the recent social changes are the small middle class and at least some parts of the city population. A comparison of a few typical salaries at constant boliviano values may help

---

1/ Study of a Typical Indian Family in the Province of Dalence, prepared by Mr. A. Quesada.

to give some insight into this problem as follows:

COMPARISON OF THREE TYPICAL SALARIES IN TERMS OF BOLIVIANOS OF CONSTANT VALUE

	Office Boy			Secretary			Lawyer		
	Salary Bs.	$US 1/	Equiv. in Bs. 2/	Salary	$US 1/	Equiv. in Bs. 2/	Salary	$US 1/	Equiv. in Bs. 2/
January 1953	4,300	14.33	3,071	10,400	34.67	7,429	30,250	100.83	21,607
June 1953	6,160	11.10	2,588	13,780	24.83	5,790	38,700	69.73	16,261
January 1954	14,730	12.54	4,221	25,780	21.94	7,387	61,910	52.69	17,739
January 1955	23,620	11.30	3,494	39,090	18.70	5,783	89,670	42.90	13,265
January 1956	34,900	7.48	2,544	57,750	12.38	4,209	132,450	28.39	9,654
June 1956	55,200	7.91	2,702	91,300	13.09	4,469	209,300	30.01	10,245

As may be seen from these figures, the wage earner has been able to keep up more or less with the inflation while the middle class and intellectuals have been the big losers. In this picture wages of agricultural laborers have shown the biggest increase. For example, in Santa Cruz the daily wage in 1951 was Bs. 100. Today it is Bs. 4000. On the high plains this figure is substantially lower since at present agricultural wages are not over Bs. 1500 a day. However, we should keep in mind that a few years ago many of these workers were virtual slaves so that the percentage gain may be even greater.

Thus, in summary, it can be said that peasants have gained relatively at the expense of the middle class, intellectuals and some industrial workers, while all these groups combined appear to have suffered a decrease in consumption. Furthermore, since the loser group is relatively small and the gainer's group relatively large, the loss to the former has been severe.

The increased lack of consumption is visible in most sectors of the economy. Many people are unable to buy a suit or a shirt. Properties are allowed to deteriorate and equipment is not kept up. Quite a few people are hungry most of the time, while they try to make ends meet by working at two jobs.

It appears hardly necessary to mention that this decline in consumption is due only to a decrease in the purchasing power of consumers as well as the lesser availability of nearly everything and is not due to saving. Today, individual saving in the Bolivian economy - except for a few people who are able to take advantage of the present situation - is almost non-existent.

Contraband Activities

Although the subject of contraband activities is interesting from an economic point of view because of its present effect on the Bolivian economy, it may become more academic in the near future if the monetary stabilization program takes hold.

Contraband activities are mostly a result of faulty monetary and fiscal

---

1/ Black market rate (January 1953) and free market rate June 1953-1956)
2/ Equivalent in bolivianos of constant value; base, December 1951.

policies. It is obvious that under the present circumstances the government cannot hope to control contraband activities by using a police force although it has been carrying out some heroic efforts to do this.

Furthermore, in a country like Bolivia, it is extremely difficult to determine which country loses or wins as a result of contraband activities. At present there are indications that if Bolivia would legalize the present contraband traffic the country might gain in the end. Exporting legally in bulk would seem a cheaper way to export such items as coffee than having a trainload of women cross the border, all of whom are hiding a few pounds of coffee under their wraps. Likewise if the Indian buys low cost imported flour and chooses to contraband it to Peru,(instead of eating it) in order to buy a bicycle, Bolivia might gain since this increased mobility will greatly help the integration of the Indian into the Bolivian economy.

Even if contraband activity in its present scope and form could soon become a thing of the past, a discussion of the problem appears to be warranted since it helps to explain some of the things which happened to the Bolivian economy during the past few years.

The existence of large scale contraband activities has been admitted time and again by responsible Bolivian government officials from the President down 1/.

Recently the government felt obliged to issue various decrees dealing with the suppression of contraband. The most recent of these decrees 2/ states clearly that since the contraband of articles of primary necessity has taken on such proportions, the army and policy are authorized to step up their activities in guarding the border in order to repress contraband.

Contraband traffic with Peru reached such proportions during the early part of this year that it resulted in an official protest on the part of some Peruvian businessmen in border towns 3/.

For those who may still have doubts about this, we might mention that that from a common sense point of view, contraband traffic should occur because it is so profitable. A piece of bread which sells in La Paz for Bs. 30 4/ sells for Bs. 600 across the border in Peru. The case of sugar is similar.

A typical transaction would be to buy a cow in Bolivia, drive it across the border and then purchase two cows in Bolivia with the proceeds of the transaction.

Recently a high official in the Department of Agriculture voiced the opinion that the chronic meat shortage in La Paz is almost entirely due to the fact that large quantities of meat go out as contraband 5/. For example from 1938 to 1948 the number of cattle coming from the high plains and slaughtered in La Paz went up from 14,834 heads to 30,431. During the

---

1/ La Accion de Gobierno en el Ministerio de Economia Nacional. Publicacion Official 1954-1955.
2/ Decree 4404 of May 22, 1956.
3/ El Commercio, Lima, March 10, 1956.
4/ Official price; the black market price would be around Bs. 100.
5/ El Diario, April 19, 1956.

period 1948 to 1953 this figure dropped to 4,542 heads, followed by an even greater decrease in subsequent years. This decrease coincides exactly with the period during which the price of beef was kept at an artificially low level. For instance at present the price of an average steer in Bolivia is Bs. 300,000. Since the same steer can be sold in Peru for Bs. 600,000, the implication is obvious.

Even if the amount of cattle which are leaving the country annually should be as high as 40,000 heads, and 20,000 sheep, this would be quite a drain on the Bolivian economy since it represents a value of some $4.2 million while at the same time Bolivia is importing US $4.3 million worth of cattle, mostly from Argentina. A good part of these are Bolivian cattle which are smuggled out from the Chaco and reimported into Bolivia under the petroleum barter agreement.

According to the local judge, at the border town of Guaqui alone about 300 cattle are smuggled across every week. Until recently one could observe at Desaguadero, on the Peruvian border, a weekly open market of articles of primary necessity on the Bolivian side and of imported items such as radios and bicycles on the Peruvian side, all of which are traded actively by the Indians.

Re-exportation of flour and sugar constitutes another problem, the exact extent of which is hard to estimate. However, on the basis of the price differential it must be quite extensive. During the month of August 1956 a new and energetic police chief decided to have a check on the contraband of bread to Peru which, as we saw above, is good business. The result of stopping all cars and trucks leaving La Paz was a catch of some 200,000 units of bread per day 1/ which in terms of flour amounts to some 19.2 tons a day or 9,733 tons a year in terms of grain, and this is only bread made in La Paz 2/.

As a result of a check made on theSanta Cruz-Corumba Railroad in January 1956, it was found that substantially more than 95% of all freight carried on this railroad consisted of Bolivian articles of primary necessity. Recently the La Paz newspaper El Diario 3/ reported that contraband activities between Brazil and the Santa Cruz area were taking on unusual proportions. Generally coffee, sugar, rice, hides and powdered milk are shipped to Corumba in return for medicines and cloth from Brazil. At the same time Santa Cruz is desperately short of these items. Again, the price differential fully explains the situation, as follows:

Commodity	Price in Santa Cruz	Equivalent in Brazil
Rice	Bs. 15,000 per quintal	Bs. 46,000 per quintal
Sugar	9,580 " "	32,000 " "
Corn	8,000 " "	20,000 " "

According to an article in Ultima Hora of May 29, 1956, the export of contraband on the railroad from Santa Cruz to Corumba has now increased to

1/ See La Nacion, August 17, 1956
2/ Although a very small part of this may be consumed by Indians outside of La Paz, police authorities estimate that most of this bread is smuggled across the border.
3/ El Diario, April 29, 1956.

206

such an extent that lately most articles of primary necessity are quite scarce in Santa Cruz which even includes locally produced items such as rice, sugar and coffee. Similar things take place in the Beni where basic foodstuffs are being smuggled out. In view of the available plane space these quantities are relatively small, but the traffic is constant. For example, in November 1954 a shipment of 5,000 bottles of beer left La Paz for Guayaramerin on the Brazilian border. At that time the beer sold in La Paz for Bs. 93 a bottle. Air freight per bottle constituted another Bs. 80, which comes to a total of Bs. 173 while the same bottle could be sold in Brazil for Bs. 625 1/.

Much worse, however, is the contraband in typical Beni products such as cattle, Brazil nuts and rubber which are constantly being shipped to Brazil. For example 1/ early in 1954 a herd of 300 cattle was driven from Trinidad to Brazil which took 50 days and 12 river crossings. The loss of cattle was expected to be 10% to 20% which loss could well be sustained since the cattle could be sold in Brazil for at least Bs. 100,000 a head as compared with Bs. 36,000 in Bolivia.

The same takes place with rubber and Brazil nuts. During 1945 Bolivia exported some 3,750 tons of high grade rubber which figure in 1950 had gone down to 1,395 tons, representing a value of $697,500 2/. At present, Bolivia is only exporting a few tons of rubber officially while the remainder goes out as contraband.

Of course, it is almost impossible to estimate correctly the exact extent of contraband activities. However, whatever figure one wants to take, it is obvious that it must be vast. Taking conservative figures we can easily assume a loss through contraband of some 10,000 tons of wheat, 5,000 tons of sugar, 2,000 tons of rice, and 40,000 heads of cattle which together would amount to some $5.5 million a year. Even if the amount were 50% less it would still be quite a drain on the Bolivian economy.

To remedy this situation now is complicated since Bolivia has practically no border control, and, as we said before, this problem can only be controlled effectively through the price mechanism. With the revolution, the army was practically disbanded and replaced by popular militia largely composed of Indians. As was to be expected the Indians would soon do as they please. Selling contraband goods is obviously easier than making a living off the land. In a number of places the Indians are getting so strongly organized in this type of activity that the police have not got a chance against them. The danger of all this is that this activity is expanding since every day the Indians are learning more about the possibilities offered by contraband traffic so that this type of activity is likely to increase unless something drastic is done about it.

The Problem of the Black Market

The problem of the black market is closely related with the problem of contraband. As an oversimplification, we might say that if there were no contraband traffic there would be no black market either.

1/ See 1954 Economic Report, Agricultural Servicio.
2/ Exportaciones de Origen Agropecuerio, Dirección General de Estadística.

Table L of the Statistical Supplement shows the monthly food distribution schedule of the Ministry of Economy. As may be seen from this table, of all the flour distributed 66.14% goes to the official rationing boards, while 33.86% goes to special groups which do not consist of more than 400,000 people at the most. In the case of rice, these percentages are 38.17% and 61.83%, respectively. For lard and vegetable oils the respective percentages are 36.37 and 63.63, and 49.70 and 50.30. A comparison of the absolute figures for the Mining Corporation, which does not employ more than 35,000 workers (excluding their families) and for the Department of La Paz in which resides about one-third of the population of Bolivia (948,446 persons) is even more instructive if we consider that under the general distribution plan the Department of La Paz receives the lion's share of all distribution as may be seen from the following figures:

MONTHLY DISTRIBUTION QUOTA
(Absolute Figures)

	Flour Tons	Rice Tons	Lard Tons	Vegetable Oils Liters
Mining Corporation	1,167.02	393.30	92.23	51,000
Private Mining Industry	350.06	198.72	38.00	17,300
Dept. of La Paz	3,036.00	340.00	67.00	60,000
Rest of the country	5,038.58	869.81	126.10	103,700
Total	9,591.66	1,801.83	323.33	232,000

From the above it is clear that in certain areas the cheap commissaries of some of these privileged small groups receive almost as much as or more than the entire Department of La Paz. Then, to make a real wage these groups sell at least part of the items bought in the cheap commissary in the black market through which it enters into the general economy. A few prices will illustrate this, as follows:

JUNE 1956 PRICES

	Cheap Commissary, Govt. owned Mines	Black Market Price in La Paz
Meat	Bs. 23.90 kilo	Bs. 800 kilo
Flour	8.70 "	760 "
Rice	16.90 "	650 "
Sugar	11.20 "	260 "

As a result of this situation, the city markets of La Paz, Oruro and Potosí are frequently stocked with items which are typical imports for the mines, such as sardines, etc.

At this point it becomes interesting to raise the question whether the food items distributed by the rationing boards effectively reach the 2,500,000 inhabitants for whom they are destined. In the case of flour there exists a certain control over the rationing boards in La Paz so that an important part of the respective departmental quota is actually delivered to the bakers. Therefore, from the 3,036 tons of flour corresponding to the department, the bakers receive around 2,000 tons of flour per month. It is

supposed that the rest of the department quota, or 1,000 tons, goes to the bakers of other villages in the department, but actually this does not appear to be the case. According to a communication from the La Paz bakers, 40% of the people who stand in line to buy bread from the bakeries are made up of peasants 1/. This means that in the villages of the department there is no bread available since if there were these peasants would not have to make a long trip to La Paz to buy it. In other words, it would seem to prove that a large quantity of flour is not coming to its destination.

Insofar as other cities of the country are concerned, there appears to be no control that the respective quota actually reaches its destination. In a number of places visited people complained that they did not receive their respective quota.

In the city of La Paz where the bakers receive the flour directly, there occur some further anomalies. For example, during a recent surprise inspection made by the Municipality of La Paz of the bakeries, it was discovered that several bakeries had received allocations of flour amounting to 2½ tons which they had not used at all. Another baker had received 3½ tons of flour and used only 1/3 to make bread 2/. A part of the official allocation of flour which is handed at a controlled price to the bakeries is obviously being resold. To protect themselves against losses resulting from the artificially low price of bread, the bakers are forced to sell part of their flour in the black market. In other cases, such as were recently discovered in La Paz 2/, the bakers' union may obligate the bakery to deliver to each worker 25,000 Bs. worth of bread. Naturally, the object of the workers is to obtain this quantity of bread in order to resell it in the black market at three times the official value.

The result of all this is that there exists a continuous and most acute shortage of bread. In front of the bakeries there are constant long lines of people who receive from 5 to 10 units per person at a price of Bs. 30 per unit. Outside the line, this bread is worth 100 to 150 Bs. The shortage of bread is so terrific that according to El Diario of August 26, 1956 those who are not able to obtain a piece of bread often cry and try to be the first in line the next day.

At this point the question may be raised as to what happens to the flour which is not used to make bread. The official price for the sale of flour to make bread is Bs. 3,100 per quintal whereas the black market price is from Bs. 35,000 to 45,000. If all the flour which is hidden and taken out of the legitimate market were offered in the local market, the price would drop sharply and the sellers would lose. Therefore, those who have more or less important quantities of flour prefer to export them clandestinely in order to obtain higher prices. Insofar as other articles are concerned, such as rice, vegetable oils, powdered milk, sugar, etc., these contraband activities are likely to be larger since the traffic is even less controlled. It is a fact that all over the country there is a large illegal traffic in merchandise and official allocations of foodstuffs. This was the reason that the Minister of Economy decided to distribute directly to the public a certain quantity of

1/ El Diario, August 26, 1956. Sociedad de Industriales Panificadores Mayoristas. Comunicado a la Opinion Publica.
2/ El Diario, August 17, 18, 1956.

food which in the above mentioned table is listed under the heading of "Reserve of the Ministry of Economy" and to which correspond the following percentages of the total:

Flour	10.74%
Rice	11.27%
Lard	2.13%
Vegetable Oil	2.16%
Powdered Milk	4.9%

In the case of flour, it has been tried to establish a more realistic price instead of Bs. 3,100 which is paid for flour destined to make bread. A price of Bs. 18,000 per quintal is charged for the "Reserve of the Ministry." In practice, however, since the black market is above Bs. 35,000 per quintal, even the sale of flour at Bs. 18,000 results in a considerable profit to the one who received an official allocation.

Bolivia's Real Food Needs

While some of the above problems may soon become more or less academic because of a more realistic price policy, there is one question which remains of considerable interest, namely: what are Bolivia's real food needs? To analyze this problem a little further it may be interesting to compare Bolivia's per capita consumption of four basic food items with that of Peru 1/, the United States and Latin America in general. This comparison shows the following results:

PER CAPITA ANNUAL CONSUMPTION

	Bolivia 2/	Peru (Coastal Area) 3/	Latin America 4/	United States 5/
Wheat & Wheat Equivalent	Kgs. 32.78	Kgs. 69.5	Kgs. 42.7	Kgs. 59
Sugar	15.87	34.3	25.9	44
Rice	6.98	41.4	29.4	2.7
Beef	16.94	7.1	n.a.	35

From these figures it is clear that even if the people were getting all the food which is presently imported and produced in Bolivia - which, as we have seen, is not the case - consumption would still be quite low on a comparative basis. Furthermore, since a number of imported food items are consumed by only a part of the population, these figures are still lower for those who do not receive them, a fact which is also confirmed by some of the dietary studies mentioned above.

It is obvious that any increase in consumption of these items by those who never saw them before is likely to be slow unless consumption would be

1/ Coastal area - data for the high plains are not available.
2/ 1955 imports plus domestic production as estimated by the Agricultural Servicio
3/ Based on a study of a typical cotton farm in the coastal area of Peru; see: Dietary Studies in Peru; Journal of the American Dietetic Association, Vol. 29, No. 9, Sept. 1953.
4/ United Nations, 1954 Survey of Latin America.
5/ Economic Forces in USA in facts & figures. US Dept of Labor in cooperation with International Cooperation Administration.

heavily subsidized. For instance if the controlled price of bread is kept artificially low, the Indian may start selling his potatoes for a good price and buy bread instead, as has actually happened in certain cases. However, in a free economy this picture would immediately reverse itself.

Therefore, the conclusion seems justified that since 1956 availabilities of the above food items are historically high 1/ and since in the immediate future the lower strata of the population are not likely to have the purchasing power to increase consumption substantially, the consumption of flour, rice, sugar and beef is not likely to show a drastic increase in a free economy even if the present levels of consumption are low in absolute terms.

The Need for a More Balanced Consumption of Food

As mentioned before, if Bolivia's economy is to develop properly, it must increase both production and consumption. To do the first quickly should be easier than to do the second since a change in habits and levels of consumption takes both time and education. What is most important, however, at this point is that in establishing certain habits the government should try to give a certain direction. For instance, present price policies have resulted in increased consumption of certain products of which Bolivia should consume less, such as flour and alcohol. Artificially low priced flour is even replacing typical home grown products such as rice and yucca in the Beni thus adding to Bolivia's import bill. This trend is rather dangerous since once firmly established food habits are hard to change. If price controls are used at all, they should be used to boost the production of those products which Bolivia can produce best and which will come most naturally to the people who will have to consume them.

1a/ The average annual consumption of wheat during the years 1937-1945 was about 9.74 kilos per person; see Dr. Jorge Pando Gutierrez; Bolivia y el Mundo 1947.

1b/ Bolivia's normal sugar imports during 1940-1945 were about 32,000 tons a year as compared with a now scheduled 60,000 tons for 1956.

VII. INVESTMENT

The Investment Climate

On paper the investment climate in Bolivia looks fairly good. Foreign capital may enter the country freely. Article 18 of the Constitution states expressly that both Bolivians and foreigners shall enjoy the same privileges under the law while Article 17 of the Constitution guarantees private property provided its use does not go against the interests of the community. Expropriation must be justified by the public interest and must comply with the law after previous and just indemnization.

Legal Provisions

The law of October 17, 1945, at present in existence, guarantees the investment of private foreign capital. To enjoy the protection of this law the capital in question must be invested in new enterprises or in the expansion of existing basic industries or activities which are mentioned by name. The investment may be made

a) through the sale of foreign exchange at the official rate to the Central Bank, or
b) through the importation of materials or equipment destined for the establishment or the expansion of industry.

Capital thus incorporated may be amortized and transferred at the rate of 20% per year of the original capital. In the case of industries which either save or produce foreign exchange this percentage may go as high as 30%. Profits may be transferred at the rate of 15% a year. Once the capital is amortized, all equipment, machinery, installations, construction and accounts in foreign banks are considered as Bolivian capital. The remittance of profits and amortization is carried out through the Central Bank after previous approval from the Ministry of Finance.

According to the law of 1945, expropriation or nationalization cannot take place as long as the amortization of the foreign capital has not converted the latter into domestic capital.

The law recognizes two types of exchange; one official and one free. Foreign exchange brought into Bolivia must be converted through the Central Bank at the official rate which in turn entitles the investor to a remittance of profits and amortization at the same rate. The Decree of May 14, 1953, specifically states that the foreign exchange budget shall reserve funds for this type of transfer. The law states that if, because of the foreign exchange situation, no exchange should be available to effect such transfers they may be registered in the Central Bank as additional investments. Transfers at the free rate of exchange may be effected at any time and are not subject to any control.

The General Labor Law of 1939 stipulates that 85% of the employees of any enterprise must be Bolivian and that at least 85% of all wages paid must go to Bolivian nationals.

Practice versus Theory

The above constitutes the theory. In practice the situation is quite different. In view of the complete lack of foreign exchange for even the most essential purposes, all the provisions regarding remittances at the official rate are more or less meaningless.

In some cases the investor may be able to obtain certain special conditions or privileges as was done in the case of the contract between YPFB and the American firm of Glenn McCarthy, as long as no mention is made of obtaining foreign exchange which is not first produced by the party in question. (at the Bs. 190 rate)

During the past few years there has been a tendency to make almost any major foreign investment the subject of special negotiation with the government. For instance, the recent contracts for gold mining and the establishment of several manufacturing enterprises were all arranged by special negotiation.

Under the impact of mounting balance of payment difficulties, the government is becoming more and more aware of the need to attract foreign capital. A first step in this direction constituted the institution of the United States Investment Guarantee Program which was signed on September 29, 1955, and which provides some guarantee against expropriation and the lack of convertibility. As a result of this decree, a few United States investors have already made a move to come in.

Deterrents to Private Investment

In spite of these few moves, most of which involve operations in more or less isolated areas and which are not labor intensive, the general investment climate in Bolivia still leaves a lot to be desired. For example, not so long ago a new decree was issued against the perpetration of "economic crimes" which is so broad that it could be a serious deterrent to private firms. After defining economic crimes as the destruction of natural resources, artificially increasing production costs in industry, speculation in articles of primary necessity, illegal traffic in foreign exchange, re-exportation of articles obtained with official foreign exchange, double invoicing practices, entering into contracts which are against the interest of the State, etc., the decree fixes severe punishment for each case, consisting of up to several years at hard labor. Since in modern times a foreign company generally has to be "like Caesar's wife," it is obvious that this type of legislation is not conducive to attracting private capital.

There are undoubtedly a number of people in Bolivia - especially at the higher levels of government - who are quite interested in attracting foreign capital. It is frequently admitted that foreign capital is the only salvation for Bolivia. However, it must be said also that the concept of private foreign investment goes contrary to the basic collectivist psychology of some other government leaders.

Foreign investors sometimes seem to get the feeling that even if Bolivia is trying to attract foreign capital, it gives the impression of doing so reluctantly. The lack of people within the Bolivian government who can deal effectively with investment proposals has also been a factor in giving this impression.

One of the most constructive moves which Bolivia could make in trying to attract private investment would be to streamline the general procedure in receiving investment applications. Generally, projects are handled through the Planning Commission which at the present time is not set up for this purpose. Most prospective investors seem to feel that the general attitude which they encounter is based more on a lack of experience on the part of the respective officials than upon ill will. However, the end result could be about the same in both cases.

Another handicap in attracting new investors is the government's open admission that - while it is willing to make concessions to attract new investors - it cannot do anything for those already established under the present circumstances. Although this argument is probably correct, this is not likely to attract the foreign investor who usually first tries to obtain information from those already there. Perhaps a token move showing at least some concern with the old investor could have a very beneficial effect.

Government Control

While the above considerations are of more direct concern to the foreign investor, there are a number of factors which affect both the domestic and foreign investor alike. In view of the importance of these conditions, we shall discuss them somewhat more in detail.

At present the investor can hardly make a move without some form of government control. Permits and licenses are necessary for most transactions. This would not be so bad if it were not that because of a lack of administrative personnel and adequate facilities in the Ministries, the numerous regulations cannot be complied with anyway. The Bolivian system of control is based on a lack of delegation for fear that freedom may result in abuses, as well as on a tendency to copy methods which may function in highly developed countries, but which fail completely if the generally required educational level is lacking, as is the case in Bolivia.

For example, to establish a new industry it is necessary to obtain the approval of the Minister of Economy. The respective application must contain information as to the type of industry, products to be produced, projected location, necessary capital and where it is coming from. Together with this, an "Industrial Project" must be presented which consists of two parts: the descriptive memorandum and the plans.

The memorandum must contain a justification of the new industry as to marketing possibilities, a description of the processes, patents and know-how to be used, cost of construction, machinery and equipment needed, together with their origin and cost, availability of raw materials, minimum quantities involved, sources of power to be used and estimates as to availability, number and quantities of items to be produced together with prices to be charged, etc. The plans must contain a technical description and specifications of all equipment, vehicles to be used, complete budgets for construction costs, both in local and foreign currency, description of the labor force as well as of the technical staff, productivity data, statistical data as to the possibility to save or produce foreign exchange, general plans of the factory, flow sheets, and numerous other items.

Some industries, upon making application, must deposit 5% of their

capital with the Central Bank which shall revert to the State in case the industry should not start operations within the period contemplated. Fortunately this deposit may be made at the official rate of exchange which in practice renders this provision merely a nuisance.

Likewise, in the case of expansion of an existing industry (in excess of 10% of existing capital) the Minister's approval must be obtained on the basis of a similar submission of documents as outlined above.

All import licenses must be approved by the Minister of Economy. To obtain such a license the industrialist must be registered in the respective register of the Central Bank for which he has to present a certificate from the Bureau of Internal Revenue that he does not owe any taxes (which may take only three days), a certificate from both the Municipality and the Provincial Treasury to the same effect, a certificate of inscription in the National Chamber of Industry, a carnet from the Ministry of Economy, balance sheets, a statement containing the number of employees working in the respective enterprise (both national and foreign) together with their salaries and names, and a certificate of inscription in the Register of Manufacturers. After all this has been submitted, the Central Bank may grant an import license or it may not, depending upon the availability of foreign exchange.

There are numerous rules and regulations as to how a manufacturer has to conduct his business, what books he has to keep, penalties in case of non-compliance, etc. In the case of transfer of an industry from one place to another, similar documents must be submitted both to the Ministry of Economy as well as to the Municipal or Provincial authorities.

In addition to this, all industries must fulfill certain requirements with the Department of Labor, the Social Security people, the Ministry of Health (in certain cases), and other agencies.

Controlled Prices

One of the biggest obstacles for both farming and industry in the past few years has been price control. To keep consumer prices low the producer has been squeezed all the time.

In order to obtain approval of his sales price the producer has to submit a vast amount of information to the Ministry of Economy which then - usually after a good deal of delay which makes the measure even less attractive in a period of runaway inflation - fixes a price. In theory this price makes allowance for depreciation, profits and amortization. In practice this price is frequently a guess since the Ministry of Economy is hardly in a position to control all industry in the country, as may be seen from the simple fact that the respective department in the Ministry consists of a Chief, three engineers, four accountants and a secretary.

One could have peace with this system if price control had any effect at all, but unfortunately this is not the case. Quite a few articles having a controlled or artificially low price are immediately resold in the black market since demand far exceeds supply. Policing the system is practically impossible in Bolivia as the Minister of Economy admitted in a recent report on the nation's economy. This system also has a peculiar effect on the producer. Since his controlled price is based on his estab-

lished cost (in effect a "cost plus" deal), he has no incentive to be efficient.

Fortunately as of the end of 1955, the whole system of controls has been relaxed somewhat. Thus under the latest regime, firms which do not request foreign exchange at the official rate and who cover their foreign exchange needs through compensation transactions are completely freed from any form of price control.

Labor Legislation

As in most Latin American countries, Bolivian labor laws and social legislation are important items to contend with. There are problems in hiring, problems in firing, problems of transfer. Since 1954 wages must be paid for seven days even if no work is done on Sunday, while at the end of the year generally two months' extra salary must be paid to the workers in addition to their regular wages.

With the exception of La Paz and Cochabamba, plants employing over 80 people must establish regular medical and pharmaceutical services without cost to the worker, which includes services to all dependents of the worker. Regular wages must be paid to a sick worker during 90 days (in some cases 180 days). If the worker is unable to return after this, he is to be paid an indemnity.

In the case of firing, the employee must be given 90 days' notice. If this is not complied with the employee is entitled to three months' salary. Even with the proper notice the employee is entitled to one month's salary for each year of service with the firm. In case the employee has been with the firm for more than eight years, he is entitled to this compensation, even if he resigns at his own request.

Another decree prevents an employer from reducing the number of his employees. In practice this decree has been intepreted by the officials of the Ministry of Labor in the sense that workers cannot be fired for any reason.

Social Security

Social security provisions are extensive and cover professional risks, sickness, maternity, invalidity, old age and death. As a general rule it may be stated that the cost of social security and all services to be supplied by the employer amounts to another 67.5% of the wages actually paid. These charges are more or less as follows:

Family subsidy	13%	of the wage
Rent allowance	14%	"
Social Security	5.5%	"
Professional risks	5%	"
Two extra months pay & other benefits	10%	"
Sundays & many holidays	20%	"
Total	67.5%	"

To this may be added the cost of supplying a cheap commissary which is customary in many industrial establishments, particularly in the mines.

Lack of Labor Discipline

What is more important, however, is the fact that most of the legislation governing the relations between management and labor exists only in the books. In practice it is frequently impossible or at least inadvisable for management to oppose demands from organized labor.

In many places there is constant friction between labor and the higher technical personnel, whether Bolivian or foreign. In the mines, in the textile plants, and generally in all large establishments, there quite often is pressure from the workers on the management to fire the technical staff. In many cases, the management is unable to resist this pressure.

Recently another problem has been the spying of labor on management in order to take over the industry. An example may be in order. In 1954 the local union at a metal factory in Cochabamba accused the management of:

1) Intending to sell the plant "fraudulently"
2) Non-compliance with the local law, and
3) Sale of raw materials.

Consequently it requested that the plant be given to the workers who proceeded to form a cooperative. Initially the Minister of Labor backed the request of the workers. However, after it was realized what precedent such intervention in private industry might have at a time when the government is putting all its efforts into the diversification of the economy, the matter was settled by means of an agreement in which the management made sweeping concessions to labor in order to keep the plant.

High Production Costs

In view of all this, it cannot be surprising that labor productivity is extremely low. In some cases there has been outright sabotage, such as was the case in two large factories where workers systematically made off with large quantities of the finished products.

Since it is practically impossible to fire a worker there is no incentive for the men to produce. Add to this a great many holidays - according to the official report of the Chamber of Industry there were over 180 holidays in 1954 - and one wonders how even the present little production is brought about.

The above should suffice to kill the myth that Bolivian labor is cheap and that in a completely free economy Bolivia could be a low-cost producer. If one takes into account the extremely low productivity of labor as well as all the social charges and extras which must be paid by the manufacturer, and if one then converts all this at a realistic exchange rate, Bolivian labor results quite high.

Customs and Immigration

For industries engaged in foreign trade there is the problem of getting

things in and out of the country. Frequently it takes weeks to get an item out of customs.

Another problem for both local and foreign businessmen is getting in and out of the country. To leave the country legally within a period of less than 36 hours is practically impossible for a Bolivian businessman as well as for a resident alien in Bolivia since one needs quite an impressive amount of documents which are not easy to obtain. Since particularly foreign business transactions frequently require quick action at the risk of losing the deal, the implications of the above are obvious.

Inadequate Credit

Lack of credit can be quite a problem for the businessman in Bolivia. The granting of industrial credit is regulated by presidential decree. In Chapter III we saw that a decree of July 1954 provided that within a period of two years the banks had to convert 40% of all loans outstanding since 1953 into "industrial credit." However, what is meant by "industrial credit" is very loosely defined. For instance, not so long ago an amount far in excess of the legal limit of Bs. 100 million was loaned by the Central Bank to one of the larger industrial concerns in La Paz to enable it to pay its taxes.

Administrative and Legal Difficulties

Corporate laws are unwieldy although they look simple on paper. It is somewhat of a major operation to establish a corporation in Bolivia. If foreigners are involved the problem becomes so much worse. The process takes generally from six to nine months. The following steps are involved:

1) The person interested in forming a corporation draws up a document before a notary showing his intention to this effect.
2) Approval of the Minister of Economy is to be obtained who shall determine whether the particular industry is in the national interest.
3) The charter, by-laws, list of personnel in charge must be approved by the provincial authorities.
4) In the case of foreign corporations, all documents must be legalized by the Bolivian consul in the particular country.
5) In the process, approvals and opinions must be obtained from the legal department of the Ministry of Economy, the office of Internal Revenue, the Bureau of the Budget, the legal section of the Office of the Chief Executive, the Office of the Comptroller, etc.
6) After all these hurdles are overcome a supreme resolution is prepared for signature by the President establishing the corporation.
7) Then the matter is referred again to the governor of the province who will order that the final documents be drawn up before a notary.

If Bolivian industry, particularly those based on a happy association between domestic and foreign capital and know-how, is to expand it is absolutely essential that this process become somewhat streamlined.

Effects of the Inflation

As mentioned before, the inflation is one of the most demoralizing factors in the present industrial scene in Bolivia. Continuously wages have to be adjusted while black market operations frequently offer a more promising field of activity than honest work. Before the decree of March 4, 1954 the manufacturing industry in La Paz paid a total of Bs. 226,567,523 in wages. As a result of the decree adjusting wages, this figure went up to Bs. 336,478,676, or by over 48%. On March 3, 1955 there was a new wage adjustment raising wages and salaries by some 70% while another 60% adjustment was made early in 1956, and still another of 40% in July 1956.

Lack of Political Stability

The lack of political stability has been plaguing Bolivia for a long time. Since the coming of a new government frequently involves a complete change in all policies affecting everyday life, most businessmen have learned by experience to play it safe. Consequently there has been a constant drain on the economy because of cash transfers - whether legal or illegal - to more secure havens abroad. It is estimated that even at present, holdings of Bolivian nationals in the United States alone amount to over $30 million. Evidently this problem is difficult to cure as it involves a problem of public confidence which cannot be gained overnight.

Taxation

Bolivian taxes can be quite high. The majority of the population - the Indians - pay no taxes at all. They used to perform some duties of road building and other feudal services which have been abandoned since the Revolution. Consequently a heavier tax load falls on the more productive part of the population. The following taxes are in existence at the present time:

a) The Revaluation Tax

This is in the nature of a capital levy of 12%, which became effective in 1953 when a first attempt was made to stabilize the currency. Theoretically this is a one-time levy. In practice it may be more than that. For example, if the present stabilization plan becomes effective, all businesses would again have to revaluate all their assets at this rate and pay another 12% on the difference between their old and new capitalization.

b) Income Tax

In theory all people earning wages or salaries must pay an income tax ranging from 1 to 22%. Interest on capital is taxed at a flat rate of 25% per year regardless of the amount involved. All industrial and commercial enterprises pay a flat tax of 25% on their profits plus a 2½% tax to pay for vocational education.

c) Real Estate Taxes

There is a tax of about 0.5% per annum on all urban real property based on the assessed value which is very low. On the other hand, those

who rent their property must pay a tax of 15% on the gross receipts. In addition there are municipal taxes which come to about 6% of the assessed value from which basic municipal services such as garbage collection are paid. Then there are charges for water supply and sewerage. On rural property the real estate tax amounts to 0.64% of the assessed value.

d) Production Tax

This tax is in the nature of a sales tax collected from the manufacturer who in turn raises the price of his product. Furthermore, there is a tax which amounts to 1% of the net cost of the manufactured product. The revenue derived from this tax is destined to pay for social services and sport facilities for the workers.

e) Sales Tax

In addition to the above there is a proper sales tax which amounts to 8% on all sales of products and merchandise. In practice this tax is paid by manufacturers when the goods leave the factory, by importers when the goods leave customs, and by exporters when the goods leave the country. Transferred goods, i.e., goods which have already been charged with the above tax, only pay 2½% of their value upon transfer if their value is in excess of 50% of the raw materials.

f) Property Transfer Tax

This tax generally amounts to about 10% of the sale price plus another 10% on the capital gain.

g) Import License Tax

The Central Bank collects 0.5% of the value of the goods if and when it grants an import license.

h) Import Duties

These are paid in accordance with the tariff, to which should be added a surcharge based on the CIF price at the port of shipment at the rate of Bs. 190 to the dollar which may go as high as 3000% as the case may be.

i) Stamp Taxes

There are numerous acts, such as the execution of legal documents, submission of accounts, invoices, private contracts, which require a special stamp ranging from Bs. 50 to 15,000 or more.

j. The Excess Profits Tax (Impuesto Global Complementario)

This tax applies to individuals only who, after paying all their other taxes, still find themselves left with Bs. 6,000,000 or more in the particular taxable year. The excess over this amount is taxed on a scale which runs from 3 to 59% with sharp progressive increases.

In practice this tax is not as bad as it looks on paper since

the bad effects are circumvented in a number of ways, one of which consists of a partial payment at the official rate of exchange. Bearer shares and those received by entities having their legal domicile outside the country pay the maximum rate unless payments are made to the individual shareholders.

Public versus Private Investment

For the above mentioned reasons, investment in Bolivia has remained largely a government affair. Most of the current investments are being made by the government-owned oil company (YPFB), the government-owned airline (LAB), and by the Bolivian Development Corporation (CBF). Yet, government investment can be a dangerous thing. Unless some very high caliber planning is done, the results can be quite disappointing. Furthermore, it is obvious that the use of public funds for projects which are typically in the realm of private industry will leave fewer funds available for those social overhead projects (health, sanitation, education, roads, etc.) which are a prerequisite for attracting private investment and which only the government can do. Thus this policy tends to retard the overall development of the country, since, by not attracting private enterprise, it robs the government of a future tax income with which it could complete more public projects. In addition it throws the whole burden of development on the government which usually is not equipped for such a task.

In considering the present picture of public investment in Bolivia, one cannot help becoming quite concerned, not so much with the lack of investment as with the general direction of investment. During the past few years hardly any investment has been made in mining which is actually carrying Bolivia. If this policy is continued for a few more years, the results will be disastrous for Bolivia, as we have already seen in Chapter V under the subsection on mining. As a matter of fact, the expansion in oil was largely carried out at the expense of the mining industry.

Another problem is that in most Bolivian development plans there exists a considerable disequilibrium between long term and short term projects. Government sponsored projects which could provide a very quick return on the capital invested are rare indeed.

Public Investment

During the past few years most public investment projects in Bolivia were carried out by YPFB, the government petroleum agency, and by the Bolivian Development Corporation. Since the former has been discussed at some length in Chapter V, we shall limit ourselves here primarily to a discussion of the activities of the latter.

The Bolivian Development Corporation has been engaged in a rather diversified development program comprising some twenty projects most of which are still under construction. Its 1955 dollar budget was only around $5.5 million. For 1956 the amount was fixed at $8.7 million of which $4.5 million constitute payments of current obligations and $4.2 million are for new investments. While some of the projects may in time make a contribution to the Bolivian economy, others show some deficiencies in planning, while still others suffer from a lack of implementation. It is not always fair to blame the Bolivian officials for some of these deficiencies. Many of these people are working 12 hours a day, but frequently

even putting up a single nail becomes a major problem in Bolivia.

Actual Projects

Among the Corporation's principal projects the following should be mentioned:

Sugar Mill

At Guabirá near Montero, a sugar mill was completed recently having a capacity of 16,000 tons of refined sugar a year. The total cost of this project amounts to about $5 million of which about $1.3 remained unpaid as of December 31, 1955. This cost may appear to be somewhat high which is explained by the fact that because of the selection of the mill site on rather soft marshy ground, extensive foundations had to be built first which called for the use of a large amount of cement and the driving of some 2800 piles. So far, running the mill has been quite a problem and the 1956 production has been far below the actual capacity of the mill. Full scale operation of the mill in 1957 will face the Corporation with heavy local currency expenditures and other operating problems which could well become quite serious.

Sucre Cement Plant

The total cost of this project is estimated at $1.4 million and Bs. 500 million. So far some $375,000 has been invested in this plant which is scheduled to go into operation early next year. The equipment amounting to $600,000 was bought from Germany under a five-year credit arrangement. Upon completion, the plant will be able to produce some 100 tons of cement per day.

According to all present indications this plant will have a limited market because of its location which would involve extremely high transportation costs if cement were to be shipped to the high plains or to the Santa Cruz area. The project is admittedly a bad one. However, it has been pointed out that the government inherited this project from a previous administration and, therefore, had no other alternative but to complete it.

The 1956 foreign exchange budget allocates an amount of $378,000 for the cement factory in Sucre, of which $30,000 will be for electrical equipment, $60,000 for materials and equipment, and $100,000 for the purchase of compressors, tools and transportation equipment. The remainder of the amount corresponds to freight, insurance, salaries and a number of other expenditures.

Paving of the Cochabamba-Santa Cruz Highway

During 1955 the Corporation obtained a $4.7 million loan from the Export-Import Bank to complete the paving of this road. The road itself was completed in 1954. It is expected that paving will cut maintenance costs by some 40%. The project is scheduled for completion in August 1957.

Reyes Cattle Project

At Reyes in the western part of the Beni, the Corporation is carrying out a project to improve local cattle which is abundant in the area.

Since 1952 about $350,000 has been invested in this project, while current annual expenditures to complete the project (by 1958) run about $80,000 and Bs. 250 million. The budget of the Bolivian Development Corporation for 1956 carries an amount of $120,000 for the acquisition of barbed wire on a cash basis, to be used in connection with this project.

Recently the project has been delayed by hoof and mouth disease while there have also been some charges as to local mismanagement. In 1954 the Corporation acquired 150 cows and 20 Cebu purebred bulls for this project from Brazil. In 1955 another 610 Cebu purebred cattle were imported.

To evaluate this project properly is rather difficult. While the Beni region appears to be quite suitable for cattle growing, it would seem that in order to fill Bolivia's immediate needs for cattle the development of other areas more favorably situated from a transportation point of view would be of higher priority.

Monte Punco-Puerto Villarroel Project

This project consists of a 125 kilometer road connecting the navigable part of the Ichilo River (Puerto Villarroel) with a place called Monte Punco at some distance from Cochabamba on the Santa Cruz-Cochabamba highway. Last year about 25 kilometers of mountain roads were completed, cutting through a most difficult terrain. The project was started by the Corporation for two reasons: first of all, once completed it would connect Cochabamba with the Beni through the Ichilo-Mamoré River navigation system; secondly, it has an excellent site for hydroelectric development. The Corporation is now spending about US $60,000 and Bs. 70 million a year on this project. The 1956 budget of the Corporation includes an amount of $60,000 for the improvement of river transportation between Puerto Villarroel and Guayaramerin on the Brazilian border. For a discussion of the merits of this project the reader is referred to Page 144 of this report.

Beni Road Project

The purpose of this project is to connect the highlands around La Paz with the lowlands around Reyes-Rurrenabaque. The project is now being constructed with the help of counterpart funds from American aid. Its primary objective is to make greater use of those tropical regions which are located near to La Paz which is the principal center of consumption of the Republic. For a further discussion of this project the reader is referred to Page 143 of this study.

Roads North of Santa Cruz

In 1954 the Corporation started road construction in the agricultural zone north of Santa Cruz. So far about 207 kilometers of roads have been constructed in the area at a cost of $350,000 and Bs. 1,480 million. During 1956 the construction of a bridge across the Piray River was started with American aid funds in order to open up additional areas. The approximate cost of this project is $280,000 and Bs. 380 million.

Corani Hydroelectric Project

This project which is located near Cochabamba could be completed for a total cost of $5.5 million. Its main purpose will be to supply badly

needed power to the city of Cochabamba. According to present plans, about US $600,000 and some Bs. 150 million will be invested during 1956. The 1956 budget considers the acquisition of four turbines of 3,000 KW each and equipment totaling $2,681,000. Of this amount, $600,000 will be paid in cash during 1956. The remainder will be credit.

Villamontes Irrigation Project

This project consists of a plan to irrigate some 5,000 hectares in the neighborhood of Villamontes in eastern Bolivia which are suitable for growing cotton and sugar. The total cost of the project is estimated at $970,000 and Bs. 650 million. Most of the investment in machinery, pumps and heavy equipment amounting to some $850,000 has already been made with the help of United States aid while about Bs. 580 million were spent in local currency. During 1956, another Bs. 600 million and $60,000 will have to be invested in this project. Although the general area appears to be ideally suited for the crops in question, the project is rather long range because of its present lack of population and a few other factors. Apparently political considerations played some part in the drawing up of this project.

Milk Plant in Cochabamba

This project was started with the help of UNICEF and some United States assistance. The plant which is scheduled to go into operation sometime in 1956 will cost about $280,000, plus Bs. 210 million. According to the original plan, the plant would produce a certain quota of milk powder which would then be distributed free to poor children through UNICEF. However, because of the agrarian reform and other social problems, milk production in Cochabamba has dropped off to such an extent that even the liquid product is now in short supply.

Colonization Project

In order to make a first attempt to distribute Bolivia's population more adequately the Corporation in 1955 started a project to bring down a regiment of soldiers to the Santa Cruz area with the hope that a number of the recruits would stay after their time in the Army was over. Nearly all of these costs are local currency items and the Corporation is currently spending some Bs. 125 million a month on this project. In addition to this, the Corporation is carrying out a project for the resettlement of farmers from the valleys as well as a few projects to settle some immigrant groups consisting of Okinawans, Italians and Mennonites. So far this has been one of the Corporation's most successful projects. According to the Corporation's budget for 1956 about .100,000 will be spent on equipment and materials for the further development of this scheme.

Sawmill

In 1956 the Corporation invested $50,000 in the rehabilitation of a sawmill at Guabirá which has a capacity of 40,000 board feet per day.

Lime Plant

The Corporation's 1956 budget includes $110,000 cash to acquire a factory to produce the lime which is needed for the three existing sugar mills.

Cattle Development in the Chaco

The Corporation has given some assistance to the cattle owners in the Chaco area and it intends to establish this year, with the aid of Point IV, a small stock of Santa Gertrudis cattle in the area combined with a service of artificial insemination.

Other Public Investment

As we saw above, YPFB's total investment during the past four years comes to some $24 million. During the same period, Lloyd Aereo Boliviano (LAB) invested about $1 million in the purchase of new airplanes.

Some local currency investment was made in irrigation works at Tacagua and Angostora which came to about Bs. 700 million.

With the help of Point IV aid, a yucca mill was constructed at Santa Cruz which is now nearing completion. A total of US $83,000 and Bs. 38 million was invested in this project.

In 1954 a mixed company was set up by the government with an Argentine citizen by the name of Salim Chacur for the construction of a match factory in which the Bolivian State has a 51% interest. This investment is said to be about $450,000.

According to the 1956 foreign exchange budget the Ministry of Public Works will order some $236,000 worth of equipment for the construction of airports. Likewise, the Ministry intends to buy locomotives and rolling stock amounting to $1 million on credit. The Ministry of Agriculture proposes to acquire $907,000 of agricultural machinery on credit while an amount of $575,000 has been provided in the budget for the Ministry of Indian Affairs for a similar purpose.

In the mining sector the foreign exchange budget has allocated $2 million for new investments to be made by the Mining Corporation, and $1 million for the Mining Bank.

In the 1956 budget Lloyd Aereo Boliviano receives some $560,000 to renew its airplanes and another $210,000 to improve its airports and radio equipment.

Details showing the investments made with counterpart funds and "revertibles" may be found in Table LI.

Total Public Investment, 1952-1956 (June)

Although it has been rather difficult to obtain correct data regarding the investments made during the past few years, it would seem that the total amount invested and actually paid for by the Bolivian Government during the past four years has been about $50 million. This figure excludes such investments as the $4.7 million for the paving of the Cochabamba-Santa Cruz Highway and some European credit purchases (for transportation and mining equipment, etc.) which are still to be amortized as well as some still unpaid petroleum investment. From this it should be clear that Bolivia's public investment figure has been more or less adequate on an annual basis. The problem is that the investments have been directed into projects which are

rather long range and thus for the moment can only contribute to the inflation.

Private Foreign Investment

Correct data on private investment in Bolivia are extremely scarce. From all indications it appears that until 1952 the total amount invested was about $100 million. Furthermore, as pointed out earlier, many "investments", especially in mining, constitute merely reinvestment of earnings.

American capital did not come to Bolivia until the 1920's when tin mining became increasingly interesting. Several of these enterprises were unsuccessful and had to be liquidated in later years. At present the two main United States concerns established in the mining industry in Bolivia are the American Smelting & Refining Co., and W. R. Grace & Co. The former is not now actively engaged in mining since in 1952 it terminated its operations at the Corocoro copper mine which was then leased to the Bolivian Government. During the 1920's a small investment was made in petroleum exploration by the Standard Oil Company of New Jersey. By 1937 when the company was expropriated, this investment had reached a book value of about $16 million. No official statistics are available with respect to British owned investments in Bolivia. Most of the British capital which came to Bolivia was invested in mining and railroad activities. Canadian capital in Bolivia was estimated at $17 million in 1952, nearly all of which was accounted for by the Bolivian Power Co. The "Swiss" investment, which in 1946 was reported at $6.6 million, represented almost entirely the capital of the Aramayo interests which was registered in Switzerland.

Recent Private Investments

As mentioned before, the introduction of the investment guarantee program has been an important step in opening up the road for more private investment, since hardly any United States investors will make a move into Bolivia without this kind of guarantee. Among the more recent American investment proposals and actual investments, the following may be mentioned:

One American firm has now signed a contract for a dredging operation to mine gold in the Tipuani area, contemplating an initial investment of some $4 million.

The Gulf Oil Corporation is already operating in Bolivia with the intention of making an immediate investment of some $5 million which may go up as high as $40 million if things work out as expected. Several other oil companies are now having people on the spot to look over desirable areas.

Recently several American firms have been looking into mining properties, particularly the Mathilde lead and zinc mine which was expropriated from Hochschild.

The General Tire and Rubber Company has shown some - although rather remote - interest in the establishment of rubber plantations as a preparation for the building of a tire plant later on.

The Canadian Power Company has been reinvesting profits and in recent years it has added some $6.8 million to its existing facilities.

In addition to this there have been a number of quite small investments in private industry.

Although correct data are hard to come by it would seem that during the past four years there has been an annual private investment of about $3 to 4 million.

The Need for a Development Bank

Even if Bolivia's present policies were more favorable to the development of local private industry, there would still be the obstacle of lack of capital, particularly dollar financing. Yet if Bolivia is to survive its present crisis, it must rapidly develop a number of projects which will have an immediate impact on its balance of payments position. Thus, our goal should be to find a number of projects which would be self-liquidating in two or three years and either earn or save foreign exchange; others might take longer but would require a very limited amount of dollar investment; still others would require largely local currency and some technical assistance.

In addition to relieving the pressure on Bolivia's balance of payments, such projects would have the attraction of providing greater skills and better wages for a number of people. This is important in itself, for to raise Bolivia's standard of living, it is not sufficient to raise the national income alone. A higher level of consumption is needed also and greater skills and better wages are the key to this.

The obvious answer to this problem would be to give greater incentives to private investment combined with adequate credit facilities. Fortunately, there are a number of people in Bolivia who have proven themselves quite capable in organizing and managing industry so that the management aspect should not be a major problem; the problem is lack of capital and excessive government controls. One way to attack this problem would be through the establishment of a development bank for private industry which would provide both dollars and local currency financing. The actual implementation of this idea could take various forms. A department could be set up in one of the private banks. Perhaps the present Agricultural Bank and Mining Bank could be merged into a new institution under proper supervision so that these two institutions could begin to fulfill their real task which is helping private industry.

Another possibility would be to set up the institution as a separate corporation which might be called the Corporacion Financiera Boliviana, S.A. The corporation's main purposes would be:

1) To undertake productive and diversified investments in Bolivia.
2) To provide medium and long term financing through loans and through participation in order to aid in the expansion and modernization of industrial, agricultural, livestock and commercial enterprises.
3) To guarantee loans.
4) To sell its participations or other investments at the proper time in order to establish a revolving fund to carry out the basic purpose of the corporation.
5) To provide technical and managerial assistance to the enterprises in which it has an interest.

It is quite obvious that adequate safeguards should be provided to constitute a rapidly turning over revolving fund while the top managerial function should preferably be filled by a foreign expert of sufficient standing who will be in a better position to keep the Bank's activities outside the political sphere.

Initially the Corporation's capital, which should amount to at least some $3 million, might have to be provided from United States aid funds. However, provision should be made in its charter for the purchase and sale of shares, bonds and other securities in a later stage so that in time the operation would become self-generating. It is believed that if such a bank were allowed to issue dollar bonds, and if competent management were provided, it could attract a substantial amount of Bolivian flight capital which is now active elsewhere. Since investment opportunities in Bolivia are limited - the field of real estate investment is now quite small in view of the agrarian and urban reforms - a well managed development bank might in time attract the smaller Bolivian investor. Such a bank could also act as an effective clearing house between Bolivian and foreign investors, thus raising development funds for private industry abroad.

It is clear that the institution should operate completely on a commercial basis. It should charge the usual interest and consider all projects strictly on their commercial merit. Obviously, such a bank should be strong in economic research and have competent technicians to evaluate projects properly and to guide prospective investors against failures. It should provide planning facilities and be able to give supervised credit. Assistance from the World Bank could be requested in setting it up. As to specific projects which could be financed by a development bank, the reader is referred to the Industry section of Chapter V of this report.

VIII. THE UNITED STATES AID PROGRAM

No discussion of the economic situation of Bolivia can be complete without a reference to the United States aid program which at present practically covers the gap in Bolivia's balance of payments. The program is divided into two parts as follows:

A. Economic Aid

This type of assistance was started in fiscal year 1954 when it became clear that Bolivia was on the verge of famine. Economic aid was given to Bolivia in the amounts shown in Table LII, making a total of $60.1 million as of June 30, 1956, while the counterpart generated by United States aid deliveries is shown in Table LIII.

B. Technical Assistance

The United States technical assistance program is much older than the economic aid program. It first started in 1942 with the inauguration of a small health center in La Paz. At present it amounts to some US $3 million a year.

On the whole, the technical assistance programs have been geared to Bolivia's most immediate problems such as the need to increase agricultural production, to improve health, to solve the social problem through increased and better education, etc.

Most of these projects are carried out through the "Servicio" approach. In essence the Servicio consists of a unit of American technicians working with their Bolivian counterparts within the Ministry concerned. The following programs are now in operation:

AGRICULTURE

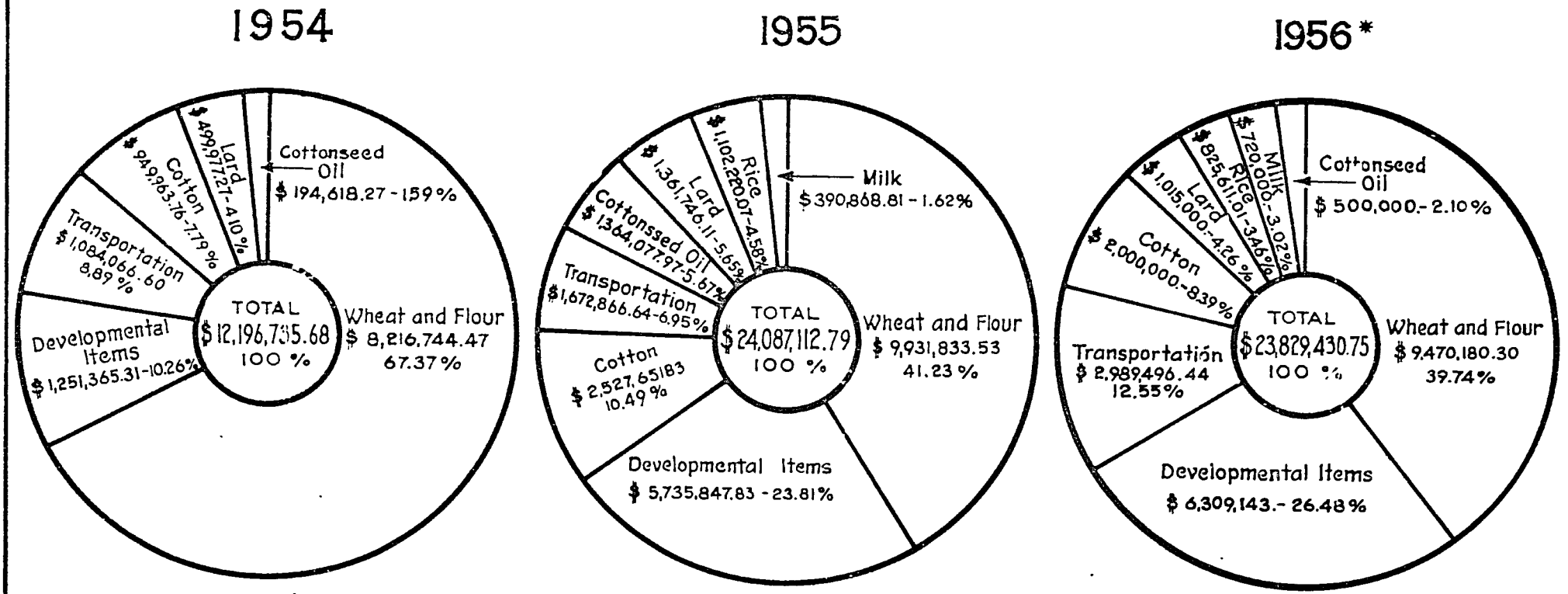
The Agricultural Servicio was set up in 1948 as a joint Bolivian-American undertaking to promote agricultural development in all parts of the country. All of the work of the Servicio is grouped into six projects: five operating and one administrative, as follows:

1 - Research
2 - Extension
3 - Reimbursable Facilities and Services
4 - Supervised Credit
5 - Special Agricultural Services
6 - Administration

These five operating projects make a well-rounded program for agricultural development and work in Bolivia. They are all coordinated with the activities of the various governmental agencies to effect and increase agricultural production in the country. The Servicios' personnel cooperate with the Bolivian Development Corporation, the Ministry of Agriculture, the Ministry of Indian Affairs, the National Planification Board, and farmers' organizations.

UNITED STATES ECONOMIC AID TO BOLIVIA

(IN TERMS OF MARKET VALUE OF COMMODITIES)



* ESTIMATED

Research Program

In the research program, higher yielding strains of crops are being developed, better methods of cultivation are devised, the use of fertilizers is tested, measures to control insect and plant diseases, adapation to local conditions, livestock improvement and care are being investigated and other methods of increasing the production of agricultural products are determined by experimentation and trial. This is the oldest project of the Servicio and provides most of the information on which other programs are based.

Servicio research activities were started in 1948 to introduce in the country new species, varieties, and breeds of plants and animals; to multiply the outstanding ones; to study cultural practices for important crops; to study soils and the use of fertilizers, as well as to test insecticides, fungicides and various types of farm equipment.

The present four agricultural experiment stations are situated to take advantage of varying conditions ranging from those prevailing in the hot lowlands (altitude 400 meters) to those of the cold high plains (4,000 meters).

Results at the high plains Experiment Station, "El Belen," will apply for most of the high plains. Results at the Cochabamba Experiment Station "La Tamborada," can be used on most of the soils in intermountain valleys. "General Saavedra" Experiment Station results are for most of eastern Bolivia. Rubber research at the Riberalta Experiment Station can be used for all of the upper Beni areas and coffee and cacao results will benefit those crops in the Beni and in part of the foothills from Santa Cruz to the Peruvian border.

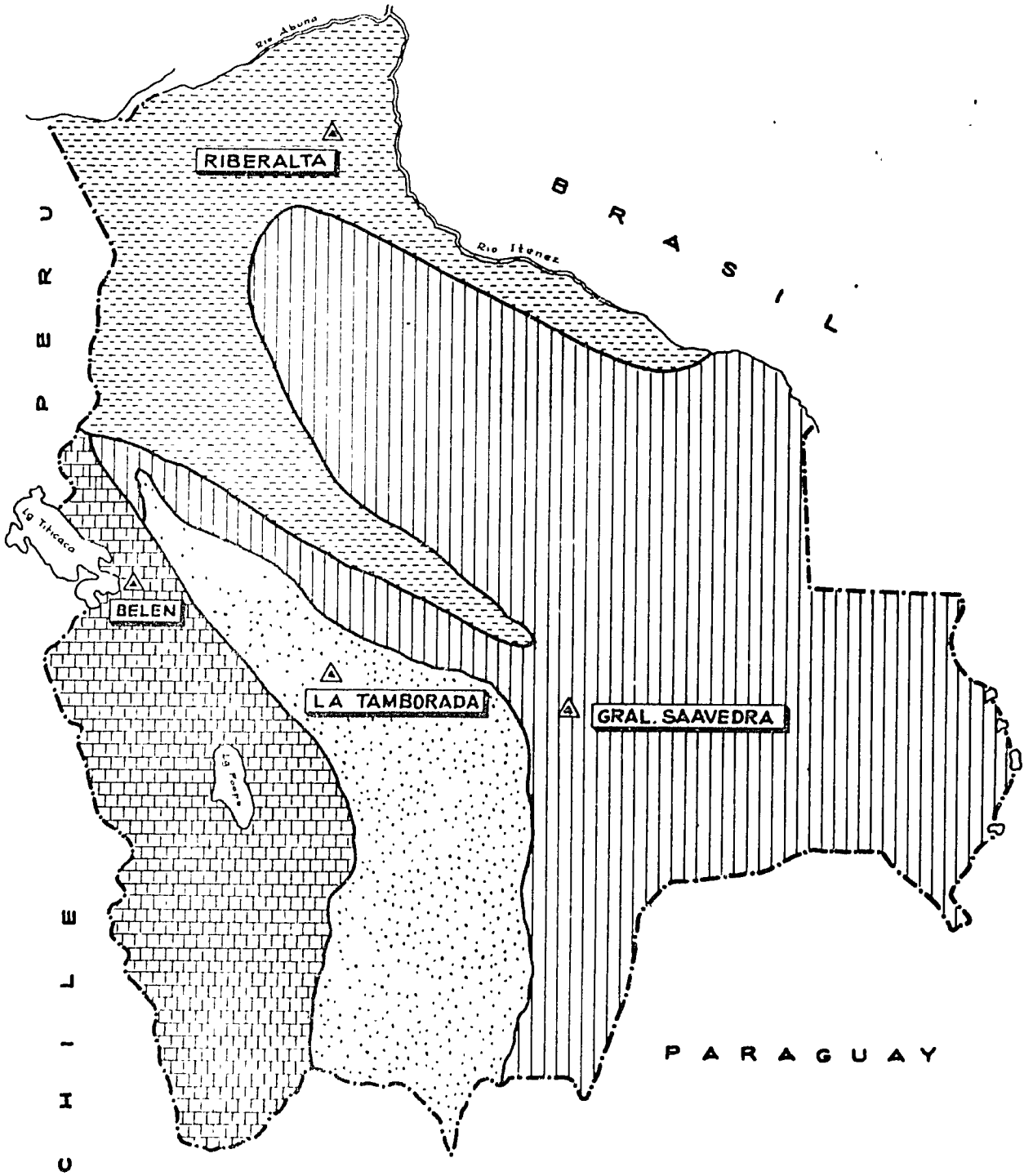
Potato and wheat improvement represent Bolivia's most urgent agricultural research needs. Other crops on which intensive investigation is needed are: rice, sugar cane, vegetable seeds, soy beans, peanuts, alfalfa, grasses, coffee, livestock, rubber and cacao. Multiplication of seeds is another difficult but extremely necessary activity of Research.

Extension

In the extension work, research information and information that has been derived from other sources is taken directly to the farmers in such a way that they will be able to put it to use. In order to do this, United States and Bolivian specialists in crops, soils, livestock, dairy, disease control, entomology, plant pathology, agronomy, horticulture, agricultural economics, home economics and cooperative organizations train the local agent to carry on extension work in their particular field. The extension workers work directly with farmers in small groups, using literature, sound pictures, and demonstration to tell the story. They always work by using the language of the group with which they are operating. This usually is in the Quechua or Aymara language.

Extension work in Bolivia started in late 1948 in conjunction with the Cochabamba Research Station. In 1952, the Extension Service of the Agricultural Servicio was organized with 43 people. The personnel at present is 114. Farmers of 63 provinces out of Bolivia's total of 94, are now being reached or influenced by the work of the Extension Agents. The funds necessary to operate the Bolivian Extension Service come from four different sources: the United States Government, the Bolivian Government, and from the contributions

EXPERIMENTAL STATIONS OF THE AGRICULTURAL SERVICIO AREA OF influence



REFERENCE

- RIBERALTA
- SAAVEDRA
- LA TAMBORADA
- BELEN

of the departmental and provincial governments.

The fact that a good Extension Service has been established, that an ever increasing number of Bolivian farmers are every year exposed to better farm practices and techniques, and that American equipment and materials suitable for this country are becoming known and available to farmers to help them achieve a higher level of living is an indication of the success of Extension work in Bolivia.

Reimbursable Facilities and Services

The Reimbursable Facilities and Services Project was set up in late 1953 for the purpose of providing services and facilities that farmers would otherwise have difficulty in obtaining, such as insecticides, tools, improved seed, fertilizers, fungicides, veterinary supplies, improved breeding stock, poultry, pigs or cattle. In addition to this, the Reimbursable Facilities Division has been operating machinery pools in Santa Cruz and on the high plains. These pools are set up to provide tractors and equipment to the farmers on a fee basis.

Supervised Credit

The Division of Supervised Credit aims at bolstering the Bolivian economy by putting financial supports under the agricultural production system, with particular emphasis on the production of basic foodstuffs now being imported. Loan funds are provided by the Agricultural Bank and approved by it after receiving favorable recommendations from the Division of Supervised Credit. Most of the loan money available to the bank has been taken from counterpart funds.

Since its establishment early in 1955, Supervised Credit Services has loaned some Bs. 3 billion to more than 2,000 Bolivian farmers. These funds have enabled farmers to bring new lands into production, to buy needed farm machinery, work stock, breeding stock, materials of production and to improve their homes and living conditions.

Special Services

The Special Agricultural Services Division is the newest in the Agricultural Servicio, having begun its activities with the arrival of a milk processing specialist in July 1955. This Division is to supply special technicians for various processing needs directly related to agriculture. Recently a biological laboratory specialist was added to the Servicio's staff to assist the Ministry of Agriculture in the development of an aphtosa vaccine laboratory as well as a laboratory for the production of vaccines for cattle, pigs and chickens.

Administration

The principal functions of the Division of Administration are those related to business management and housekeeping functions for the Servicio, including the training of Bolivian personnel to perform those functions properly.

Some Results of the Work of the Agricultural Servicio

In 1951 the director of the General Saavedra Experiment Station brought

one pound of Cuban Yellow corn into Bolivia and tested it along with other varieties. He found that it would yield twice as much as local strains. Today, practically all the corn grown in the Santa Cruz area is Cuban Yellow.

The Cochabamba Experiment Station tried out more than 1,000 varieties and strains of wheat from all over the world. Four varieties were found to yield more than any others. The seed of these varieties was multiplied so that a sufficient quantity is now on hand to provide seed for all the Cochabamba valley this year. Similar work has been done at the Belen Experiment Station.

An intensive effort is being made to increase rice production in Santa Cruz to the point where Bolivia will no longer have to import this cereal.

Potatoes are the principal food crop of the high plains. About 30% of the crop is lost every year due to the damage done by a white grub known locally as the "gusano blanco." The Servicio's entomologist found that over 70% of the damage could be prevented at a small cost if the right insecticide were applied in the right way. Thus an intensive campaign was conducted through the Extension Service to get the Indians on the high plains to control this pest.

Tests at the Cochabamba Experiment Station showed that, on many of the soils of the Central Valleys, wheat yields could be increased from 100 to 300% by the use of nitrogenous and phosphate fertilizers. The Reimbursable Facilities and Services Division has imported more than 1,000 tons of ammonium phosphate and other fertilizers that are being sold to farmers at less than cost.

Animal parasites and diseases have taken a heavy toll of the livestock in all parts of Bolivia. Servicio veterinarians have worked with department and provincial extension agents in holding demonstrations in controlling these parasites and diseases, with supplies provided by the Servicio.

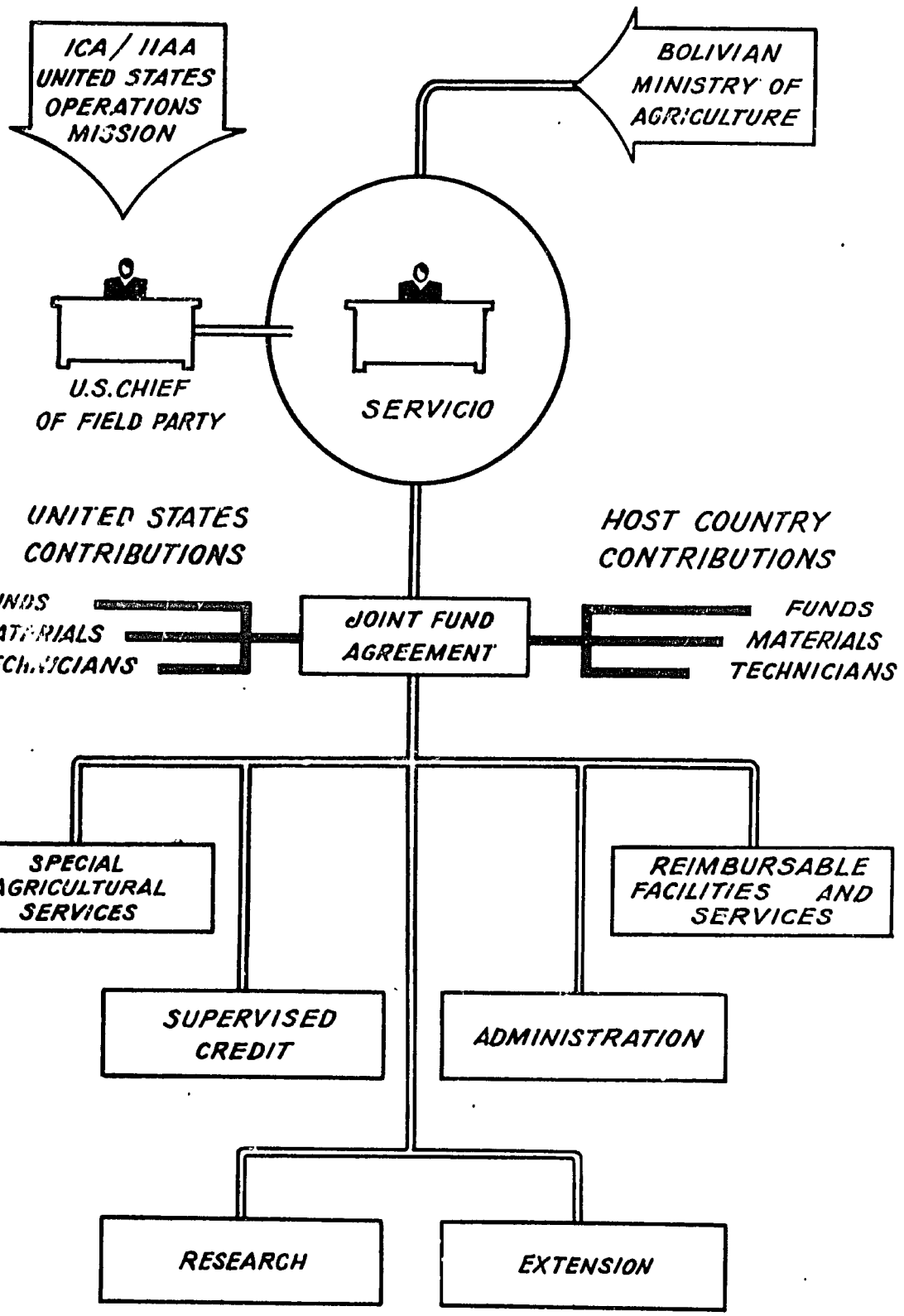
Since the fall of 1954, 15,000 new acres of productive land have been brought into cultivation in the Santa Cruz area. This is part of the accomplishment of an area development program initiated at that time by the Agricultural Servicio.

Kuyurina, the Health, Education and Agricultural Center near Montero, symbolizes the scope and nature of development undertakings. Here is provided by means of United States aid a health clinic, an agricultural school, and a farm. The farm is to multiply, for sale to farmers, the best kinds of seeds and planting stock, breeding stock of cattle, hogs and poultry and to provide a demonstration of good practices and methods for application in the area.

A special reference should be made to the Agricultural Servicio's training program. Most of the training of Bolivian technicians and other Servicio workers is carried on in-service. In agriculture, most of the men employed have fairly good basic training in subject matter, but have to be trained in extension, research or supervised credit methods and procedures. Servicio technicians who show exceptional promise are sent to the United States or other countries for special training in their particular fields. A total of 28 have been sent to the United States on training grants.

.THE AGRICULTURAL SERVICIO

How it operates



EDUCATION

Both the lack of education and the Indians' resistence to change have caused the present social problem which has such serious economic consequences and which must be attacked at the root through better education. The joint Bolivian-American educational program has been in operation since September 1944, and the agency operating it is the Education Servicio. The chief means by which this program is carried out are:

a. The furnishing of United States education specialists
b. Grants to Bolivian educators for study in the United States or in other Latin American countries
c. Improvement of teacher training
d. Production of teaching materials

The work of this Servicio is supervised at action level by an American educator and coordinated at the policy level by the Director of the United States Operations Mission to Bolivia. The Servicio has technical supervision over two rural normal schools and one hundred rural elementary schools, the Pedro Domingo Murillo National Industrial School in La Paz, and sectional industrial schools in departmental capitals. It is engaged in establishing a vocational school for agriculture in the Santa Cruz area for the training of agricultural technicians, operators and maintenance men for farm machinery, and agricultural teachers.

The rural education program of the Servicio is directed essentially to preparing Bolivian teachers to run community-centered schools that will help the rural people to raise their social and economic status and thus become a productive element in the population. The Servicio with its staff of United States and Bolivian educators (over 50 of the latter have had training in the United States) is revamping the curriculum at two rural normal schools to make it more socially useful, and all other rural normal schools in the country are following suit. The Servicio program is a demonstration in functional education as opposed to the traditional Bolivian education by memorization which offers little preparation for life.

Since teachers cannot be expected to do a good job of education without the proper tools, the Servicio several years ago created a Publications Section which puts out a variety of teaching materials that are much in demand throughout the rural school system.

In the field of Industrial Education, the Servicio has worked toward the same ends, namely, that of improving teaching materials so that they can prepare technicians and skilled workers for industry. This aspect of education is of great economic importance, for industry, to develop, must have a reservoir of trained men on which to draw. The industrial school system now has approximately 3,000 students and 126 teachers.

Results

To date, upwards of 500 rural elementary teachers have been trained in the Servicio's workshops. The number of rural teachers reached by the Servicio program is about 25% of the total in Bolivia, despite the fact that schools under Servicio supervision represent only 5% of the total.

Servicio community-centered schools are bringing about profound changes in a hitherto "wantless" population, which is accepting the technical help of school hygienists, agriculturists, and home life and shop teachers in improving their methods of work and their way of life. All this is a necessary prelude to economic improvement in the rural communities. Among the rural schools supervised by the Education Servicio, parents' organizations and agrarian unions have contributed for building and repairs an estimated twenty laborers a day for three hundred days.

Changes being made by the Servicio in schools under its supervision are being copied by Bolivian educational authorities for other schools. The team of technicians who work among the Servicio schools are demonstrating that supervision is technical help, whereas it has usually been identified with a rather futile inspectorial visit.

HEALTH

The bilateral health and sanitation program in Bolivia, which was started in October 1942, grew out of a common understanding and desire to strengthen the people through public health measures and to improve the economic and cultural ties between Bolivia and the United States.

Developed also through the "Servicio" approach, the program grew under the joint efforts of both Bolivian and United States personnel. During the early stages of the Health Servicio, emphasis was given to malaria control, medical care for the rubber workers, the construction of small hospitals and laboratories and the training of personnel. Then came the designing and construction of health centers which were equipped and staffed with nationals. These centers prevent and arrest disease through their several services, especially: maternal and child hygiene, immunizations, laboratory services, V.D. and T.B. control, health education, and many other services which reach into the homes of the people.

The general objective of the Servicio is in the development of a nation-wide program of public health in Bolivia, with mass applications of proven techniques for the prevention and control of disease. The program is developed by demonstration projects in the fields of environmental sanitation, preventive medicine, and health education, as well as curative medicine, and it involves the training of public health personnel and the introduction of the standards and methods of good public health practice.

Bolivia being a mining country, one of the biggest health problems in industry is silicosis which afflicts about eight percent of the nation's 50,000 miners. The Servicio's activities in occupational health are directed to the control of health hazards in industry and consequently to the preservation of Bolivia's much needed manpower.

Results

Within the Servicio public health program, the training of nationals has had high priority. Servicio health centers have been a field of training for doctors, nurses, engineers, sanitary inspectors, laboratory technicians, auxiliaries, and other public health personnel. The first courses in public health nursing offered to Bolivian nurses have been given in the Servicio's La Paz and Cochabamba health centers. Nurses needed in the health units es-

tablished in the different geographical areas have all been trained in these courses.

Scholarships for study in other Latin American countries or in the United States have enabled professional personnel of the servicio to improve their specialties and prepare themselves for their administrative responsibilities as directors of the new services being established in their country. So far, eighty-three training grants have been given to a carefully selected group of doctors, nurses, engineers, laboratory technicians, administrative personnel, etc. Most of these recipients of fellowships for graduate study are today working in Bolivia in the field of public health.

A new health center, planned and constructed by the Servicio, was inaugurated in the city of La Paz in August 1955. This city of 300,000, with a large Indian population, now has two units of preventive medicine. This Health Center is a concrete building of four stories, with a floor space of 18,000 square feet. A modern and complete center, it has the facilities for rendering the services of preventive medicine to about one-third of the total population of La Paz.

A new health center of the Ministry of Public Health, located in a factory workers' district, is equipped to serve another large segment of the population. Standards and techniques introduced by the Servicio are adopted in this center.

Public health administration introduced by the Servicio has aided the Ministry of Public Health in setting up job classifications, in standardizing positions according to grades, and in reorganization along more functional public health lines.

PUBLIC ROADS

The Highway Servicio started to operate in 1955 as an integral part of the Ministry of Public Works and Communications. Maintenance of highways as practiced in the United States is almost nonexistent in Bolivia. While a good many roads have been built in the past, most of them are barely passable in dry weather and are impassable during rainy weather because of lack of maintenance. Although roads in Bolivia are now in a deplorable condition, it is believed that by applying modern and regular maintenance procedures to these roads they can be brought to a state where they can be depended upon for the transportation of agricultural and manufactured products from producer to consumer.

The organization of the Highway Servicio has been patterned after other Servicios. The internal organization is similar to that of a United States State Highway Department consisting of four divisions headquartered in La Paz:

Highway Maintenance, Betterment and Equipment
Research and Testing
Planning and Designing
Administration

The field organization of the Servicio consists of three local district engineer offices, in La Paz, Sucre and Tarija. These districts are further subdivided into residencies and road sections. The organization is strictly a maintenance set-up, but, due to the deplorable condition of the roads, some betterment work will be required.

During the first year it is planned to limit the roads under Servicio maintenance to 2,000 kilometers. Roads were selected for maintenance on the basis of:

a) Absence of other economical means of transportation such as railroads
b) Existing agricultural or mining areas without dependable and economical transportation
c) Traffic flow now and potential traffic when roads are improved
d) Potential agricultural areas

The plan is to train Bolivian personnel so that within four years they can take over operation of the Servicio alone and can form a backbone of trained personnel for the consolidated Bolivian Highway Department. Therefore, training of personnel is an important phase in the Servicio's operation.

Responsibility for the administration and operation of this project is carried by Bolivian technicians to the extent that present abilities will permit. During fiscal year 1956 seven Bolivian technicians were programmed for United States training, for periods varying from six months to one year, in order that they may assume greater responsibilities upon their return.

Results

Although the Highway Servicio is the youngest of the four cooperative servicios, its results have been almost immediate. This fall the Servicio started to maintain the Yungas road, a vital artery to supply La Paz with agricultural products. While in February 1956 only 835 vehicles per month traveled on this road, this number had increased to 4,110 in July mainly because of shorter hauling time.

PUBLIC ADMINISTRATION

In view of the urgent lack of competent administrators, the United States Operations Mission to Bolivia has been giving considerable attention to the problem of improving the level of competence of public officials. During the latter part of 1955, the Mission entered into a project agreement with the Government of Bolivia and the University of San Andres under which the technical assistance of the University of Tennessee will be made available to the Government of Bolivia through the University of San Andres over a three-year period ending in 1958. In addition to providing the professional staff and teaching materials and aids for the establishment of the Training Center in La Paz, the project calls for the training of an average of four Bolivian professors each year during the three-year period, thus equipping the Center to assume full responsibilities for its operation after 1958.

The primary objective of the School of Public Administration is to strengthen the administrative proficiency of the Bolivian public service. To accomplish this purpose, the school will (1) provide programs of in-service training for Bolivian public officials, (2) engage in a program of research related to the analysis of administrative problems within the executive branch of the government, (3) establish a public administration library, and (4) render technical consultative services to governmental agencies.

The school's library as of June 1, 1956 included approximately one

thousand titles received or on order representing approximately thirty-five hundred volumes. Many of these are texts used for instructional purposes in the training program. Research projects currently in progress include the preparation of a filing manual for public agencies and a study of the organization and functioning of the Executive Branch of the government. Four Bolivians are presently in the United States for training, who, upon their return to Bolivia, will serve as members of the school's staff.

The Bolivian Public Administration Training Center is being parallelled by the development of plans for establishment of a Bolivian civil Service system under which it is hoped to create a basic framework conducive to a more effective administration of Bolivia's public services.

US CIVIL AVIATION MISSION

The objective of this Mission is to bring about and maintain in Bolivia aviation standards and economy of operations similar to those in the United States.

There is a shortage of trained technical personnel in Bolivian aviation, particularly in the field of mechanics; therefore, in order to meet one phase of these objectives, the Instituto Aeronautico Nacional, in Cochabamba, was started about two years ago to train young Bolivians in modern methods of Aircraft Mechanics. The Mission has brought about an agreement between the Bolivian Government and the Lloyd Aereo Boliviano (LAB) according to which the latter will operate the school for a period of five years. The Bolivian Government is to furnish a minimum of 3,500,000 Bs. per year for salaries and other expenses plus some surplus aircraft and engines, and LAB is to furnish the classroom facilities, shop facilities, transportation for students, and other current expenses.

Policy guidance is given by a Board consisting of the Director General of Civil Aeronautics, the General Manager of Lloyd Aereo Boliviano and the Chief of Civil Aviation Mission. Considerable technical advice had been given to the national airline (LAB) regarding the modernization of their former DC-3 equipment while substantial assistance is also given in LAB's pilot training program. In addition, in fiscal year 1956 nearly $400,000 of development aid funds were committed for the establishment of a centralized overhaul agency, also at Cochabamba.

COLONIZATION

Colonization is limited almost entirely to the Santa Cruz area. Several branches of the Bolivian Government are involved in colonization; however, efforts are being made by the United States Operations Mission and the Bolivian Government to consolidate this work into the Bolivian Development Corporation.

Present colonization efforts may be divided into immigration projects such as the settlement of a small group (15) of Italians, a larger group of Okinawans (400), as well as two Mennonite colonies from Paraguay, and projects of internal migration which endeavor to bring indigenous people down from the highlands to more promising agricultural areas. A typical example of the latter is the soldier colonization project near Santa Cruz which consists of a plan to bring down conscripts for the entire period

of their military service, making them work in agriculture in the hope that a certain percentage of them will decide to settle down in the area.

PETROLEUM DEVELOPMENT

Assistance was requested by the Bolivian Government to develop a petroleum code designed to encourage substantial private United States investment in petroleum, following the pattern already established in Peru and Venezuela. Existing petroleum legislation in Bolivia was rather antiquated and generally unsatisfactory from the point of view of attracting foreign investment.

Petroleum is one of the several promising natural resources in Bolivia which in time might make an impact on Bolivia's balance of payments. For this reason immediate assistance was rendered in the form of securing a private organization to draft a petroleum code. The sum of $60,000 was obligated from Development Assistance funds in order to contract the services of Messrs. Schuster and Davenport of New York to do the job which was completed by the end of 1955.

GEOLOGICAL STUDY OF THE LA PAZ AREA

The purpose of the La Paz City geology project was to collect factual data for use in city planning and to prevent landslides. Results of special studies on landslides were left with the city officials and include recommendations for corrective measures and outline procedures to be followed during the next several years. A city zoning map was made to serve as a guide for foundation conditions.

MINING

During the latter part of 1955 the private engineering firm of Ford, Bacon & Davis, Inc., was contracted to make a study of the Bolivian mining industry as well as to make recommendations for its future development.

Since mining is the principal component of the Bolivian economy, the primary objective of the Bolivian Mining Mission is to furnish the Bolivian Government specific practical recommendations which can be acted upon to permit the mining industry of Bolivia to make a maximum contribution to the national economy.

The recommendations will consider all phases of the entire mining industry from ore extraction, beneficiation, smelting, transportation, organization and management, legal, financial, social and similar general considerations to marketing and development of new mining properties. The recommendations will give consideration to the physical operations of the mines, selection and training personnel. Serious consideration is given to labor. The recommendations will suggest changes in the mining and commercial codes of Bolivia, laws, regulations and decrees, in order to attract capital investment.

The study covers the principal minerals of Bolivia, including tin, lead, zinc, antimony, copper, silver, gold, tungsten, manganese, sulphur, asbestos, and others, which may contribute to the economy of Bolivia. Particular attention is given to tin and the technical and economic feasibility of a tin smelter.

MONETARY POLICY

In view of the fact that the present inflation, coupled with a system of excessive controls and faulty monetary policy, has been one of the big obstacles to sound economic development, the United States Operations Mission to Bolivia, at the request of the Bolivian Government, is now bringing a three man financial mission to carry out a program of monetary stabilization. The basic decree setting up a stabilization council was issued on August 4, 1956.

TRAINING PROGRAM

The Training Program is an integral part of the Technical Assistance Program. The purpose of this program is to supply Bolivia with better qualified technicians who can assist and take over jobs now filled by United States technicians. About 80% of this program is carried on in conjunction with the six divisions of the United States Operations Mission to Bolivia (Agriculture, Education, Health and Sanitation, Roads, Civil Aviation and Public Administration).

In addition, training assistance is given to participants from the Geodetic Survey Mission to Bolivia and the United States Army and Air Force Missions to Bolivia. The latter assistance is given to Bolivian Army personnel solely for the purpose of perfecting technical skills that have a bearing on the economic development of Bolivia and should not be confused with defense assistance. Training assistance is also rendered in the field of labor. In a few instances, assistance is given to Bolivians in the field of industry.

One of the main difficulties of the Training Program is the poor English proficiency of most applicants. In order to check this problem, the Mission has set up an English orientation course at the Centro Boliviano Americano. However, not all participants are able to take advantage of this specialized course. In the coming year it is hoped to have similar English orientation courses in Cochabamba and Santa Cruz, in order that more participants can be reached. Another measure being taken to curb the sending of Bolivian technicians to the United States whose English proficiency is very poor is to find adequate training centers in other Spanish speaking countries. It would not be difficult to predict that in the coming years more than 50% of all Bolivian participants will be sent to other Spanish speaking countries for training.

OTHER AID PROGRAMS IN THE COUNTRY

In 1949 the United Nations sent a preparatory Mission consisting of three persons to Bolivia. On the foundation of this group's work, a United Nations Mission to Bolivia was organized following the September 14, 1949 request of the Bolivian Government, and final agreement as to its purpose and organization was reached April 13, 1950. This Mission, consisting of approximately 22 persons headed by Dr. H. J. Keenleyside, worked in La Paz between April 18, 1950 and August 11, 1950, producing the "Keenleyside Report" summarizing the more important social and economic problems then facing Bolivia and suggesting practical steps that could be taken to promote their solution.

In October 1951, the Government of Bolivia and the United Nations signed an agreement (revised in May 1953) providing the basis for the programs carried out since 1952 when special personnel began implementing the Keerleyside

Mission's recommendations.

The assistance of United Nations agencies in Bolivia has experienced a continuous growth. There has been close coordination between the local United Nations Administration and its technicians, and that of the United States Operations Mission. Such coordination has prevented duplication of efforts and permitted supplementary - specialized assistance where needed.

IX. GROSS NATIONAL PRODUCT

Problems of Estimation

To draw up the national accounts for Bolivia is most difficult in view of the lack of statistical data. Not only is there a problem of the absence of certain statistics, but also, and much more important, a problem in that the base of some of the statistics that are available is frequently quite weak.

What complicates the problem even more is the fact that during the past few years the country went through a social revolution, the effects of which cannot be measured in quantitative terms with the tools available. For instance, it is almost impossible to determine whether the obvious drop in market-directed agricultural production may have been offset at least to some extent by increased production and home consumption on the part of the Indians themselves. In most other sectors of the economy there are serious distortions because of differential exchange rates; yet here we can at least come to some sort of approximation.

In addition to this, it is obvious that the galloping inflation during the past few years tends to throw off whatever reliable data that might be available, while the La Paz cost of living index is likely to produce figures of rather dubious value if used as a deflator.

Obviously, an economic study of any country, as well as a development program, should be conducted in specific and quantitative terms. A proper analysis of the various accounts will frequently reveal certain trends or facts which hitherto went unnoticed and which can be of utmost importance in making a long range appraisal of any country. Furthermore, before we can allocate priorities we must have the facts as to how national income has been increasing or decreasing.

Danger in Making an Estimate

Although under normal conditions we could not even begin to draw up an intelligent analysis or plan without such data, in Bolivia this deficiency appears to be less serious since what Bolivia needs at the moment is not so much a long range development plan, which would call for a rather careful analysis of the respective accounts, but simply a number of emergency measures which will prevent a further breakdown of the economy during the next few years. For this reason, the next chapter does not even make any reference to the data mentioned here. There is another reason for this. In a country like Bolivia, any estimate of the gross national product involves a certain amount of subjective decisions in evaluating data. Thus, the estimate could very well vary depending on the person who prepared it.

As a matter of fact in view of the danger of superficial interpretations, we would have preferred to omit any reference to Bolivia's national accounts,

especially since such a reference is not essential for our type of study. To anybody who has taken the trouble to acquaint himself faintly with the Bolivian economy, it is obvious that the gross national product has gone down in the past four years. It would undoubtedly be helpful to know whether the exact percentage of the drop is 5, 15 or 20%. However, the fact that there appears to be a drop, and to know the reason for this drop, would seem more important in this picture than to know the exact percentage of the decrease. Therefore, we would like to stress again that any analysis of Bolivia's national income at this time is likely to be subject to very serious errors.

Lack of Data for Comparison

Another problem is that even if we could arrive at a more or less adequate estimate of Bolivia's gross national product and its national income, there are hardly any data for comparison. All that is presently available in the way of national income statistics is an estimate made in 1940 by Mr. L. M. Dominguez 1/, an estimate by the Central Bank made in 1948 which refers to only four sectors of the economy (mining, agriculture, manufacturing and petroleum), a study made by Mr. Marco Pollner, published in 1952 2/, and an unpublished study prepared by Mr. José Candia covering more recent years (up to 1953).

Those who are interested in comparative figures may find some consolation in the following data. According to Pollner, Bolivia's national income during 1949 amounted to Bs. 25,513 million or roughly US $250 million, which at that time came to some $83 per person. This figure is admittedly unreliable but, as Pollner puts it, "An estimate, no matter how crude, is better than no estimate at all". According to Pollner's finding, the agricultural sector represents by far the most important portion of the national product. Mining is less important than one would think at first sight because of smelting costs and other deductions which reduce the value added. If we consider that in 1949 Bolivia imported considerable amounts of agricultural products such as sugar, wheat and rice, and that Pollner more or less arbitrarily raised the volume of fruit production which, in his analysis, is about equal to all other agricultural crops, one feels inclined to question these views on the relative importance of mining and agriculture. Likewise, some other figures on agricultural production appear to be based on data given by the Ministry of Agriculture, which even today lack a solid basis. Pollner's relative percentages of national income are as follows: Agriculture, 54.8%; Mining, 10.2%; Petroleum, 0.3%; Manufacturing, 4.0%; Rents, 5.2%; Construction, 0.7%; Banking, 0.8%; Transportation, 0.8%; Services, 10.6%; Public Administration and Defense, 4%, and wholesale and retail trade, 7%.

In our own estimate, these relative percentages are vastly different which would seem to lead to the conclusion that Pollner's data and those of the present study do not offer much basis for comparison.

1955 Domestic Gross Product

Coming now to an estimate for 1955, the respective figures are as follows:

1/ Conference on Research in Income & Wealth, Studies in Income & Wealth, Vol. 10, National Income Estimates of Latin American Countries.

2/ M.D. Pollner, Problems of National Income Estimation in Bolivia, MA Thesis, New York University, 1952.

1955 GROSS DOMESTIC PRODUCT (ESTIMATED), OF BOLIVIA

	In Millions of Bs.	In Millions of US$	%
Mining	103,200	68,800	30
Agriculture	90,710	60,473	27
Wholesale & Retail Trade	32,032	21,355	10
Industry	25,570	17,046	8
Handicrafts	19,780	13,187	6
Services	16,250	10,833	5
Government Sector	14,278	9,519	4
Transportation	13,545	9,030	4
Petroleum	13,220	8,813	3.9
Rents	3,162	2,108	1
Construction	2,427	1,618	0.7
Banks	1,446	964	0.4
Gross Domestic Product at Market Prices	335,620	223,746	100%

In order to obtain the national income we would have to deduct from this figure all indirect taxes and depreciation as follows:

	In Millions of Bs.	In Millions of US$
Gross Domestic Product at market prices	335,620	223,746
Less: Indirect taxes	30,562	20,374
Gives: Gross Product at factor cost	305,058	203,372
Less: Depreciation	25,172	16,781
Gives: National Income	279,886	186,591

Methodology

To obtain the above figures the following procedure was used: In the agricultural sector the official data from the Ministry were taken as a base. The respective figures were adjusted with the figures of the Agricultural Servicio for basic crops (rice, wheat, etc.). Prices of agricultural products were converted into dollars at the 1955 parity rate of Bs. 1500 - US $1.00. To double check these figures an estimate was made of agricultural production on the basis of wages to which was added the value of agricultural exports. As a further check the minimum consumption of all agricultural workers in the country was calculated on the basis of sample studies. It is interesting to note that these three methods yielded results which, after the corresponding interpretation, were found to be in accord to a higher degree than was anticipated.

In the mining sector the gross value of exports was taken as a base from which were deducted smelting costs, freight, insurance and purchases from other entities which latter were estimated at 15%of the gross value, all of which came to $68.8 million or Bs. 103,200 million at the 1955 parity rate.

In the petroleum sector actual 1955 output of crude was calculated at $3.50 per barrel deducting again 15% of the gross value to obtain the value added.

Since in the industry sector there existed no reliable 1955 data, the 1954 data were taken as a base to which 3% was added for a possible increase and the respective figures were then converted at a 1954 parity rate of Bs. 800 - $1.00.

To obtain the figures for the handicrafts sector the 1950 demographic census was taken as a base, taking only those people who worked independently (excluding factory workers) and multiplying this figure by the corresponding income data.

For the wholesale and retail trade, the procedure outlined by Pollner was followed which assigns (more or less arbitrarily in the absence of any data) certain markups to imports as well as to domestic manufacturing production as follows:

Domestic Products

Manufacturing	30%

Imports

Foodstuffs	5%
Raw materials	10%
Manufactured foods	20%

For the other six sectors which together come to about 15% of the gross product, similar expedients had to be used which we shall not discuss in further detail.

In order to obtain an estimate of indirect taxation needed for the calculation of Bolivia's national income all income from direct taxation was calculated after which this sum was deducted from gross tax receipts.

On the basis of the above data, the 1955 per capita national income of Bolivia comes to $58 which is one of the lowest in Latin America.

X. PLANNING

Principal Entities Engaged in Planning

In view of Bolivia's precarious financial situation, proper planning becomes of major importance. Only adequate planning can assure us that all available resources will be used to best advantage. At present planning is done by various agencies. Among these may be mentioned the Bolivian Government's Planning Commission, the Bolivian Development Corporation, the United Nations Technical Assistance Mission, and the United States Operations Mission to Bolivia.

Problems in Planning

All of these groups have had their own problems. The United Nations group has had from fifty to sixty technicians in Bolivia during the past few years. A number of these experts have prepared valuable reports on certain specialized aspects of the Bolivian economy. One of the problems in the United Nations technical assistance work, however, has been the implementation of the recommendations made. Since the Bolivian Government has great difficulty in providing the necessary funds, it can implement only those suggestions which do not involve a large expenditure of money.

The Bolivian Planning Commission has been facing similar problems since its funds are quite limited, which makes it difficult to maintain a competent staff. The Bolivian Development Corporation is in a slightly better position since it receives relatively large allocations out of the budget to carry out its projects. Although in the Development Corporation the emphasis is naturally on implementation, the agency does a substantial amount of planning also.

The United States Operations Mission has come to Bolivia more or less on an emergency basis. It has been dealing generally with the solution of immediate problems, leaving the longer range planning to the other two agencies. One of its main problems has been the shortage of adequate personnel in the field to carry out projects.

During the past year it has been tried to bring about a much closer coordination between the United Nations and the United States Technical Assistance Missions. These two groups could complement each other in an ideal fashion since the first one has many specialists who can draw up plans while the second one is in a position to implement some of these plans. Furthermore, because of their work in the field, United States experts are likely to discover new possibilities which heretofore had gone unnoticed. In this way they could play a vital role in the development of new plans.

Present Type of Planning

Although Bolivian planning frequently tends to be much more realistic than some of the plans drawn up by a number of other countries, it occasionally tends to go towards the grandiose. After the Santa Cruz - Cochabamba highway linked the highlands with the Santa Cruz area, there was naturally a desire to provide a similar connection between the highlands and the Beni area, even if the development of the Santa Cruz area itself was scarcely started. Likewise, there is a tendency to exaggerate the possibilities of some of Bolivia's untapped resources, such as hydro-

electric power, petroleum and forest resources, most of which remained untapped for rather good reasons. A similar tendency exists in discounting existing resources such as mining and highland agriculture as compared with the charm of the unknown. Good examples of the latter are such ambitious projects as the Monte Punco and Bala hydroelectric projects 1/ which latter would create a sort of a Tennessee Valley situation in the midst of the Bolivian wilderness.

It seems important to mention this point since some people seem to forget that Bolivia's principal problem during the next five years is not to draw up long range development projects but to figure out ways to keep going which will call for an investment in projects which can give almost immediate returns such as mining, cheaper transportation and high plains or valley agriculture.

Regardless of some of these more grandiose schemes, however, it is gratifying to see that there exist also some very realistic planning. Perhaps one of the best examples of this is the overall development plan which was prepared in December 1954 by Foreign Minister Walter Guevara Arze. Its main concepts may be summarized as follows:

(1) Mining, which has been providing nearly all of Bolivia's foreign exchange income for a good many years, is a vanishing prospect since many of the existing tin mines are gradually becoming depleted. Thus, present income from minerals - as long as it lasts - should be used to diversify Bolivia's economy. To help maintain Bolivia's present income from minerals as possible the plan advocates:

a. Greater mechanization of the mines to cut production costs.
b. Upgrading of the ore content to save transportation expenditures.
c. The establishment of a tin smelter in Bolivia to save on realization costs.
d. Increased prospecting to find new deposits.

(2) The development of petroleum - Bolivia's most recent resource - should be stressed. Sufficient incentives should be given to private industry to help develop these resources.

(3) Since Bolivia is annually importing about $25.9 million worth of sugar, livestock, wheat, rice, cotton, fats and oils 2/, which could be produced in the country, full emphasis should be placed on the further development of the Santa Cruz area, not only as a means to achieve this goal but also to provide a future outlet for the Indian population on the highlands.

(4) Along with Santa Cruz, other areas should be developed such as the Beni (cattle and tropical crops), Villamontes (cotton), Cochabamba and Tarija (wheat and corn), and to a lesser extent the high plains (barley).

(5) Roads, river transportation and airstrips should be developed to connect the various now isolated parts of the Republic with the high plains.

1/ See Page 124

2/ Average for the period 1951-1955

(6) Industrial development should be carried out through private industry,

(7) Technical education and vocational training should be stressed to prepare the Indians for a further integration into the national economy.

The Guevara plan has great merits. It certainly has a sense of realism. However, some of its concepts, and particularly some of the priorities allocated, could be questioned in view of Bolivia's desperate need for projects which will show more immediate returns both as dollar savers and as dollar earners. Another point is that the Guevara plan constitutes only a one-time effort. It was drawn up principally for the purpose of showing the need for increased United States aid to Bolivia. However, planning cannot be done on a one-time basis. It is a continuous process.

Another example of proper planning in Bolivia at the lower level constitutes the Ayopaya Plan prepared by Mr. Xavier Caballero. The basic line of thought of this plan is to bring back the production now lost by the agrarian reform through the formation of Indian cooperatives in one province, namely, the Ayopaya province in the Department of Cochabamba. The scheme appears to be very clever for the following reasons:

First, it has selected an intermediate highland-valley area so that highland Indians who could settle in the area will not lose all contacts with their relatives. Internal migration within small geographical distances appears most important from a sociological point of view such as the cult of the death at various times of the year.

Second, the area has always been highly productive and consists - most interestingly - of Quechua Indians who, having the best soils, are engaged in agriculture, and Aymara settlers who graze large herds of sheep and other animals on the higher and less fertile regions.

Third, the plan envisages the restoration of the factor management which used to be provided by the owner of the large hacienda, by means of simple persuasion of the Indians. Thus the plan is to select a small number of individuals who speak Aymara and Quechua and train them rapidly in cooperative and farm management. This nucleus of people will go out and convince the Indians that by accepting their leadership they can again attain the production of the old hacienda while this time they will get all the benefits themselves. Great care will be exercised in selecting for this purpose only those people who like country life and, in view of the language barrier, no foreign technicians will operate at this level. At the higher level, the plan will be directed by three or four qualified technicians in the Ministry of Indian Affairs.

Fourth, the plan insists that except for some roadbuilding, no help be given to the Indians unless they pay for it themselves out of actual production.

The attraction of this plan is that, if successful, it could have an immediate impact on badly needed agricultural production in one region. Furthermore, since the peasants in the area once produced large quantities of potatoes under proper leadership, they could bring back this production rapidly through the efforts of these newly trained technicians who would reside permanently in each of the old haciendas and take over the now lost

management function. Financial success of the scheme is likely to attract new settlers from the high plains making the scheme more or less self-generating.

We have on purpose discussed this plan somewhat in detail since it seems to avoid making the usual errors which are so often found in similar projects. For instance it avoids bringing high priced foreign technicians who insist on the living quarters they normally should expect and which gives the Indian the feeling that he is still working for the old overlords. It takes into account the sociological factors involved in migration. It is attractive from an economic point of view since it tends to increase production by self-help, giving hardly anything free which in turn will tend to increase the Indians' confidence in the scheme, since frequently their first reaction appears to be that a free gift may be taken away as quickly as it was given. Furthermore, once the Indian gets away from this feeling and gets accustomed to accepting things for free there is no limit to his new demands.

The Need for a Reorganized Planning Board

To assure the proper type of planning in Bolivia, it would be necessary to put all planning activities, which are now dispersed, under the central control of a reorganized Planning Board. This Board would have to review all projects presented by whatever agency or department of the government and would allocate the proper priorities. It would also have to coordinate government projects with those of private industry. Most important, it would have to have some sort of direct control over the flow of development funds, and it would have to be consulted on financial and monetary policy.

This point is far from theoretical, for in the more remote past, Bolivian planning has been extremely wasteful. As an example, we could just mention a number of highly dubious projects, such as the La Paz - Beni railroad which remained a project after some 54 kilometers had been built; the Cochabamba-Santa Cruz railroad which came to a halt after the construction of some 155 kilometers and which was superseded by the construction of a highway; the Sucre cement plant which was put up in a most uneconomical location insofar as transportation costs are concerned; the Sucre oil refinery which never worked at full capacity for lack of a market; and the Sucre hydroelectric project which ended up as a diesel plant. A number of projects now under execution may evoke similar comments in the future.

For this reason it would seem to be most essential that some general criteria be drawn up first as to the general principles of resources development in Bolivia, such as multiple purpose of projects, immediate contribution to the national economy through the saving or earning of foreign exchange, area integration, sustained use, minimum waste, wide distribution of benefits, maximizing net returns, proper conservation of revenues, sharing of costs and responsibilities among various government entities (local, provincial, national), adequate consideration of sociological and anthropological aspects, as well as of non-measurable aspects. These latter aspects are particularly important since they are frequently being overlooked in Bolivian planning.

Another point in Bolivian planning is the establishment of an adequate time table. No new plans should be started before the previous ones have been carried out, to limit the number of "unfinished jobs" which tend to

have an inflationary effect.

Since planning, particularly in Bolivia, is a complex process it cannot be carried out by one person or group. Consequently, the planning board will have to draw heavily on the experienced people who are available in the various sectors of the economy such as mining, petroleum, agriculture, banking, industry, public works, communications, public administration, health and education. This means that the function of the Planning Board should become more or less a staff function, constantly reviewing projects which are being developed at the lower and technical levels and testing them in the light of a well-defined over-all philosophy. Although Bolivia has had the help of a number of foreign experts, it should not be forgotten that quite a few competent people exist right now in the country. Making a proper use of these people would be of the utmost importance since ideally basic planning should be done by Bolivians with foreign experts merely rendering the necessary assistance.

The Need for Better Statistics

Another problem directly connected with planning is the lack of statistics in the country. Unless such statistics are available, no adequate comprehenvise planning will be possible, and haphazard sector planning is likely to result. For example, even today Bolivia lacks an official census of mining and manufacturing industries. Although there exists a central bureau of statistics which is greatly handicapped by a constant lack of funds, many agencies of the government try to keep their own statistics. Recently a United Nations expert drew up two plans, one for the reorganization of the Planning Commission, and one for the gathering of adequate statistics, both of which have great merit 1/.

The Need for Comprehensive Planning

Bolivia is badly in need of a different approach to planning. As in most undeveloped countries, it has followed the sector approach, hopping from one problem to another without an adequate effort to attack the situation as a whole. Thus Bolivian planners have been trying to meet one crisis after another with many more to come.

What is needed now is an over-all emergency program which will make the best use of Bolivia's available resources and which will help stimulate private initiative, with a strong emphasis on the solution of certain problems in the socio-economic field. Sector planning can well backfire in Bolivia. Sector planning in health may aggravate population problems in certain areas; in agriculture it may draw away attention from the mines, Bolivia's basic source of income; and in petroleum it may result in a misdirection of resources.

Drawing up an immediate program for Bolivia is not easy since the country has very few resources left to finance such a program. Bolivia's credit with the Export-Import Bank has been stretched to the limit. World Bank financing is out of the question as long as the country has not settled its private debt, while in the near future Bolivia will have to provide some

1/ Recommendations drawn up by Mr. J. Perlman

funds to meet its obligations under the international tin agreement as well as to make a final settlement with the expropriated mine owners.

On the other hand, Bolivia has some resources such as gold and petroleum which could attract some risk capital from abroad if the government can provide it with a minimum of guarantees. At the same time the United States has shown considerable willingness to help Bolivia. It is obvious that this precarious situation calls for a most cautious use of the few available resources, leaving as much as possible to private investment.

Specific Suggestions

Coming now to the problem of making some specific suggestions in programming the economic development of Bolivia, it should be stressed that at this point we can only talk in terms of generalities. Any development program should be concerned primarily with the solution of Bolivia's immediate problems. Bolivia's problem is not one of long range economic development. Its problem is to keep going. Its problem is to plug as rapidly as possible those holes which may cause a further breakdown of the economy within the next few years.

Policy Requirements

No plan, no matter how clever, is any good unless the country's general policy is in line with it. In the case of Bolivia, this becomes even more important since such a large part of its development would normally have to be financed from private funds. Thus, it becomes necessary for Bolivia to change the present emphasis on government activity as a means to carry out development projects for a more constructive and more rewarding approach. In a country with such limited financial resources as Bolivia, public funds should be used with great discretion. They should be used where possible to finance those types of economic development which will stimulate private investment, so that the country's economic growth can become self-generating. At present the government's investment in a sugar mill, a rice mill, a cement plant and further petroleum exploration means correspondingly less investment in those basis services such as roads, schools, power, hospitals and transportation which the country needs to attract private investment.

In line with this situation, a new and attractive investment code should be drawn up at an early date to establish clearly the rights and obligations of private foreign investors. Once passed the law should be given sufficient publicity abroad to make private capital aware of the opportunities offered by Bolivia. To demonstrate the country's sincere attitude towards private investment, those investors who are already committed should be given essentially the same treatment as the newcomers even if this may create some immediate problems for the government. At the same time, more incentives should be given to the domestic investor who is now frequently sitting on the fence.

Closely linked with the above problem is the problem of Bolivia's debt settlement. A preliminary agreement to settle the debt with foreign bondholders amounting to about $160 million was reached in 1948, but it was never implemented. It is believed that an honest effort on the part of Bolivia to come to some agreement in this respect could materially improve

the country's standing in international financial circles. Although it is obvious that Bolivia's capacity to pay is quite limited, it is equally obvious that the foreign lenders are not going to insist on the last pound of flesh, particularly since back interest is about twice as much as the amount originally lent. Therefore, in the case of Bolivia the gesture itself would be far more important than the ultimate amount of the settlement.

The present monetary policy should be completely revised in the light of the unavoidable realities in order to establish a free rate of exchange at an early date. This system would replace the present indirect subsidies - which have a tendency to take away all incentives and to encourage all sorts of corruption - with directly and clearly visible subsidies (if necessary)

The present rigid control of the economy through artificially low prices and endless amounts of paper work in the form of permits and licenses for nearly everything is incompatible with a dynamic development program since it completely vitiates the role of private investment

Since the lack of labor discipline and labor productivity are one of the principal driving forces behind the inflation, the government should try to enforce at least a minimum amount of labor discipline

To provide labor with some real benefits the present labor and social legislation should be replaced by a more realistic one which would emphasize both labor's and management's common interest in high productivity Only in this manner can the social benefits established in such a law acquire some real meaning; even more important would be the enforcement of such a law in an impartial and fair manner.

General Requirements

A good many of Bolivia's economic problems can be reduced to a lack of public administration rather than to a lack of resources. To remedy this situation more promising young men should be given scholarship grants to study abroad while at the same time a professional civil service should be established. A greater decentralization would also be essential in establishing a more efficient system of government. It is difficult to see that Bolivia could do all this at this moment without outside help. Therefore, the suggestion made in the Keenleyside Report that the Bolivian Government obtain the services of a number of competent and experienced administrative officials to be appointed on a temporary basis to positions of influence and authority as integral members of the Bolivian Civil Service is still valid. The only modification of this original proposal would be that for the sake of coordination and uniformity of procedure these officials should all be recruited from one country instead of from a variety of countries.

Since adequate comprehensive planning cannot be done without statistics, it is recommended that the report drawn up by the United Nations expert, Mr. J. Perlman, dated February 17, 1956, TAA/BOL/9, be implemented at an early date.

A revamped Planning Board 1/ should be formed which will:

1/ It is to be expected that for the time being some of the functions outlined below would have to be exercised by the Stabilization Council.

1. Periodically review the development plan.
2. Coordinate the development programs of the various Ministries and of the Bolivian Development Corporation.
3. Review existing legislation and draw up new laws for the economic progress of the country.
4. Coordinate requests for assistance from international agencies.
5. Approve requests for loans.
6. Handle applications from private investors.
7. Promote attractive development projects abroad in order to attract private capital for them.
8. Act as a board which will review the legitimate complaints from private investors.

This Planning Board should work under the direct supervision of the President of the Republic who would act as its Chairman. It should be assisted by a top level foreign planning expert who would act as secretary. The Board should meet at least once a month.

Banks, if properly organized, can plan an important role in economic development. Bolivia's present banking system is quite antiquated and the promulgation of a new banking law would seem to be a high priority project. In addition to this, there is a dire need for an Economic Development Bank which would more or less combine some of the features of the existing Mining and Agricultural Banks which appear to have failed as effective instruments to develop private initiative. Once established, it could also take over a number of activities which are now carried out by the Bolivian Development Corporation which has gradually grown into an institution which is largely engaged in the execution of long term development projects sponsored by the government instead of carrying out the self-liquidating projects which it was originally supposed to carry out.

Specific Requirements

As we saw, nearly all of Bolivia's foreign exchange income is still derived from mining. Today there are still a number of small mines which have good possibilities for development. Therefore, to realize their potential, a high priority should be given to the development of the medium sized and small private mines both through the direct aid of a Development Bank and through the establishment of greater incentives.

To attract private foreign capital to the Bolivian mining industry, it is essential that Bolivia draw up an attractive new mining code at an early date. In the case of petroleum the drawing up of such a code had almost immediate results in the form of the three contracts entered into with the Gulf Oil Corporation.

As a further incentive to the private mining industry, a reorganization of the Mining Bank would seem to be of the highest priority. Insofar as the mining industry as a whole is concerned, it would, of course, be necessary to implement the recommendations made by Ford, Bacon and Davis, Inc.

One of the biggest problems of the private mining industry has been a lack of adequate transportation which tends to make a number of relatively good mines only marginal producers. To increase the output of these mines

immediately it is suggested that sufficient transportation equipment be placed at their disposal as well as that the following roads be maintained more adequately:

1 - Oruro-Potosí, 320 kilometers.
2 - Sucre-Potosí, 150 kilometers.
3 - Several typical mine roads in the Departments of La Paz, Potosí, Oruro and Chuquisaca, which have already been studied by the Highway Servicio.

Since exploration has lagged far behind in Bolivia for a number of years, it is suggested that a continuing geological and mineral survey be set up at an early date so that the small private mines who cannot afford to make a large investment in exploration will know where to look and what to look for. This type of work will call for air mapping, magnetic mapping and geophysical prospecting.

Petroleum

Bolivia has now developed its petroleum industry up to a point where it supplies the needs of the nation, leaving a small margin for export. Further development could stop right there. To develop reserves of 200 million barrels which are needed to give Bolivia an income of $50-60 million a year is a job beyond Bolivia's present resources. Furthermore, this is a typical job for private industry. Since Bolivia cannot wait, the international petroleum industry should be approached in a most active manner to give serious consideration to the possibility of entering Bolivia.

Agriculture

To remedy Bolivia's immediate problem in agriculture, i.e., supplying the city populations with basic foodstuffs, Bolivia should stress the development of those agricultural resources which are closest to its centers of population. More specifically, an increase in agricultural production on the high plains should be given consideration through the establishment of agricultural cooperatives of the Indians under adequate guidance. The plan drawn up by Mr. Xavier Caballero, mentioned earlier in this chapter, contains a good example of what could be accomplished in this respect without any large expenditures.

In any such development, one would have to make sure that a cooperative movement really stems from the farmer and is not superimposed on him. Furthermore, much more attention should be given to the possibility of using animals in agriculture instead of tractors. In a further stage the reorganization and modernization of highland agriculture would probably have to become part of a rural development program. Such a program would consist of better village schools, increased agricultural extension work, and better health facilities. In carrying out such a program, great care should be taken to stay relatively close to the existing social structure lest the Indian population become emotionally uprooted.

Since the problem of agricultural credit is already receiving sufficient attention at the moment, this point does not seem to require any special stress at this time.

As to the specific crops which should be pushed especially, barley, potatoes and quinua should receive the highest priority on the high plains with wheat as a close second in those areas which are suitable to the cultivation of this crop. Wheat should be pushed strongly in the valleys where it could replace corn at an early date.

Likewise, livestock production in Bolivia can easily be increased by giving greater incentives to the private industry which is now engaged in this type of activity. To boost the production of livestock effectively, the producer should be paid in Bolivia the price which he can receive by driving cattle across the border.

The production of hogs and poultry should be increased through more extension work with individual farmers as well as through the more provident use of waste products of the various slaughtering establishments in Bolivia which could provide the necessary raw material for most of the animal protein feed necessary to start such a program.

For the further development of a balanced agriculture in Bolivia, it is further suggested that some of the excessive emphasis be taken off the Santa Cruz area. During the past three years Santa Cruz has received a public investment of more than ¼ million, most of which was provided by United States aid funds. As time progresses the area should be able to stand on its own feet. To hasten this development, an early elimination of all controls in the Santa Cruz area would be absolutely essential.

In order to provide a near term source of additional dollar income, it is suggested that the production of certain agricultural commodities which command a relatively good price in export markets, such as coffee, pyrethrum, cacao, rubber, Brazil nuts and fibers be pushed. To do this effectively, adequate credit and a special extension service should be provided by the Bolivian Government in cooperation with Point IV. In addition to this, it would be essential to create a purchasing and marketing organization headed by a few capable technicians to commercialize these products. Proper standardization would also be a matter of much importance. To promote the production of these crops successfully, it would be most important that the producer be allowed to export freely and keep the proceeds or at least a certain percentage thereof in foreign exchange.

In order to provide a proper inventory of Bolivia's agricultural resources as well as to make adequate projections for the future it would be essential that more adequate facilities for agricultural statistics and agricultural research be set up in the Ministry of Agriculture at an early date. Such facilities would have to include a crop reporting survey on which proper projections can be made. It goes without saying that pest control and soil management and soil conservation should receive high priority in this connection while the study of potentially valuable plants which are not known abroad might in time have some spectacular effects.

Perhaps the most important single measure in agriculture would be to restore law and order on the land. It would also be necessary to limit the agrarian reform to certain densely populated areas where the law would be completely implemented at an early date so that people again will know where to plant. Another way of dealing with this problem would be to delimit the reduced area of the former hacienda first so that the owner will

again have an incentive to produce for the market. Closely connected with this problem would be an adequate scheme to increase the prices paid to the producer of agricultural products which is one of the major ways to provide him with adequate incentives.

To make a more effective use of Bolivia's forestry resources, a plan should be drawn up for the proper conservation of these resources as well as for their immediate use.

Industry

Bolivia's limited domestic market will for a long time continue to be a serious handicap for increased industrial expansion. Therefore, the industry program should be kept in line with the overall development program. First priority should be given to the development of those industries in which Bolivia has a relatively strong comparative advantage so that it can export. As a close second would come those industries connected with food processing. In the third place would come new industries which in time will be able to give employment to those forces which may be released from agriculture if and when the efficiency of Bolivian agriculture increases.

To increase labor productivity, a program to give labor leaders a chance to have a first hand look at industrial cooperation between labor and management in other countries might be most effective.

In order to provide sufficient power for the development of industry, sufficient incentives should be given to the Bolivian Power Co., which might be constituted as an independent agency in the Ministry of Mines and Petroleum for the purpose of coordinating and developing more adequate power facilities in Bolivia.

Transportation

Since an intensive road maintenance program is already underway with the help of Point IV, suggestions in this sector can be few. With the exception of a few roads now under construction, new construction should be limited and more thought should be given to the maintenance of the existing road net. As to specific priorities for the road maintenance program, we may refer to the map following Page 145 of this study.

Since for a number of years the importation of trucks has been quite insufficient, it is suggested that arrangements should be made for the immediate importation and adequate distribution of some 2000 trucks.

Insofar as railroads are concerned, an adequate rate study should be made at an early date of all the Bolivian railroads in order to come to a more uniform rate structure.

In the field of air transportation, the present maintenance facilities of LAB and TAM as well as those of the Bolivian Development Corporation should be centralized in order to save costs and provide better service. In addition, the recommendations of the Civil Aviation Mission mentioned on Page 149 of this book should be implemented at an early date.

Although an improvement of river transportation in the Beni would seem to be highly desirable both from a political and an economic point of view, it is believed that at present Bolivia is unable to undertake any activity in this direction. However, if funds could be found for the purpose, a study of the Beni River transportation system would seem to be a worthwhile project as a base for future planning.

Tourism

Bolivia could obtain a larger income from its incredibly beautiful scenery. Even experienced travelers will admit that the mountain regions of Lake Titicaca and the valleys of the Yungas are rather unique. For this reason, adequate incentives should be given for the development of the hotel industry as well as to provide adequate bus transportation from La Paz to the regions in question. Customs officials should be given special training in dealing with tourists in order to attract more of them in the future.

Health and Education

Since we have only been dealing here with a program covering Bolivia's more immediate needs, little reference has been made to health and education. It is obvious, however, that among the longer range sound investments which should be made for the economic development of Bolivia, health and education would rate rather high. In health, environmental sanitation, nurses training and disease control should be stressed; whereas, in education the program should be directed toward the development of community-centered schools that will help the rural people to raise their social and economic status and thus to become a productive element in the population. Education should also include such fields as sanitation, personal cleanliness, home economics and vocational training.

XI. CONCLUSION

A Basic Social Change

To diagnose Bolivia's economic problem and to suggest remedies is relatively simple. To give a prognosis of the country's recovery is quite a different story, however, since here the problem shifts from economics to practical politics.

Many intelligent people now feel that the 1952 revolution has caused a basic change in the social structure of the country since the government took rather drastic steps to attack a problem that had been smouldering for years. In doing this it set in motion social forces which to some extent it can no longer control. Whether this approach required more courage than wisdom may be a debated point. Certainly the government did not lack courage.

As a result of all this, the Indian masses of Bolivia have now become a political factor which will have to be reckoned with in the future. While it might be quite possible for another administration to push the Indian back again, he will never go back to the state of semi-slavery in which he lived before. The times when the government could change several times in a matter of days, with the Indian masses applauding any new incumbent as was the case with Presidents Melgarejo and Belzu, have definitely passed. In 1956 the masses of Indians and mestizos are slowly developing political concepts which will have some impact on the country's future. The only thing which is not clear as yet is what kind of leadership will emerge in time from these Indian masses, except that their present rather amorphous state will leave room for a good deal of flexibility.

As we mentioned several times, during the past few years the social changes in Bolivia have been rather violent. As in the case of the French or Russian revolutions, one could well raise the question as to whether these changes could have been brought about in a more evolutionary manner. The answer to this question is likely to be in the negative since the problem continued for a good many years without a solution.

From an economic point of view the revolution has been costly. It has shaken the very foundations of the country's economy: mining and agriculture. The immediate prospects are quite dark and the worst is still to come. To quote an eminent expert on Bolivia, Mr. Carter Goodrich, "The prospects of the experiment remain uncertain and the perils are great." 1/ It is usually easier to open up Pandora's Box of social ferment than to channel these forces into the right direction. The peaceful character of the Bolivian Indian who tends to go his usual way is probably one of the reasons why chaos has not been greater. Yet increased chaos is a real prospect within the next few years as the economy further deteriorates.

The Hope for Easy Solutions

In this rather grim situation there exists naturally in certain

---

1/ Carter Goodrich: The Economic Transformation of Bolivia. Bulletin 34, New York State School of Industrial & Labor Relations. Cornell University, October 1956.

groups a tendency to overcompensation, a tendency to expect miraculous solutions which overnight will bring Bolivia back to what it used to be economically. Thus there is a tendency in certain circles to over-estimate the effects of a monetary stabilization program which can only be a first step towards recovery and after which comes the arduous road of hard work and discipline. Yet if miracles don't occur in 34th Street, they are even less likely to occur in Bolivia. Even if the monetary stabilization program is successful, there will undoubtedly be some efforts on the part of "the losers" under the program, to introduce new mechanisms tending to safeguard their vested interests. To disregard this aspect of the problem would be to disregard the basic social structure of Bolivia.

Right now many people appear to be most concerned - and rightly so - with the political problem since the number of well prepared people who can give direction to the country is becoming smaller all the time while the political power of the uneducated masses is increasing. While this in itself constitutes a serious problem, the economic problem stands completely aside of this. An economy of the size of Bolivia's requires annually a minimum investment of some $20-25 million in maintenance and expansion. Although there has been a certain amount of investment during the past few years, it should be clear from this study that the basic investment to maintain the present plant and equipment has not been made. The conclusion to be derived from this is obvious and needs no further comment.

The Need for a Change in Philosophy

In a period of less than three years Bolivia has received some $60 million of United States aid. During the past few years Central Bank reserves went from some $30 million to a deficit of $11.3 million which comes to another $41 million. In addition to this the country contracted a relatively large amount of European credit which will have to be repaid in the near future. Yet the country's situation is about the same as, or worse than, it was before. From these simple figures it is obvious that money alone is not the answer in the case of Bolivia. It is a problem of a change in philosophy and of the clear-cut recognition of some plain facts. It is a problem of putting the solution of the economic problem above vested political interests.

Time is running out for the solution of the economic problem. It now requires the most vigorous methods. Because of its immense resources, Bolivia has always been able to live in the most wasteful manner. In addition, it had a large Indian population which made hardly any demands on the economy while making quite a contribution to it. With the gradual integration of the Indian into the economy this waste is no longer possible.

Bolivia still has the economic potential for a relatively quick recovery. It has a number of resources such as gold mining and petroleum which are not very labor intensive and which thus could attract foreign investors in spite of the general lack of labor discipline. Yet the development of these resources by foreigners calls for the politically unpleasant admission that Bolivians are unable to develop these resources themselves.

Bolivia can solve its basic problem of supplying the city population with enough food. Yet this calls for a recognition of the fact that the Indian needs constant direction so that at least some aspects of the

"hacienda" have to be brought back into the picture in a modernized version.

Bolivia can stabilize its currency. Yet this calls for an attack against those political forces which have a direct interest in the inflation.

Bolivia can change over to a free economy. Yet this will mean that large numbers of people will have to work and produce again instead of making an easy living by standing in line to make a few pennies on the resale of items sold to them at controlled low prices.

Bolivia can find the $2 million a year which would be needed to implement a debt settlement which might open up possibilities of new loans from at least two large international institutions. Yet this calls for cutting down on an over-ambitious development program.

These are not just words, they are facts. From a mere economic point of view, Bolivia's case is by no means as hopeless as it looks at first sight. Few competent observers will deny the fact that Bolivia's present problems are all man made. If this is the case, they can be remedied by man.

Fortunately, Bolivia has still a number of men left who are both courageous and great patriots, and who are willing to make sacrifices. For Bolivia, men like these are worth more than all the tin that is now left at Catavi.

Hope for the Future

Bolivia's situation could well be compared with the case of a person who has cancer. He knows he faces that most dangerous and painful operation which monetary stabilization and a number of other measures undoubtedly will be. Yet he has no other alternative. Continuing our medical analogy, we might also compare Bolivia's case with that of a neurotic who becomes more and more dependent as more help is being extended to him. As time goes by, the patient loses completely all confidence in himself until finally somebody shakes him out of his lethargy and makes him face the facts of life again.

Bolivia's problem is a problem of confidence. Once the country is able to rise above the demands of local politics, once it is able to carry out the necessary reforms, Bolivian flight capital will start coming back, followed by impressive amounts of new foreign capital. To do this, however, is not going to be easy since making the reforms in question might at the same time change the basic structure of the government's political support.

If Bolivia can solve its today's political problems, within the next five to ten years its future could become bright again since available resources cannot lie dormant forever. Even the social problem of the Indian can only get better as time progresses and health, sanitation and education programs make a further impact. From a sociological and anthropological point of view there appears to be sufficient justification to entertain an optimistic attitude as to the future potential of the Indian. Although serious studies on the subject are lacking, there seems to be ample evi-

dence that the apparent apathy of the Indian, his lack of strength, lack of initiative and general tendency to withdraw are largely due to centuries of oppression and malnutrition.

It is a hopeful sign that as Bolivia's plight becomes more acute, more and better brains are becoming interested in some of the country's problems. In time new solutions will undoubtedly be found for the problem of the Indian. Instead of relying on mere opinions as to his actual potential, solid quantitative studies (tests, etc.) in the fields of nutrition, social psychology and anthropology will gradually become available, which will give us more insight into the human material upon which a new Bolivia will have to be built.

There is another, less tangible yet solid reason for hope. During its past history Bolivia has gone through the most incredible ups and downs. From one crisis to another it rose up stronger and more united politically than it was before. With a variation of the Brazilian saying, one could well say that "God must be a Bolivian" for he never seems to forget the country in the end!

Final Remarks

As the French say: "La critique est aisée, l'art est dificile." To criticize is the easiest thing in the world. Being only a factual economic study, this report had to be critical in places of certain methods and policies which are detrimental from a purely technical-economic point of view. However, these observations should never detract from the fact that the government's courageous attack on the problem of the Indian commands genuine admiration. Far more, it calls for a certain humility on the part of other countries which in their day solved this problem in a different way. It is with this same spirit of humility that this report sincerely hopes the best for Juan Mamani, the little Indian of the high plains to whom both time and abuse means so little that he can still smile!

STATISTICAL SUPPLEMENT

TABLE I

POPULATION, AREA, AND DENSITY OF POPULATION OF THE DEPARTMENTS OF BOLIVIA

Departments	Population in Thousands	Surface in Thousands of Sq. Kilometers	Population Density per Sq. Kilometer
Total of Country	3,019.0 1/	1,098.5	2.7
Chuquisaca	282.9	51.5	5.4
La Paz	948.4	133.9	7.0
Cochabamba	490.4	55.6	8.8
Potosí	534.3	118.2	4.5
Oruro	210.2	53.5	3.9
Santa Cruz	286.1	370.6	0.7
Tarija	126.7	37.6	3.3
Beni	119.7	213.5	0.5
Pando	19.8	63.8	0.3

1/ The amount of people actually counted was 2,704,165. On the basis of further calculation the above figure was reached.

Source: Dirección General de Estadística y Censos, Censo Demográfico 1950, Editorial "Argote," La Paz, 1955.

TABLE II

RURAL AND URBAN POPULATION OF BOLIVIA (In Thousands of Inhabitants - Round Figures)

Departments	Total Population	Urban Population	Rural Population
Total	3,019	1,023	1,996
Chuquisaca	283	69	213
La Paz	948	410	539
Cochabamba	490	146	344
Potosí	534	124	410
Oruro	210	95	115
Santa Cruz	286	106	181
Tarija	127	31	95
Beni	120	39	81
Pando	20	2	18

Source: Dirección General de Estadística y Censos, Censo Demográfico 1950, Editorial "Argote," La Paz, 1955.

TABLE III

ECONOMIC ACTIVITY BY SEX (In Thousands of Inhabitants - Round Figures)

Type of Activity	Number of People			Percentages		
	Total	Men	Women	Total	Men	Women
Totals	1,351	771	580	100	100	100
1. Farming	953	521	432	71	68	74
2. Ranching, forestry, hunting & fishing	21	13	8	2	2	1
3. Mining & Industry	43	39	4	3	5	1
4. Processing Industry	110	65	45	8	8	8
5. Construction	26	25	1	2	3	-
6. Insurance	57	33	24	4	4	4
7. Transportation and Communication	21	20	1	2	3	-
8. Public Administration & Services of Interest	41	31	10	3	4	2
9. Professions, Domestic & Personal Services	70	18	52	5	2	9
10. Other Activities	9	7	2	1	1	-

Source: Dirección General de Estadística y Censos, Censo Demográfico 1950, Editorial "Argote," La Paz, 1955.

TABLE IV

LA PAZ COST OF LIVING INDEX

(Base 1931 - 100)

Year & Month	Articles of Primary Necessity	Fuel	Clothing	Services	Rent	General Index
1951 December	5,003	5,835	6,349	2,560	4,224	5,042
1952 "	7,036	6,841	8,079	2,688	5,323	6,596
1953 "	18,335	13,655	23,097	5,272	5,625	16,640
1954 "	34,066	24,462	57,770	7,876	9,625	33,212
1955						
January	37,169	24,462	55,887	7,876	9,625	34,080
February	36,435	38,868	59,527	7,876	9,625	35,305
March	45,120	46,967	63,102	12,200	9,625	40,697
April	45,141	46,967	80,179	12,200	9,625	45,181
May	46,693	46,967	80,407	12,200	9,625	45,912
June	46,933	50,314	83,971	15,576	9,625	47,383
July	45,497	67,776	83,971	15,576	9,625	47,908
August	44,954	67,797	86,916	15,576	9,625	48,015
September	47,875	67,797	86,662	15,576	9,625	49,208
October	49,571	69,980	90,760	15,576	9,625	51,102
November	50,569	70,853	93,702	15,576	9,625	52,339
December	52,627	75,509	103,675	16,251	9,625	56,091
1956						
January	71,628	85,114	118,992	21,657	9,625	69,165
February	90,373	100,044	127,529	27,062	9,625	80,567
March	97,000	107,320	132,214	28,076	9,625	85,039
April	101,922	123,327	134,164	38,316	9,625	89,224
May	108,340	133,513	134,809	49,127	9,625	93,526
June	129,258	140,789	137,385	42,911	9,625	102,970

Source: Direccion Nacional de Estadistica; Boletín Estadístico No. 77.

TABLE V

CHANGE IN RETAIL PRICES OF BASIC COMMODITIES, (LA PAZ)

JANUARY 1952 - JULY 1956

Item	Weighted Index per Month	January 1952	July 1956	% of Change 1952-1956
Vegetable Oil	2 bottles	Bs. 132	Bs. 950	620%
Sardines	2 cans	100	1,000	900%
Meat & Bones	30 kilos	690	15,000	2,074%
Meat without Bones	30 "	690	24,000	3,378%
Steak	20 "	506	24,000	4,643%
Mutton	15 "	690	35,100	4,987%
Pork	5 "	195.50	20,000	10,130%
Coffee	10 "	414	20,000	4,731%
Tea	½ "	81	13,200	16,196%
Chuño	25 "	375.02	56,000	14,832%
Noodles	10 "	130	11,000	8,361%
Imported Flour	5 "	50.60	3,800	7,409%
Domestic Flour	4 "	48.01	2,600	5,317%
Sugar	30 "	220.80	7,800	3,432%
Rice	15 "	209.97	9,750	4,543%
Potatoes	120 "	1,079.71	37,200	3,412%
Imported Butter	½ "	55.20	2,000	3,523%
Domestic Butter	½ "	55.20	1,625	2,844%
Lard	10 "	399.97	7,000	1,650%
Quinua	1 "	13	880	6,669%
Tunta	20 "	440.04	70,400	15,899%
Wheat	5 "	69.99	8,800	12,473%
Corn	5 "	60.01	4,400	7,232%
Cheese	5 "	430.10	27,500	6,294%
Chicken	3 "	750	10,000	1,233%
Eggs	30 eggs	240	7,500	3,025%
Bread	600 units	1,080	60,000	5,456%
Milk	24 liters	360	6,000	1,567%
Domestic Cigarettes	20 packages	120	8,000	6,567%
Imported Cigarettes	1 "	80	2,100	2,525%
Matches	15 "	22.50	300	1,233%
Total		Bs. 9,788.62	Bs. 498,625	4,994%
FUEL				
Gasoline	½ liter	Bs. 5	Bs. 37.50	650%
Kerosene	5 "	30	150	400%
Coal	100 pounds	540	11,500	2,029%
Firewood	1 "Fardo"	375	2,000	433%
Total		Bs. 950	Bs. 13,687.50	1,341%

TABLE V, Continued

Item	Weighted Index per month	January 1952	July 1956	% of Change 1952-1956
Clothing	(Monthly Quota)	Bs. 7,114.90	Bs. 262,984.35	3,695%
SERVICES				
Taxis	5	125	1,500	1,100%
Bus	10	50	500	900%
Movies	10	410	4,443	983%
Light	25 Kwh	53.50	3,325	6,114%
Men's Barbershop	5	250	3,165	1,166%
Newspapers	20	100	1,600	1,500%
Total		988.50	14,532	1,370%
RENT (per month)				
Low		262.97	5,000	1,801%
Medium		386.44	5,000	1,194%
High		2,586.10	8,500	228%
Total		3,235.51	18,500	472%
TOTALS				
Food		9,788.62	498,625	4,994%
Fuel		950	13,687.50	1,341%
Clothing		7,114.90	262,984.35	3,695%
Services		988.50	14,532	1,370%
Rent		3,235.51	18,500	472%
Total		Bs. 22,077.53	Bs. 815,328.85	3,593%

Source: Dirección General de Estadística; Sección Finanzas, and Health Servicio.

TABLE VI

CIRCULATION (In Thousands of Bs.)

(Base January 1952 - 100)

Year & Month	Currency	Index	Deposits	Index	Total Circulation	Index
1952						
January	3,894,904	100	2,820,739	100	6,715,643	100
February	3,982,367	102	2,758,008	98	6,740,375	100
March	4,010,962	103	2,857,105	101	6,868,067	102
April	4,100,218	105	2,919,016	103	7,019,234	105
May	4,246,360	109	2,920,166	104	7,166,526	107
June	4,308,078	111	3,144,452	111	7,452,530	111
July	4,503,985	116	3,137,603	111	7,641,588	114
August	4,730,693	121	3,777,980	134	8,508,674	127
September	4,915,070	126	3,655,078	130	8,570,148	128
October	5,108,586	131	4,367,249	158	9,475,835	141
November	5,302,950	136	4,259,441	151	9,562,391	142
December	6,213,544	160	4,383,098	155	10,596,642	158
1953						
January	6,220,976	160	4,683,381	166	10,904,356	162
February	6,444,242	165	4,504,723	160	10,948,965	163
March	6,823,654	175	5,153,960	178	11,977,614	178
April	7,332,584	188	4,842,760	172	12,175,344	181
May	7,860,291	202	5,512,819	195	13,373,110	199
June	8,276,245	212	8,918,988	316	17,195,233	256
July	8,786,268	226	7,588,287	269	16,374,555	244
August	9,338,282	240	9,438,021	335	18,776,303	280
September	9,812,852	252	9,723,260	345	19,536,112	291
October	10,535,359	270	8,753,259	310	19,288,618	287
November	10,685,702	274	8,517,130	302	19,202,832	286
December	11,599,742	298	8,957,600	318	20,557,342	306
1954						
January	11,548,253	296	9,021,163	320	20,569,416	306
February	12,261,683	315	9,054,832	321	21,316,515	317
March	12,280,344	315	9,775,834	347	22,056,178	328
April	12,846,332	330	10,744,745	381	23,591,077	351
May	13,590,545	349	9,840,168	349	23,430,713	349
June	14,412,193	370	11,122,073	394	25,534,266	380
July	15,837,966	407	12,101,319	429	27,939,315	416
August	16,264,770	418	14,133,428	501	30,398,198	453
September	17,064,920	438	14,376,494	510	31,441,414	468
October	18,173,703	467	15,542,546	551	33,716,249	502
November	18,406,261	473	15,751,039	559	34,157,300	509
December	20,048,593	515	14,960,197	530	35,008,790	521

TABLE VI, Contd.

CIRCULATION

Year & Month	Currency	Index	Deposits	Total	Total Circulation	Index
1955						
January	19,421,103	499	16,630,794	590	36,051,897	537
February	20,143,419	517	17,309,443	614	37,452,862	558
March	20,409,824	524	18,629,923	660	39,039,747	581
April	21,934,376	563	19,652,224	697	41,586,600	619
May	24,309,544	624	20,805,893	738	45,115,437	672
June	26,443,272	679	22,682,566	804	49,125,838	732
July	29,367,783	754	24,566,202	871	53,933,985	803
August	30,584,215	785	27,532,269	976	58,116,484	865
September	31,968,208	821	28,802,410	1021	60,770,618	905
October	34,621,714	889	30,553,002	1083	65,174,716	970
November	34,876,731	895	32,789,473	1162	67,666,204	1008
December	39,197,939	1006	33,914,692	1202	73,112,631	1089
1956						
January	39,668,401	1018	37,954,841	1345	77,623,242	1156
February	42,383,075	1088	38,979,350	1382	81,361,425	1212
March	48,852,058	1254	42,227,659	1497	91,079,717	1356
April	54,937,349	1410	48,067,984	1704	103,005,333	1534
May	63,216,206	1623	52,536,047	1862	115,752,253	1724
June	70,639,235	1814	54,161,134	1920	124,800,369	1858

Source: Banco Central de Bolivia; Sección de Estudios Economicos y Estadística.

TABLE VII

Average Monthly Quotation of the Dollar in the Free Market

Year & Month	Purchase	Index	Sale	Index
1951 December	Bs. 190	100	Bs. 191.90	100
1952 December	247 1/	130	250	130
1953 December	709	373	720	375
1954 December	1,808.04	952	1,844.72	961
1955				
January	2,024.31	1,065	2,053.69	1,070
February	2,056.36	1,082	2,108.94	1,099
March	2,424.34	1,276	2,500.80	1,303
April	2,645.39	1,392	2,688.42	1,401
May	2,509.74	1,321	2,554.10	1,331
June	2,756.86	1,451	2,763.77	1,440
July	2,875.00	1,512	2,898.00	1,510
August	3,052.65	1,607	3,083.00	1,607
September	3,443.97	1,813	3,468.34	1,807
October	3,864.89	2,034	3,876.66	2,020
November	3,971.05	2,090	4,000.90	2,085
December	3,981.38	2,096	4,018.31	2,094
1956				
January	4,466.28	2,350	4,512.46	2,352
February	4,738.87	2,494	4,781.24	2,492
March	5,625.96	2,961	5,669.22	2,954
April	5,666.53	2,982	5,707.35	2,974
May	6,268.07	3,299	6,329.55	3,298
June 2/	6,697.47	3,525	6,764.66	3,525

1/ During this period there existed no legal free rate of exchange as yet so that this rate represents the rate paid by the Central Bank. The black market rate at this time was around Bs. 500 to the dollar.

2/ During September 1956 the free rate of exchange went to 10,499,27 for purchase, and to 10,633,33 for sale.

Source: Banco Central de Bolivia; Sección de Estudios Económicos y Estadística

TABLE VIII

COMPARATIVE INDEX FIGURES

(Base-December 1951= 100)

	Cost of Living Index	Total Circulation	Free Market Dollar Quotation (Sales)
1951 December	100	100	100
1952 December	131	154	130
1953 December	330	298	375
1954 December	659	508	961
1955			
January	676	523	1,070
February	700	543	1,099
March	807	566	1,303
April	896	603	1,401
May	911	654	1,331
June	940	712	1,440
July	950	782	1,510
August	952	843	1,607
September	976	881	1,807
October	1,014	945	2,020
November	1,038	981	2,085
December	1,113	1,060	2,094
1956			
January	1,372	1,126	2,352
February	1,598	1,180	2,492
March	1,687	1,321	2,954
April	1,770	1,494	2,974
May	1,855	1,676	3,298
June	2,043	1810	3,525

Source: Tables IV, VI and VII

TABLE IX

LOANS TO PUBLIC - CENTRAL BANK PORTFOLIO

(In Thousands of Bs.)

Year and Month	Loans and Discounts	Drafts Protested	Letters of Credit	Rural and Industrial Credit	Total
1951	462,949	39,549	61,479	133,312	697,289
1952	698,744	62,294	135,973	203,688	1,100,699
1953	495,279	95,624	312,022	244,937	1,147,862
1954	1,050,270	252,704	2,259	543,746	1,848,979
1955					
January	924,770	234,632	11,538	547,315	1,718,256
December	1,461,127	324,471	56	1,992,613	3,778,267

Source: Boletín Estadístico, Dirección General de Estadística y Censos, No. 77

TABLE X

CREDITS AND PREMIA GRANTED TO THE MINING CORP. AND MINING BANK 1/

(In Thousands of Bolivianos)

Date	MINING BANK			MINING CORP.			TOTAL
	Credits	Premia	Total	Credits	Premia	Total	
1952-December							
1953-May			840,000			4,618,319	5,458,319
June			1,485,000			9,880,438	11,365,438
December			3,743,000			9,562,182	13,305,182
1954-January			3,838,000			9,641,340	13,479,340
June			5,324,487			10,318,479	15,642,966
December			6,223,221			14,747,568	20,970,789
1955-January			6,289,746			13,809,838	20,099,584
February			6,050,671			14,747,568	20,798,238
March			6,255,817			14,747,568	21,003,385
April			6,070,936			14,747,568	20,818,503
May			6,643,098			14,747,568	21,390,666
June			10,191,115			19,219,457	29,410,572
July			11,453,279			20,236,393	31,689,672
August			12,657,101			22,317,996	34,975,097
September			14,017,167			23,359,991	37,377,158
October			14,731,999			24,505,442	39,237,441
November			16,290,400			26,066,033	42,356,433
December			18,435,666			28,164,926	46,600,592
1956-January	6,236,238	12,898,560	19,134,798	14,747,568	14,815,233	29,562,801	48,697,599
February	6,236,238	13,809,908	20,045,146	14,747,568	15,749,841	30,497,409	50,542,555
March	6,236,238	18,049,338	24,285,576	14,747,568	25,861,693	40,609,261	64,894,837
April	6,236,238	20,371,338	26,607,576	14,747,568	32,376,999	47,024,567	73,632,136
May	6,236,238	22,303,881	28,540,119	14,747,568	36,339,677	51,087,245	79,627,364
June	6,236,238	23,950,817	30,187,055	14,747,568	39,960,428	54,707,996	84,895,051
July	6,236,238	26,700,774	32,937,012	14,747,568	43,810,015	58,557,583	91,494,595

Source: Banco Central de Bolivia; Sección Estudios Económicos

1/ Only by the Monetary Dept. of the Central Bank for mineral exports. Does not include credits by the Banking Dept.

TABLE XI

RECEIPTS AND EXPENDITURES OF "REVERTIBLES" OF THE MINISTRY OF NATIONAL ECONOMY
- In Thousands of Bolivianos) 1/

Receipts	1953	1954	January 1 - July 31 1955	August 1, 1955 - June 30, 1956 1956
Income on account of "Revertibles", etc.	451,215	1,401,949	No detail given; only global figure below	
Repayment of loans & Refunds		26,000		
Sundries		20,054		
Totals	451,215	1,448,003	1,517,261	7,463,785
Less Corrections			20,000	
Plus Income destined for local expenditures & local public works				1,397,091
Total Income	451,215	1,448,003	1,497,261	8,860,876
Expenditures				
Contribution to national treasury, etc., & other admin. expenditures	131,388	239,824	271,192	1,566,691
Subsidies to Producers	38,604	915,000	1,000,972	3,074,696
Other " & Importation Expenditures	25,695	14,603	100,644	834,695
Capital Investments	216,000	63,700	235,854	209,535
Credits for Development and Others	91,000	500,916	1,282,143	423,000
Total	502,686	1,734,043	2,890,805	6,108,617
Plus Local Expenditures				1,397,091
Total Outgo	502,686	1,734,043	2,890,805	7,505,709
Surplus or Deficit	- 51,471	- 286,040	-1,393,543	+ 1,355,168

1/ These figures are provisional and the definite balance is subject to revision by Price, Waterhouse, Peat & Co. Those for 1956 still have to be confirmed.

Source: For years 1953/55 - Ministerio de Economia Nacional; La Accion del Gobierno en el Ministerio de Economia Nacional, and for 1955/56, Ministerio de Economia Nacional

Differences in amounts are due to rounding off all figures.

TABLE XII

GOVERNMENT REVENUE DERIVED FROM CUSTOMS AND INTERNAL TAXATION 1/ *
(In Thousands of Bolivianos)

Year	Customs	Internal Taxes	Total	La Paz Cost of Living Index
1939	209,469	126,203	335,672	100
1940	405,362	159,047	564,409	118
1941	597,320	352,759	950,079	158
1942	721,149	311,188	1,032,337	205
1943	779,983	423,671	1,203,654	222
1944	677,495	508,093	1,185,588	238
1945	662,200	625,439	1,287,639	261
1946	622,704	607,444	1,230,148	297
1947	676,569	625,569	1,302,138	378
1948	904,243	763,484	1,667,727	391
1949	911,690	871,666	1,783,356	399
1950	931,342	1,157,065	2,088,407	542
1951	1,642,282	1,800,524	3,442,806	688
1952	1,775,891	2,146,409	3,922,300	900
1953	2,849,283	3,474,738	6,324,021	2,270
1954	4,924,333	7,488,875	12,413,208	4,531
1955	14,519,486	15,507,988	30,027,474	7,652

Note: The cost of living index of the National Bureau of Statistics which based 1931 as 100 has been utilized to calculate the index of the above table which has taken the year 1939 as a base (1939 = 100).

1/ Source: Dirección Nacional de Estadística y Censos, Boletin Estadístico No. 77.

* Includes earmarked funds, excludes "revertibles."

TABLE XIII

INDEX OF GOVERNMENT INCOME ON THE BASIS OF BOLIVIANOS OF CONSTANT VALUE 1/

Year	Customs	Internal Taxation	Total
1939	100	100	100
1940	164	107	142
1941	180	177	179
1942	168	120	150
1943	168	151	162
1944	136	169	148
1945	121	190	147
1946	100	162	123
1947	85	131	103
1948	110	155	127
1949	109	173	133
1950	82	169	115
1951	114	207	149
1952	94	190	130
1953	60	121	83
1954	52	131	82
1955	91	161	117

1/ In the above Table, 1939 was taken as a base since the National Bureau of Statistics considers all figures prior to this year as most doubtful.

TABLE XIV

GOVERNMENT REVENUE ACCORDING TO SOURCE 1/

(In Thousands of Bolivianos)

Year	Custom Duties	Internal Taxation	Treasury & Consulates	Communi-cations	Totals
1939	197,903	100,223	136,457	9,595	444,178
1940	389,904	128,040	68,063	14,251	600,258
1945	586,889	526,516	36,549	20,578	1,170,532
1950	784,512	776,616	73,295	21,471	1,655,894
1951	1,391,206	1,309,593	73,296	34,661	2,808,756
1952	1,520,123	1,399,892	73,296	43,887	3,037,198
1953	2,614,936	2,453,949	73,296	97,914	5,240,095
1954	4,238,550	5,752,008	57,290	162,098	10,210,946
1955	N/A	N/A	N/A	N/A	N/A

1/ Dirección Nacional de Estadistica, Boletin No. 77.

TABLE XV

INTERNAL DEBT OF BOLIVIA (As of December 31, 1955) 1/

1.	Central Bank of Bolivia	Bs.	37,853,705,396.39
	Agricultural Bank of Bolivia		2,100,000.00
	Total	Bs.	37,855,805,396.39
2.	Central Bank loans to the Government		
	To the Treasury on account of advances to the Mining Corp. and the Mining Bank	Bs.	25,616,786,169.00 2/
	Other advances to the Mining Bank		2,128,478,044.00
	Drafts		4,107,760,417.00
	To YPFB		1,560,176,204.00
	Total	Bs.	33,413,200,834.00

As a result, Bolivia's total debt as of December 31, 1955 amounted to Bs. 71,269,006,230.39, or US $17,817,251 at the assumed parity rate.

1/ Superintendencia de Bancos

2/ It should be noted that this amount includes only the advances to the Mining Bank and Mining Corporation on account of the Treasury for 1955. Previous advances are included in the Bs. 37 billion mentioned above.

TABLE XVI

GOVERNMENT'S LOCAL CURRENCY INCOME (In Millions of Bs.)

	1950	1951	1952	1953	1954
Regular Income					
Customs	845	1,417	1,462	2,407	4,661
Internal Taxation	878	1,375	1,558	2,530	5,625
Communications	24	34	42	69	188
Consulates, etc.	10	22	32	40	57
Total Income	1,756	2,848	3,093	5,046	10,532
Other Income (Global figures - No Breakdown Available)	63	529	88	115	
Revertibles, Min. of Economy				120	177
Refunds	1			1	2
Miscellaneous Income					471
Exchange Differential in Dollar Auction					1,156
Mining Corp. (tax on sale of foreign exchange)				1,808	1,067
Other Income	4			3	
Sub-Total	1,824	3,377	3,182	7,093	13,405
Current Loans					
Loans & Advances from the Central Bank (net)	538	371	1,005	1,449	1,900
Balance of Previous Year	6	5	39	57	177
Totals	2,368	3,753	4,226	8,599	15,482

Source: Contraloria General de la Republica. Balance General de la Nacion 1950, 1951, 1952, 1953 and 1954.

Note: Differences due to rounding off of all figures.

TABLE XVII

GOVERNMENT'S LOCAL CURRENCY EXPENDITURES (In Millions of Bs.)

Services	1950	1951	1952	1953	1954
Legislative Branch	39	20	2	12	27
Jucicial Branch	60	94	104	167	305
Presidency			36 3/	111 3/	100
Foreign Office	52	72	81	95	219
Ministry of Worship	7	11	11	17	32
Min. of Govt. & Immigration	284	487	517	991	1,575
Ministry of Finance	76	111	138	207	359
Min. of National Defense	556	917	962	1,157	1,673
Ministry of Education	508	752	984 1/	1,563	2,478
Ministry of Indian Affairs				542	963
Ministry of Public Works	36	76	58	97	105
Ministry of Communications	86	138	149	300	512
Ministry of Labor	163	234	274	496	725
Ministry of Health	109	132	166	319	529
Ministry of Economy	11	15	13	15	30
Mines & Petroleum			8	32	50
Ministry of Agriculture	24	37	64 2/	93	127
Ministry of Colonization	3	6		17	28
Controller General	18	24	28	62	100
Press & Propaganda					62
Agrarian Reform Council					120
Economic Planning Commission					8
Obligations of the State	161	444	428	1,877	4,006
Total	2,191	3,570	4,023	8,172	14,133
Expenditures Outside the Budget					
Gov't Employees Bonus	92	144	166	250	578
Sundries	79				
Total	2,362	3,714	4,189	8,422	14,711
Balance for Year	5	39	36	177	771
Total	2,368	3,753	4,226	8,599	15,482

1/ This includes Indian Affairs
2/ " " Colonization
3/ " " Press & Propaganda

Source: Contraloria General de la Republica. Balance General de la Nacion, 1950, 1951, 1952, 1953, and 1954.

Note: Differences due to rounding off of all figures.

TABLE XVIII

GOVERNMENT FINANCIAL RESULTS (LOCAL CURRENCY - In Millions of Bolivianos)

	1950	1951	1952	1953	1954
Deficit					
Budgetary Deficit		1,586	385		
Income Less than Foreseen	502	112	1,091	1,969	375
Surplus					
Unforeseen Income		893*			
Savings In Expenditures					
Expenditures Less than Anticipated (Savings)	134*	612*	633*	890*	
Excess Payments					
Expenditures More than Anticipated					354
" Outside the Budget	171	144	166	250	578
Deficit	539	337	1,008	1,329	1,306
Means of Covering the Deficit					
Balance from Previous Year	6	5	39	57	177
Loans from Central Bank	538	371	1,005	1,449	1,900
Total	544	376	1,044	1,506	2,077
Less					
Balance for Year	5	39	36	177	771
Deficit Covered	539	337	1,008	1,329	1,306

* Surplusses

Note: Differences due to rounding off of all figures

Source: Contraloría General de la República. Balance General de la Nación Original documents corresponding to the years 1950, 1951, 1952, 1953 and 1954.

TABLE XIX

1956 LOCAL CURRENCY BUDGET

(In Thousands of Bs.)

Receipts		
National Property	265.964.8	
Services	797.150.0	
Direct & Indirect Taxes	63.985.501.1	
Sundries	5.469.502.0	
1955 Surplus	2.000.000.0	
Expenditures		
Legislative Power		387.752.8
Judicial Power		1.335.274.8
Executive Power		
Presidency		332.480.0
Press & Propaganda		154.334.0
Planning Commission		124.821.2
Foreign Office		2.504.342.0
Worship		107.555.0
Ministry of Govt. and Immigration		6.257.905.4
Ministry of Finance		1.357.663.5
Ministry of Defense		6.890.009.6
Ministry of Education		11.073.167.8
Ministry of Indian Affairs		6.000.506.3
Agrarian Reform		779.760.3
Ministry of Public Works		641.747.0
Communications		2.794.283.5
Ministry of Labor		2.443.366.5
Ministry of Health		2.346.068.1
Ministry of Economy		106.741.5
Ministry of Mines		138.324.0
Ministry of Agriculture		644.915.0
Colonization		35.717.4
Controller General		378.399.4
Obligations of the Nation		24.183.943.3
Earmarked Funds		3.026.771.7
Total	72.518.117.9	74.045.850.1
Deficit	1.527.732.2	
TOTAL	74.045.850.1	74.045.850.1

Source: El Diario, March 24, 1956.

285

TABLE XX

GOVERNMENT REAL DEFICIT (LOCAL CURRENCY ACCOUNT) 1950-55

(In Millions of Bs.)

	1950 Deficit		1951 Deficit		1952 Deficit (or Surplus)		1953 Deficit		1954 Deficit	
Treasury										
Receipts of the Government	1.824		3.377		3.182		7.093		13.405	
Expenditures	2.362	539	3.714	337	4.189	1.008	8.422	1.329	14.711	1.306
Min.of Economy (Revertibles)										
Receipts					NA		451		1.448	
Expenditures					NA	102*	503	51	1.734	286
Central Bank										
Mining Bank, Credits & Premia							3.743		2.480	
Mining Corp., " " "							9.562	13.305	5.185	7.666
Deficit		539		337		906		14.686		9.257

Source: Tables No. X, XI, XVI, XVII, and XVIII.

* Surplusses

Note: Differences due to rounding off of all figures.

TABLE XXI

MINERAL EXPORTS OF BOLIVIA - 1940-1955 1/ (In Millions of US Dollars)

Year	Tin	Silver	Wolfram	Antimony	Lead	Copper	Zinc	Other	Total
1940	35.5	2.1	3.3	2.3	1.3	1.6	1.7	0.5	48.3
1941	42.8	2.6	5.4	2.5	2.1	1.8	0.8	0.4	58.4
1942	43.9	3.0	7.8	3.7	1.6	1.6	1.4	0.3	63.5
1943	55.0	3.1	10.1	3.8	1.5	1.6	2.8	0.4	78.3
1944	53.1	2.9	10.1	1.6	1.2	1.6	2.2	0.4	73.0
1945	61.4	3.4	3.3	1.2	1.2	1.6	2.8	0.2	74.9
1946	53.7	4.4	1.5	2.3	1.1	1.6	2.6	0.1	67.3
1947	57.3	4.3	2.9	5.3	3.5	2.7	2.0	0.6	78.7
1948	80.2	5.5	2.9	6.2	10.1	3.1	2.8	0.4	111.2
1949	72.9	4.7	2.2	4.2	8.5	2.2	2.4	2.0	99.0
1950	63.4	4.8	2.9	2.1	10.0	2.2	5.3	0.3	90.9
1951	93.4	6.3	11.3	7.5	11.8	2.7	12.1	0.5	145.7
1952	84.8	6.0	14.2	4.2	11.4	2.9	13.1	1.1	137.8
1953	83.7	5.3	13,7	1.8	7.1	2.9	5.6	1.3	121.3
1954	66.9	4.4	14.2	1.7	5.6	2.4	4.7	0.8 2/	100.6
1955	57.3	5.0	15.7	1.9	6.3	2.7	5.7	3.2	97.8

1/ Source: Dirección Nacional de Estadística y Censos. Boletín Estadistica No. 77

2/ This excludes exports of gold ($7.5 million in 1954) which consisted largely of gold bullion from the Central Bank.

TABLE XXII

BOLIVIA'S EXPORTS BY CATEGORIES, 1940-1954

Year	Category I Live Animals		Category II Food Products		Category III Raw Materials		Category IV Manuf. Articles		Category V Gold & Silver		Total	
	Thous. Tons	Thous. $US	Thous. Tons	Thous. $US	Thous. Tons	Thous. $US	Thous. Tons	Thous. $US	Thous. Tons	Thous. $US	Thous. Tons	Thous. $US
1940	0.5	19.0	2.1	296.8	175.2	46.968.9	0.1	46.6		2.497.6	177.9	49.828.9
1941	0.9	416.5	1.6	393.9	191.0	56.896.0	0.1	50.7		2.892.6	193.7	60.649.7
1942	2.2	84.9	0.8	165.9	195.2	62.075.6	0.4	80.2		3.250.2	198.6	65.656.8
1943	2.2	104.9	0.01	1.1	223.1	78.030.9	0.5	195.4		3.268.4	225.7	81.600.6
1944	3.5	206.0	0.2	40.1	194.8	73.818.5	0.4	383.8		3.465.4	198.9	77.553.8
1945	1.9	115.1	0.05	12.3	199.9	76.279.5	0.8	579.4		3.105.4	202.6	80.431.6
1946	0.8	103.9	0.2	72.7	191.6	68.437.9	0.3	578.9	0.02	4.456.9	192.9	73.650.2
1947	1.4	202.8	0.1	20.4	199.1	76.206.0	1.0	333.1		4.666.9	201.6	81.429.3
1948	0.8	89.7	0.1	43.6	241.0	106.894.2	3.0	182.3		5.616.1	244.8	112.825.9
1949	0.9	99.0	0.5	214.7	220.6	95.948.0	0.7	242.9		6.465.4	222.7	102.970.1
1950	1.4	162.6	0.6	151.4	214.3	88.788.4	0.3	150.0		4.819.9	216.7	94.072.4
1951	0.7	168.7	0.5	137.7	249.4	143.617.1	1.1	367.2	0.2	6.355.2	251.8	150.646.0
1952	0.9	1231.2	0.9	275.5	255.5	134.198.7	0.08	156.0	0.2	6.245.5	257.4	142.106.9
1953	0.4	884.6	4.8	386.3	207.7	117.714.3	0.06	238.4		5.298.5	213.0	124.522.1
1954	0.1	59.7	1.8	879.5	180.3	98.137.1	0.02	249.4		4.369.0	182.2	103.694.7
1955 1/		9.9		576.3		94,002.4		219.4		7.566.6		102.374.6

1/ Preliminary Figures for 1955.

Source: For year, 1940-1950, Banco Central de Bolivia 26a. Memoria anual correspondiente a la gestión de 1954.
" " 1951-1954, Dirección Nacional de Estadística y Censos.

Note: This does not include exports of monetary gold and silver.

TABLE XXIII

EXPORTS BY COUNTRY OF DESTINATION, 1948-54 1/

(In Thousands of US Dollars)

Year	United States	%	Great Britain	%	Argentina	%	Rest of World	%	Total	%
1948	70.648.1	63	39.723.4	35	1.532.4	1	921.9	1	112.825.9	100
1949	65.972.9	64	31.341.8	30	1.559.2	2	4.096.2	4	102.970.1	100
1950	62.731.9	67	27.880.9	30	2.156.7	2	1.302.9	1	94.072.4	100
1951	98.963.1	66	48.240.2	32	1.301.2	1	2.311.7	1	150.816.2	100
1952	92.573.6	66	44.267.7	31	1.109.3	1	3.144.0	2	141.094.6	100
1953	69.158.6	56	51.648.2	41	1.051.4	1	2.663.9	2	124.522.1	100
1954	65.291.3	59	42.392.2	38	1.344.8	1	2.195.3	2	111.223.5-2/	100
1955										

1/ In this table there are a few discrepancies with the totals mentioned in Table XXII which, so far, the Bureau of Statistics has not been able to correct.

2/ This includes monetary gold amounting to US $7.5 million.

Source: For year 1948-1951, Banco Central de Bolivia 26a. Memoria anual correspondiente a la gestión de 1954.
" " 1952-1955, Dirección Nacional de Estadística.

TABLE XXIV

IMPORTS BY CATEGORIES (In Thousands of US Dollars)

Year	Live Animals	Food Products	Raw Materials	Manufactured Articles	Gold and Silver	Total
1940	936,4	3,940,3	2,731,3	12,770,1		20,378,0
1941	1,233,8	6,270,4	3,546,4	16,696,6		27,747,2
1942	1,525,5	8,727,4	5,206,9	17,775,0		33,234,8
1943	2,683,4	7,545,1	5,007,5	23,341,1		39,177,1
1944	2,077,3	10,116,3	5,323,0	19,934,8		37,451,3
1945	2,066,7	12,584,4	6,386,8	19,331,9		40,369,8
1946	2,157,0	17,752,7	6,575,8	24,880,1		51,365,6
1947	3,081,8	17,498,3	7,682,7	31,294,5		59,557,4
1948	2,861,5	18,418,9	9,147,3	38,308,0		68,735,8
1949	4,738,8	15,786,9	10,889,8	46,944,0		78,359,4
1950	2,241,9	17,615,2	5,947,8	30,037,8		55,842,7
1951	2,016,0	22,917,6	11,370,9	49,533,0		85,837,6
1952	3,357,5	24,449,7	10,828,0	53,513,8	471,4	92,620,4
1953	3,072,0	22,660,0	9,970,2	31,649,0	655,0	68,006,2
1954 1/	1,465,8	21,599,5	9,810,0	32,607,7	—	65,483,1
1955 2/	4,382	22,278	9,281	47,491	958	84,390

1/ Since the middle of 1954 CIF values are kept; prior to this all values given are FOB values.

2/ Adjusted with Point IV figures for wheat and flour.

Source: Banco Central de Bolivia 26a. Memoria anual correspondiente a la gestión 1954.

For years 1951/1955, Dirección Nacional de Estadística.

TABLE XXV

IMPORTS BY COUNTRY OF ORIGIN (In Thousands of US Dollars)

Country	1948	%	1949	%	1950	%	1951	%	1952	%	1953	%	1954	%	1955 1/	%
United States	33,777	49	40,958	52	23,594	42	36,238	42	37,936	41	21,604	32	24,940	38	33,230	39
Great Britain	4,169	6	4,273	6	3,936	7	6,995	8	7,733	8	4,642	7	4,335	7	6,069	7
Germany	11	-	219	-	431	1	2,131	2	5,107	6	3,248	5	4,024	6	7,907	9
Argentina	11,151	16	12,429	16	9,864	18	11,539	14	12,734	14	9,754	14	7,667	12	8,400	10
Chile	3,775	6	3,580	5	2,947	5	4,684	5	3,025	3	2,297	3	1,343	2	811	1
Peru	7,048	10	6,353	8	6,042	11	8,761	10	6,498	7	9,550	14	7,383	11	5,490	7
Belgium	509	1	1,383	2	1,464	3	2,070	2	2,612	3	1,808	3	1,855	3	2,393	3
Sweden	1,110	2	1,367	2	758	1	871	1	1,891	2	934	1	1,044	1	2,380	3
Brazil	2,026	3	1,120	1	1,155	2	2,171	3	2,531	3	1,214	2	614	1	1,923	2
Switzerland	989	1	1,501	2	1,172	2	1,751	2	1,978	2	1,519	2	1,426	2	1,519	2
Canada	172	-	350	-	986	2	2,200	3	4,616	5	5,804	9	3,289	5	3,480	4
Rest of World	3,998	6	4,825	6	3,494	6	6,427	8	5,959	6	5,633	8	7,563	12	10,788	13
Total	68,736	100	78,359	100	55,843	100	85,838	100	92,620	100	68,006	100	65,483	100	84,390	100

1/ Adjusted with Point IV figures for wheat and flour.

Source: For years 1948-1950, Banco Central de Bolivia 26a. Memoria anual correspondiente a la gestión 1954.
" " 1951-1955, Dirección Nacional de Estadística y Censos.

TABLE XXVI

IMPORTS OF PRINCIPAL FOODSTUFFS

(In Thousands of Dollars)

	1950	1951	1952	1953	1954	1955
Cattle	1,967	1,675	2,992	2,835	1,398	4,330
Lard	905	1,834	2,100	1,618	1,577	1,180
Wheat 1/	2,942	2,393	5,845	6,285	5,021	5,043
Flour 1/	1,928	3,659	2,491	1,659	2,399	3,958
Powdered Milk	543	473	1,196	579	1,068	2,245
Condensed Milk	223	702	592	585	599	813
Sugar	5,122	6,904	5,069	5,768	4,925	4,046
Vegetable Oil	968	965	948	917	715	561
Rice	1,149	1,542	1,968	2,052	2,582	1,392

(In Metric Tons)

Cattle	3,331	3,406	4,375	4,653	1,597	8,040
Lard	1,882	2,998	2,605	2,890	2,832	2,607
Wheat 1/	33,881	32,487	73,725	71,570	58,792	51,935
Flour 1/	17,399	32,927	16,414	11,210	19,357	25,859
Powdered Milk	750	535	1,388	932	2,292	4,614
Condensed Milk	861	2,340	1,916	2,113	2,312	3,648
Sugar	36,824	43,474	33,084	51,586	50,087	42,766
Vegetable Oil	1,367	1,358	981	1,049	1,583	1,536
Rice	8,210	9,737	10,672	3,507	13,221	10,739

1/ Adjusted with Point IV figures for 1955

Source: Dirección Nacional de Estadística. Boletín No. 77.

TABLE XXVII

MACHINERY IMPORTS 1/

(In Thousands of US Dollars)

Year	Textile Industry	Soft Drinks & Beer	Wood-working Machinery	Mining Equipment	Agric. Machinery	Graphic Inds.	Roads and Bldgs.	Sugar Industry
1948	916	137	148	2,283	347	49	613	183
1949	1,203	96	143	2,872	489	170	458	28
1950	310	63	51	1,463	264	173	195	60
1951	557	63	108	2,725	454	74	329	45
1952	763	92	141	2,641	583	89	430	78
1953	164	183	126	2,264	590	82	580	412
1954	168	60	59	4,749	458	272	178	129
1955	240	102		6,670	2,247	84	130	148

1/ Source: Dirección Nacional de Estadística y Censos, and Dirección Nacional de Estadística y Censos, Boletín Estadístico No. 77.

Note: Excludes some official government imports (such as Guabirá sugar mill and United States agricultural machinery.)

TABLE XXVIII

FOREIGN EXCHANGE INCOME BY SOURCES 1/

(In Thousands of US Dollars)

Year	Tin	Non-Tin Minerals	Petroleum	Agriculture	Exporters Balance	Sales by the Public (Tourists, etc.)	Govt Income (Foreign Office, etc.)	Total
1940	16,348	2,223	--	281	--	615	172	19,639
1945	32,433	3,187	--	3,232	6,109	2,121	6,178	53,260
1950	30,196	8,816	--	1,119	1,536	1,620	1,470	44,757
1951	62,638	10,947	--	2,051	1,618	837	1,995	80,086
1952	44,494	10,848	--	1,848	1,159	159	2,999	61,145
1953 2/	42,050	19,572	--	983	--	170	4,194	66,969
1954	51,152	23,247		1,107	--	286	1,400	77,192
1955 1/	50,660	27,309	113	1,083	--	102	447	79,715

1/ Banco Central de Bolivia Boletín No. 106, Oct-Dec 1954.
For 1955, Sección de Estudios Economicos y Estadística.

2/ It should be noted that in the above statistics since the end of 1953 the exports of the medium sized mines have been lumped together with those of the small mines.

TABLE XXVIII-A

FOREIGN EXCHANGE SALES TO THE CENTRAL BANK BY EXPORTERS 1/

(In Thousands of US Dollars)

Year	Large Mines 2/	Medium Sized Mines	Small Mines	Other	Total
1940	15,114	2,188	1,267	1,070	19,639
1945	28,280	4,347	2,993	17,640	53,260
1950	26,452	5,627	6,934	5,744	44,757
1951	48,803	11,497	13,284	6,502	80,086
1952	39,404	8,173	8,264	5,304	61,145
1953	46,261	2,904	12,458	5,348	66,969
1954	57,678	--	16,680 3/	2,834	77,192
1955	54,780	--	23,189	1,746	79,715

1/ Banco Central de Bolivia Boletín No. 106, Oct-Dec 1954.
For 1955, Sección de Estudios Economicos y Estadística.

2/ Until Oct. 31, 1952, foreign exchange sales by Patiño, Hochschild and Aramayo. Thereafter foreign exchange sales by the Mining Corporation.

3/ It should be noted that in the above statistics since the end of 1953 the exports of the medium sized mines have been lumped together with those of the small mines.

TABLE XXIX

1955 FOREIGN EXCHANGE (ACTUAL) INCOME OF THE CENTRAL BANK BY SECTORS OF PRODUCTION 1/ (In US Dollars)

1.	Mining Corporation		
	Tin	42,282,150.61	
	Zinc	1,269,085.99	
	Wolfram	5,311,485.72	
	Silver	39,829.82	
	Lead	1,447,013.58	
	Copper	1,165,955.41	
	Bismuth	170,721.27	
	Antimony	1,635.38	
	Other Minerals	3,092,094.96	
	Total for Mining Corp.		54,779,972.74
2.	Mining Bank (Private Mines)		
	Tin	8,378,109.96	
	Lead	2,196,987.47	
	Wolfram	8,188,335.53	
	Antimony	2,225,181.03	
	Silver & Lead	1,256,901.74	
	Silver	32,476.69	
	Copper	168,172.87	
	Asbestos	----	
	Other Minerals	742,943.89	
	Total for Mining Bank		23,189,109.18
3.	YPFB (not counting barter trade)		113,418.70
4.	Government (Consulates, etc.)		447,328.37
5.	Private Firms		101,747.18
6.	Agriculture		1,083,338.49
	Total Income		79,714,914.66

1/ Source: Dep. de Estudios Económicos y Estadística del Banco Central.

TABLE XXX

FOREIGN EXCHANGE SALES BY CENTRAL BANK ,1/ (In US Dollars)

Year	Commerce Industry & Private Persons	Government & Private Institutions Rendering Public Service	Mining Industry	Total Expenditures
1948	50,278,059	15,417,419	---	65,695,478
1949	48,009,294	13,214,788	---	61,224,082
1950	23,322,939	19,540,396	---	42,863,335
1951	48,244,483	25,994,698	---	74,239,181
1952	34,247,374	24,863,465	19,334,624	78,445,463
1953	30,479,021	22,071,495	19,465,509	72,016,025
1954	32,184,920	23,997,681	21,587,045	77,769,646
1955	26,278,236	32,614,999	22,711,596	81,604,831

1/ Source: Banco Central de Bolivia. Sección de Estudios Económicos y Estadística.

TABLE XXX-A

A comparison of the income and outgo of foreign exchange shows the following balances: (In Millions of US $)

FOREIGN EXCHANGE POSITION OF THE CENTRAL BANK

Year	Income	Outgo	Balance
1948	63.0	65.7	- 2.7
1949	56.8	61.2	- 4.5
1950	44.8	42.9	1.9
1951	80.1	74.2	5.8
1952	61.1	78.4	-17.3
1953	67.0	72.0	- 5.0
1954	77.2	77.8	- 0.5
1955	79.7	81.6	- 1.9

Source: Tables No. XXVIII and XXX

TABLE XXXI

1955 FOREIGN EXCHANGE EXPENDITURES

	US $	US $
1. Government		
Imports	2,911,808.03	
Services	14,710,453.92	17,622,261.95
2. Private Institutions Rendering Public Service		
Imports	1,820,506.82	
Services	11,749,443.97	13,569,950.79
3. Private Persons		
Imports	---	
Services		39,222.15
4. Mining Corporation		
Imports	12,882,136.57	
Services	3,552,421.91	16,434,558.48
5. Mining Bank		
Imports	2,061,575.88	
Services	4,215,462.40	6,277,038.28
Sub-Total		53,943,031.65
6. Banks 1/		
Banking Dept., Central Bank	28,063,254.03	
Agricultural Bank	410,000.00	
Private Banks	1,708,000.00	30,181,254.03
Total		84,124,285.68
Less Refunds in May 1955		13,665.45
TOTAL		84,110,620.23 2/

1/ Includes purchases for commerce, industry and the general public.

2/ There is a difference with Table XXX totaling $81,604,831 which according to the Dept. of Economic Studies of the Central Bank is due to the following reasons: 1) The second total includes global allocations to the banks and to the Banking Dept. of the Central Bank. These amounts have already been distributed in the previous total. 2) The difference in the total is due to the Banking Dept. of the Central Bank which, according to the table, received $28 million, in reality did not spend all this amount and had a balance of $2.5 million left over.

TABLE XXXII

CENTRAL BANK RESERVES 1/ (In Thousands of US Dollars)

Accounts	December 1951	December 1952	December 1953	December 1954	December 1955	March 1956	June 1956
Gold in Bolivia	7,085	7,511	7,511	10	134	1,030	1,004
Gold Abroad	15,756	15,756	15,743	5,958	2,508	2,508	2,510
Promissory Notes, Mining Bank	---	---	932	1,472	---	---	---
Foreign Exchange	11,692	7,968	(-) 28	11,488	10,796	6,441	4,196
Total Gold & Foreign Exchange	34,532	31,235	24,158	18,928	13,438	9,979	7,711
LESS:							
Obligations Abroad	4,480	2,610	4,353	2,613	2,613	2,613	2,613
Letters of credit pending 2/	NA	NA	5,571	12,749	26,810	10,934	13,448
Collections Outstanding	NA	NA	1,740	2,852	4,472	3,971	2,999
Total to Deduct	4,480	2,610	11,664	18,214	33,895	17,518	19,060
Total Availabilities	30,052	28,625	12,494	714	(-)20,456	(-) 7,540	(-)11,349

1/ Source: Boletín No. 106, del Banco Central 25a. Memoria anual del Banco Central, corresponding to the year 1953, data corresponding to the year 1954, 1955 and 1956 from the Department of Economic Studies of the Central Bank.

2/ Since January 1956 excluding letters of credit with regard to special agreements and to United States aid.

TABLE XXXIII

FOREIGN EXCHANGE POSITION BY MONTHS (In US Dollars)

1955	Income	Outgo
January - April	25,644,598.79	31,817,063.33
May	7,799,169.34	7,168,827.92
June	5,414,439.69	8,899,026.36
July	5,085,307.79	5,059,112.36
August	7,666,652.74	6,082,595.56
September	6,055,102.12	7,284,658.50
October	4,942,411.18	5,154,587.60
November	7,045,485.09	5,139,651.75
December	10,061,747.94	7,505,096.85
Total	79,714,914.68	84,110,620.23 1/
1956		
January	5,987,620.98	10,520,037.81
February	4,448,252.50	5,667,149.88
March	9,277,658.60	8,582,452.80
April	7,898,299.88	7,125,907.18
Total, January to April	27,611,831.96	31,895,547.67

1/ See footnote of Table XXXI

Source: Department of Economic Studies of the Central Bank.

TABLE XXXIV

RESUME, FOREIGN EXCHANGE BUDGET, 1954-1956 (In US Dollars)

		1954	1955	1956
A.	Income			
1.	Mining Corporation	65,519,395.-	70,[illegible]4.01	77,[illegible]
2.	Mining Bank	23,302,749.-	20,543,[illegible]36.-	[illegible]
3.	Agricultural Exports	6,000,000.-	3,000,000.-	[illegible]
4.	Govt. Income (Consulates, etc.	1,000,000.-	1,000,000.-	500,000.-
5.	YPFB	---	6,000,000.-	6,000,000.-
	Total Income	95,822,144.-	101,473,050.01	116,406,359.40
B.	Expenditures			
1.	Govt, Depts & Municipalities	4,871,683.97	4,345,782.04	5,343,756.11
2.	Mach. aid for economic development	1,300,000.-	6,000,000.-	---
3.	Ministry of Economy	32,550,000.-	33,000,000.-	26,000,000.-
4.	Commerce	10,000,000.-	10,000,000.-	15,[illegible]
5.	Industry	15,000,000.-	15,000,000.-	10,000,000.-
6.	Match & Explosives Factory	300,000.-	1,022,000.-	1,050,[illegible]
7.	Other Ministries	7,203,533.89	7,642,098.01	[illegible],156.70
8.	Other Contrib. of Point 4	1,700,000.-	---	---
9.	YPFB	3,000,000.-	9,725,000.-	14,763,000.-
10.	Lloyd Aereo Boliviano	1,509,500.-	1,509,500.-	1,686,960.-
11.	Railroads	5,146,928.-	4,384,622.70	4,[illegible]
12.	Private Concerns	1,390,000.-	1,899,886.-	[illegible]
13.	Bolivian Develop. Corp.	2,900,000.-	5,541,000.-	[illegible]
14.	Mining Corp. a)b)c)d)	36,900,119.40	30,154,580.92	[illegible]
	a) Realization Costs	18,400,119.40	14,616,188.29	14,600,000.-
	b) Compensation for expropriation	2,000,000.-	3,000,000.-	[illegible]
	c) Exploitation Costs	16,500,000.-	12,538,392.63	[illegible]
	d) Mach. & Equipment	---	---	[illegible]
15.	Mining Bank a)b)c)	11,600,000.-	7,942,000.-	[illegible]
	a) Realization Costs	6,600,000.-	6,000,000.-	7,000,000.-
	b) Exploitation	5,000,000.-	1,942,000.-	4,800,000.-
	c) Mach. & Equipment	---	---	1,041,000.-
16.	Dollar Auction	4,000,000.-	2,500,000.-	[illegible]
17.	Installments on Credit Agreements	---	800,000.-	[illegible]
18.	Previous Items	1,200,000.-	2,000,000.-	[illegible]
19.	Other Expenditures	1,330,000.-	950,000.-	[illegible]
	Total Expenditures	141,901,765.26	144,416,470.07	164,589,168.20
	Total Income	95,822,144.-	101,473,050.01	116,406,359.40
	Deficit	46,079,621.26	42,943,420.06	48,182,808.80
	Less			
	a) US Aid	- 13,700,000.-	-18,000,000.-	-14,000,000.-
	b) Credit Agreements	- 13,591,941.09	- 7,691,964.62	-10,628,667.95
Deficit still to be financed when budget was drawn up		18,787,680.17	17,251,455.44 1/	23,554,140.85

1/ Adjusted

Source: Foreign Exchange Budgets for years 1954, 1955 and 1956.

TABLE XXXV

BALANCE OF PAYMENTS DATA, 1951-1954

(In Thousands of US Dollars)

A - CURRENT TRANSACTIONS

Goods and Services	1951 Credit Receipts	1951 Debit Payments	1951 Balance	1952 Credit Receipts	1952 Debit Payments	1952 Balance	1953 Credit Receipts	1953 Debit Payments	1953 Balance	1954 Credit Receipts	1954 Debit Payments	1954 Balance	1955 Credit Receipts	1955 Debit Payments	1955 Balance
1. Goods															
1.1 Exports & Imports FOB	124,754	94,887	29,867	96,287	88,491	7,796	84,140	92,400	- 8,260	79,939	71,989	7,950	86,201	82,198	4,003
2. Non-Monetary Gold Mvnt	111		111	1,203		1,203	36		36		390	-390	2,707		2,707
3. Foreign Travel		389	- 389		564	-564		426	-426		630	-630		432	-432
4. Transportation(4.1+4.2)		11,382	-11,382		12,642	-12,642		1,176	- 1,176		8,593	-8,593		13,520	-13,520
4.1 Freight		11,167	-11.167		11,956	-11,956		444	-444		7,312	-7,312		12,406	-12,406
4.2 Other		215	-215		686	-686		731	-731		1,281	-1,281		1,113	-1,113
5. Insurance		36	-36	1	113	-112		104	-104	14	411	-397	72	410	-338
6. Investment Inc.(6.1+6.2)		3,208	- 3,208		16,482	-16,482		665	-665		500	-500		9	-9
6.1 Direct Investment		2,569	- 2,569		16,336	-16,336					6	-6		6	-6
6.2 Other Interest		639	-639		146	-146		665	-665		494	-494		3	-3
7. Govt Transactions Not Incl. Elsewhere (7.1+7.2)	411	1,633	- 1,223	3,021	6,201	-3,180	4,194	7,740	-3,546	1,000	1,250	-250		1,609	-1,609
7.1 Mil. Expenditures				3,021	6,201	-3,180	4,194	7,740	-3,546	1,000	1,250	-250		1,609	-1,609
7.2 Other															
8. Sundries	837	10,883	-10,046	132	8,765	-8,633	169	761	-592	1,686	12,381	-10,695	1,746	12,947	-11,201
Total Goods & Services (1-8)	126,113	122,417	3,695	100,644	133,258	-32,614	88,539	103,270	-14,731	82,639	96,145	-13,506	90,727	111,126	-20,398
9. Donations (9.1+9.2)	414	15	399	3	15	-12		97	-97	8,167		8,167	20,115		20,115
9.1 Private Remittances	414	15	399	3	7	-4		65	-65						
9.2 Off.Donations (US aid)					8	-8		31	-31	8,167		8,167	20,115		20,115
10. Total (1 to 9)	126,526	122,432	4,094	100,647	133,273	-32,626	88,539	103,367	-14,828	90,806	96,145	-5,339	110,843	111,126	-283
Net Errors & Omissions (16 minus 10)			2,485			-6,994			-2,505			-5,753			-15,835

TABLE XXXV

B. CAPITAL AND MONETARY GOLD MOVEMENT
(Increases or Decreases of the Net Movement

	1951			1952			1953			1954			1955	
Private Financing (Excluding Banks)	Assets	Liabilities	Balance	Assets	Liabilities	Balance	Assets	Liabilities	Balance	Assets	Liabilities	Balance	Assets	Liabilities	Balance
11-Long Term Capital											1,041	-1,041		2,918	-2,918
11.1 Direct Investment											1,041	-1,041		2,918	-2,918
12. Short Term Capital	-1,416	-1,504	88	-18,867		-18,867				1,900		1,900	1,300	13,224	-11,924
12.1 Money, deposits, Oblig. of Govt.	- 1,416	-1,504	88							1,900		1,900	1,300		1,300
12.2 Others														13,224	-13,224
Official Financing (Banks & Official Institutions)															
13-Long Term Capital (13.1+13.6)	4	4,161	-4,157	2,500	14,157	-11,657		-85	85		-15,558	15,558		-6,419	6,419
13.1 Govt Loans					17,333	-17,333		1,630	-1,630		-11,000	11,000			
13.3 Portfolio	4		4												
13.4 Amortization		5,504	-5,504		-3,177	3,177		-1,715	1,715		-2,201	2,201		-3,513	3,513
13.6 Other		-1,342	1,342	2,500		2,500					-2,357	2,357		-2,906	2,906
14-Short Term Capital				-13,148	-1,065	-12,084	-10,895	6,509	-17,405	11,421		11,421	-4,369		-4,369
14.1 Payment Agreements & Comp. Transactions										852		852	2,042		2,042
14.3 Other Obligs. w/Off. & Bank Institutions								6,509	-6,509	5,872		5,872	-4,100		-4,100
14.4 Other										4,697		4,697	-2,311		-2,311
Pending Letters of Credit															
Money and Deposits	10,648		10,648	-13,148	-1,065	-12,084	-6,311		-6,311						
15-Monetary Gold					-2,988	2,988	-4,584		-4,584						
16-Total (11/15)	9,236	2,657	6,579	-29,516	10,104	-39,620	-10,908	6,425	-17,332	-3,425	-14,516	11,092	-6,395	9,723	-16,118
							-12		-12	-16,746		-16,746	-3,326		-3,326

Note: All amounts rounded off.

Source: Banco Central de Bolivia 24a y 25a. Memoria anual -- Departamento de Estudios Economicos y Estadistica.
(Information in question considered by the Central Bank to be highly deficient)

TABLE XXXVI

1955 ACREAGE PLANTED IN BASIC CROPS 1/

Crop	Number of Hectares Planted	Yield (In Tons)	Number of Additional Hectares Immed. Available	Potential Yield with Present Methods (In Tons)
Potatoes	30,200	120,800	113,150	452,600
Barley	55,950	40,000	97,120	69,440
Wheat	33,200	17,000	84,250	43,140
Rice	11,600	11,600	110,000	110,000
Corn	47,500	95,000	115,860	231,720
Sugar Cane	15,000	525,000	100,000	3,500,000

Estimated agricultural surplusses (or deficit) in Bolivia if all available acreage were cultivated with improved methods:

Crop	Number of Hectares	Surplus in Tons
Potatoes	143,350	757,475
Wheat	117,450	(-) 41,625 (deficit)
Rice	121,600	268,540
Corn	163,360	603,040
Sugar Cane	115,000	7,305,000

1/ Source: Estimate by the Agricultural Servicio.

Note: United States per capita consumption of potatoes, wheat, sugar, rice and corn during the post-depression years was taken as a basis for this comparison (see Economic Forces in the USA in Facts & Figures - U.S. Dept. of Labor, Bureau of Labor Statistics in Cooperation with ICA).

Although United States consumption of certain items such as rice is lower in the United States than in Latin America, this difference is largely compensated by the fact that the whole population of Bolivia was included in the present calculation while in reality a large sector of the population - the subsistence farmer - hardly ever consumes some of these products (with the exception of potatoes which constitutes his basic diet).

TABLE XXXVII

YIELDS OF SPECIFIC CROPS IN BOLIVIA 1/

Crop	Present Yield (in Kilos per Hectare)	Yield with Improved Methods (in Kilos per Hectare)
Potatoes	4,000 kilos	6,500 kilos
Barley	715 "	1,500 "
Wheat	512 "	1,500 "
Quinua	407 "	800 "
Sugar Cane	35,000 "	75,000 "
Rice, hulled	1,000 "	2,275 "
Corn	2,000 "	4,000 "
Alfalfa, green	10,000 "	20,000 "

1/ Source: Estimate made by Agricultural Servicio.

TABLE XXXVIII

SUMMARY OF TREND IN MINERAL PRODUCTION

From Mines now Nationalized, by Mineral for Years 1951 to June 30, 1956 (Tons Fine Metal)

Minerals	1951	1952	1953	1954	1955	1956 (6 months)
Tin	28,386.6	27,346.9	26,034.-	25,850.4	23,484.5	11,326.4
Zinc	22,064.9	25,305.8	21,663.1	17,852.6	17,607.9	10,659.6
Tungsten	678.1	1,013.8	1,188.0	1,649.9	1,615.7	791.6
Lead	9,797.2	9,807.9	9,488.1	7,315.2	9,567.7	6,407.0
Copper	4,128.0	4,076.2	3,819.6	3,339.1	3,252.3	1,906.3
Bismuth	38.3	32.0	53.4	43.1	41.8	18.5
Antimony	117.9	124.3	12.5	23.1	17.3	---
Silver (kilograms)	214,803.-	194,633.-	167,206.-	141,877.-	189,186.-	126,099.-
Gold (grams)	22,111.-	17,847.-	17,451.-	12,358.-	10,639.-	5,339.-

Courtesy: Ford, Bacon and Davis, Inc.

TABLE XXXIX

ORE RESERVES SITUATION AT MINING CORPORATION'S TIN MINES

Mine	Operations non-profit as of June 1956	Indicated Life (includes geologic ore) Years	Possibility of Increasing Reserves	Indicated trend in grade ore
Colquiri and adjoining properties		16	good	down
Huanuni		8	fair	down
Catavi		10	limited	down
Chorolque		3-4	fair	down
Tasna		3	fair	down
Potosí	X	4	none	down
Caracoles		3	very limited	down
Viloco (tin section)	X	2-3	none	down
Oploca Siete Suyos		1-2	none	---
San José	X	none	very limited	down
Santa Fé	X	none	limited	down
Japo	X	none	none	---
Morococala	X	none	none	---
Colquechaca	X	none	very limited	down
Colavi	X	none	none	---

Courtesy: Ford, Bacon & Davis, Inc.

TABLE XXXX

TREND IN GRADE OF ORE AT MINING CORPORATION'S MINES

(TO THE MILL OR BENEFICIATION PLANT)

Mine	1950 Average Grade %	1955 Average Grade %
Catavi	1.28	0.84
Colquiri	2.02	1.74
Huanuni	1.54	1.38
Potosí	1.86	1.30
San José	3.15	2.16
Tasna	3.91	1.81
Chorolque	2.28	1.32
Oploca (Siete Suyos)	2.67	1.36
Santa Fé	n.a.	2.1
Caracoles	1.89	1.29
Morococala	n.a.	n.a.
Colavi	2.79	2.37
Viloco	1.62	1.11
Colquechaca	n.a.	n.a.
Japo	n.a.	n.a.

TABLE XXXX-A

ESTIMATED DECREASE OR INCREASE IN MINERAL OUTPUT OF THE NATIONALIZED MINES IN NEXT FIVE YEARS UNDER PRESENT CONDITIONS

Mineral	Including Non-Economic Operations
Tin	- 11%
Tungsten	+ 5%
Lead	- 68%
Silver	- 81%
Zinc	- 96%
Copper	- 31%
Antimony	- 26%
Bismuth	+ 10%
Gold	- 97%

Note: n.a. - not available.

Courtesy: Ford, Bacon & Davis, Inc.

TABLE XXXXI-A

YPFB PRODUCTION AND REFINING ACTIVITY, (In Thousands of Barrels)

	Crude Production	Regular Gasoline	High Test Gasoline	Kerosene	Diesel Oil	Fuel Oil
1946	363	110	04	24	17	71
1947	377	135	04	25	19	81
1948	464	176	04	33	26	89
1949	678	334	11	41	41	177
1950	616	329	04	72	43	167
1951	523	245	04	62	38	72
1952	526	250	09	71	49	69
1953	601	263	20	59	62	65
1954	1695	663	40	127	194	532
1955	2692	915	14	146	230	747

TABLE XXXXI-B

YPFB DOMESTIC SALES (In Thousands of Barrels)

	Diesel Oil	Fuel Oil	Regular Gasoline	High Test Gasoline	Kerosene
1946	18	57	251	04	37
1947	18	39	287	06	44
1948	27	29	337	03	50
1949	30	23	347	10	60
1950	37	35	365	28	62
1951	41	17	377	67	74
1952	45	13	445	52	91
1953	97	37	448	60	97
1954	205	466	486	93	119
1955	215	634	537	100	148

TABLE XXXXI-C

YPFB EXPORTS OF PETROLEUM PRODUCTS (In Barrels)

	Argentina		Chile	Brazil		Paraguay		
	Crude	Fuel Oil	Gasoline	Gasoline	Kerosene	Gaso-line	Kero-sene	Diesel Oil
1955	476,123	6308	97,526	31511	6371	1245	264	352

Source: YPFB

TABLE XXXXII

BOLIVIAN RAILROAD TRAFFIC DURING 1955 1/

Railroad	Freight Traffic (In Metric Tons) Local	Importation	Exportation	Minerals	Total	Total Passenger Traffic
Antofagasta-Bolivia	326,126	107,637	12,085	241,199	687,047	896,287
Bolivia Railway Co.	403,917	136,325	11,052	92,454	643,748	1,253,705
Guaqui-La Paz	32,191	121,845	124	3,550	157,710	162,105
Arica-La Paz	11,130	81,157	2,355	35,860	130,502	156,556
La Paz-Beni	727	---	---	1	728	11,835
Villazon-Atocha	58,756	---	---	9,420	68,176	156,027
Potosí-Sucre	40,466	---	---	752	41,218	15,155
Cochabamba-Santa Cruz	NA	NA	NA	NA	NA	NA
Corumba-Santa Cruz	NA	NA	NA	NA	NA	NA
Cliza-Caroma	13,619	---	---	1,651	15,270	294,173
Cliza-Arani	4,326	---	---	---	4,326	244,730
Machacamarca-Uncía	71,072	---	---	21,908	92,980	76,729

1/ It should be noted that these figures should not be added vertically since this would be double counting on account of the fact that in certain cases the same minerals and passengers are being transported by various railroads.

Source: Dirección General de Ferrocarriles

TABLE XXXXIII

BOLIVIAN VEHICLE REGISTRATION, DECEMBER 31, 1955, BY NUMBER AND TYPE OF VEHICLES AND DEPARTMENT WHERE REGISTERED 1/

	Total Vehicles	Trucks	Auto-mobiles	Pick-up Trucks and Station Wagons (Camionetas)	Jeep-type Vehicles	Other Vehicles 2/
Total for Bolivia	20,307	7858	6779	4145	972	553
La Paz	10,978	2851	4814	2534	555	224
Oruro	2,366	1110	562	525	54	115
Cochabamba	2,930	1418	840	414	89	169
Potosí	1,052	602	145	239	60	6
Chuquisaca	1,059	565	204	237	46	7
Tarija	528	352	53	85	28	10
Santa Cruz	1,317	933	150	97	115	22
Beni 3/	66	22	11	12	21	--
Pando 3/	11	5	--	2	4	--

1/ Source: Dirección General de Transito y Rodaje (data derived from vehicle registration lists in Bolivia's nine departments as of December 31, 1955, but subject to revision upon completion of first general vehicle census now being undertaken by that office)

2/ Comprising 540 passenger buses and 13 other vehicles

3/ Data for December 31, 1953, the most recent available

TABLE XXXXIV

AIR TRAFFIC STATISTICS FOR AIRLINES OPERATING IN BOLIVIA, 1955 1/

Air Line	No. of Flights	Distance Flown in Kilometers (000 Omitted)	Passengers		Total Tonnage Transported 2/	
			No. Transported	Passenger Kilometers (000 Omitted)	Quantity in Metric Tons	Metric Ton Kilometers Carried (000 Omitted)
Lloyd Aereo Boliviano	20,090	5,232	158,002	47,537	40,310	10,543
Panagra	2,704	n/a	31,721	n/a	367	n/a
Bolivian Development Corp.	1,317	376	4,143	4,486	4,261	1,216
Mining Corporation	548	172	411	128	710	224
YPFB	800	237	1,270	1,680	2,960	955
Frigorífico Los Andes	437	177	986	412	2,437	1,065
Frigorífico Ballivian	653	191	2,139	637	3,673	1,133
Compañía Ixiamas 3/	42	10	41	11	33	8

1/ Source: Dirección General de Aeronautica Civil; figures for other lines mentioned on page 147 not available.
2/ Includes passengers, air cargo, parcel post, mail and baggage
3/ Flights only during January and February, 1955

TABLE XXXXV

AVERAGE CONSUMPTION PER PERSON, QUANTITIES RECOMMENDED PER PERSON, PERCENTAGE CONSUMED OF THE QUANTITIES RECOMMENDED FOR TWENTY FAMILIES IN MONTERO, AUGUST 1955

	Calories	Proteins	Calcium	Iron	Vitamin A	Thiamin	Riboflavin	Ascorbic Acid
		grm	mlg	mlg	I.U.	mlg.	mlg.	mlg.
Urban Zone								
Actually Consumed	1731	52	79	7.0	1,824	0.47	0.56	40
Quantity Recommended	2113	56	925	10.8	4,302	1.00	1.4	70
Percentage Consumed of Quantity Recommended	81.9	92.8	19.3	64.8	42.4	47.0	40.0	57.1
Rural Zone								
Actually Consumed	1589	39	195	5.5	862	0.40	0.36	83
Quantity Recommended	1981	55	940	10.0	4,108	1.00	1.3	65
Percentage Consumed of Quantity Recommended	80.2	70	20.7	55.0	20.9	40.0	27.7	127.7
Both Zones								
Actually Consumed	1674	47	185	6.4	1,440	0.44	0.48	57
Quantity Recommended	2061	56	931	10.5	4,224	1.00	1.36	68
Percentage Consumed of Quantity Recommended	81.2	83.9	19.9	60.9	34.1	44.0	35.3	83.8

Source: Health Servicio

TABLE XXXXVI

AVERAGE NUTRITIVE VALUE PER PERSON PER DAY OF TWENTY ONE-WEEK FAMILY DIETARIES AND COMPARISON WITH RECOMMENDED DIETARY ALLOWANCES

	Calories	Proteins grs.	Calcium mlg.	Iron mlg.	Vitamin A U.I.	Thiamin mlg.	Riboflavin mlg.	Vitamin C m.g.
12 Urban Families								
Average daily intake per person	1731	52	79	7	1824	0.47	0.56	40
Standard deviation	528	17	88	5.5	2878	0.21	0.24	57
Recommended daily dietary allowance	2113	56	925	10.8	4302	1	1.40	70
Intake as Percentage of Recommended dietary allowances	82	93	19	65	42	47	40	57
6 Families of Farm Workers								
Average daily intake per person	1320	26	143	4	314	0.22	0.20	87
Standard deviation								
Recommended daily diet allowances	1936	53	911	10	4172	1	1.28	65
Intake as % of recommended "	68	49	16	43	8	22	16	134
2 Families of Farm Owners								
Average daily intake per person	2400	78	349	9	2507	0.94	0.85	70
Standard deviation								
Recom. daily diet allowances	2114	61	1026	10	3919	1	1.5	64.5
Intake as % of recom. "	114	128	34	91	64	92	57	109

Source: Health Servicio

TABLE XXXXVII

AVERAGE CONSUMPTION PER CHILD, QUANTITIES RECOMMENDED PER CHILD, AND PERCENTAGE CONSUMED OF THE QUANTITIES RECOMMENDED FOR TWELVE CHILDREN IN MONTERO, AUGUST 1955

	Calories	Proteins grms.	Calcium mlg.	Iron mlg.	Vitamin A I.U.	Thiamin mlg.	Riboflavin mlg.	Ascorbic Acid mlg.
Actually Consumed	811	24	122	3	365	0.2	0.3	35
Quantities Recommended	1,120	38	900	7	1,867	0.6	0.9	35
Percentage Consumed of Quantity Recommended	72.4	63.1	13.5	42.8	19.5	33.3	33.3	100.0

Source: Health Servicio

TABLE XXXXVIII

BOLIVIAN PER CAPITA CALORIE INTAKE OF BASIC FOODSTUFFS DURING 1955

Items	1955 Imports 1/ Tons	Domestic Production, 1955 2/ Tons	Total Availability Tons	Apparent Per Capita Annual Consumption Kgs.	Approx. Calorie Content per Kilo	Total Amount of Calories	Per Capita Daily Calorie Intake
Wheat & Wheat Equivalent	87,850	17,000	104,850	32.78	3,330 3/	109,157	323.84
Rice	10,739	11,600	22,339	6.98	3,450 4/	24,081	65.98
Sugar	42,766	8,000	50,766	15.87	4,000 4/	63,480	173.92
Beef	6,183	48,000	54,183	16.94	3,220 3/	54,547	149.44
Powdered Milk	4,614	—	4,614	1.44	3,620 3/	5,213	14.28
Condensed Milk	3,648	—	3,648	1.14	2,290 3/ 5/	2,611	7.15
Lard	2,607	n.a.	2,607	0.82	9,000 4/	7,380	20.22
Vegetable Oils	1,536	n.a.	1,536	0.48	9,000 4/	4,320	11.84
Corn	—	95,000	95,000	29.38	3,450 4/	101,361 6/	277.70
Potatoes	—	120,800	120,800	37.77	830 3/	28,029	76.79
Yucca	—	58,000	58,000	18.14	1,920 4/	34,829	95.42
							1,221.58

1/ Imports according to the National Bureau of Statistics, adjusted for wheat and wheat equivalent with Point IV figures.
2/ Production estimated by the Agricultural Servicio.
3/ Composition of Foods, U.S. Dept. of Agriculture, Agriculture Handbook No. 8.
4/ La Composición de los alimentos peruanos. Dep. de Nutrición del Min. de Salud Pública y Asistencia Social y el Inst. de Asuntos Interam. Anales de la F. de Medicina, tomo XXXV, No. 2.
5/ Average of 1380 calories for evaporated milk, and 3200 for condensed milk.
6/ No discount has been made to compensate for the food intake of animals.

TABLE XXXXIX

ANNUAL CONSUMPTION OF A TYPICAL INDIAN FAMILY OF SIX PERSONS IN THE PROVINCE OF DALENCE 1/

Items	Bs. 2/	%
Food	146,900	32.0
Fuel	91,660	19.9
Clothing	62,000	13.5
Alcoholic beverages, coca and cigarettes	84,400	18.4
Religious ceremonies, amusements and donations	29,000	6.3
Furniture and domestic appliances	13,150	2.8
Cleaning supplies	6.400	1.4
Miscellaneous	26,000	5.7
Total	459,510	100

1/ Based on the study of Mr. A. Quesada of the United Nations Mission of Technical Assistance to Bolivia.

2/ Prices as of April 1956.

MONTHLY FOOD DISTRIBUTION SCHEDULE OF THE MINISTER OF ECONOMY (Articles of Primary Necessity)

A - Absolute Quantities

Entity	Flour Imported Tons	Flour National Tons	Flour Total Tons	Rice Tons.	Lard Tons	Vegetable Oils Tons	Powdered Milk Tons
Rationing Boards	667.--	5677.13	6344.13	687.70	117.60	126.83	160.66
Mining Corporation	1108.60	58.42	1167.02	393.30	92.23	56.10	35.33
Private Mines	350.06	---	350.06	198.72	38.--	19.03	15.78
Railroads	98.90	---	98.90	39.10	14.--	9.13	13.42
Public Employees	---	---	---	34.50	16.80	8.69	10.20
Police Force	30.82	---	30.82	46.00	3.80	3.41	8.21
Ministry of Defense	45.54	45.54	91.08	51.52	3.40	2.53	6.62
Ministry of Labor	62.56	---	62.56	3.45	----	---	---
Bolivian Develop. Corp.	45.54	---	45.54	3.68	5.50	3.30	4.13
Other Entities	89.01	282.70	371.91	140.76	25.10	20.68	10.79
Reserve of Min. of Economy	51.97	977.67	1029.64	203.10	6.90	5.50	13.66
Total	2550.--	7041.66	9591.66	1801.83	323.33	255.20	278.80

B - Relative Quantities

	%	%	%	%	%	%	%
Rationing Boards	26.16	80.62	66.14	38.17	36.37	49.70	57.63
Mining Corporation	43.47	0.83	12.17	21.83	28.53	21.98	12.67
Private Mines	13.73	---	3.65	11.03	11.75	7.46	5.66
Railroads	3.88	---	1.03	2.17	4.33	3.58	4.81
Public Employees	---	---	---	1.91	5.20	3.41	3.66
Police Force	1.21	---	0.32	2.55	1.18	1.34	2.95
Ministry of Defense	1.79	0.65	0.95	2.86	1.05	0.98	2.37
Ministry of Labor	2.45	---	0.65	0.19	---	---	---
Bolivian Develop. Corp.	1.79	---	0.47	0.21	1.70	1.29	1.48
Other Entities	3.49	4.02	3.88	7.81	7.76	8.10	3.87
Reserve of Min.of Economy	2.03	13.88	10.74	11.27	2.13	2.16	4.90
Total	100.-	100.-	100.-	100.-	100.-	100.-	100.-

Source: Ministry of National Economy.

TABLE LI

PRINCIPAL CAPITAL INVESTMENTS MADE WITH COUNTERPART FUNDS AND "REVERTIBLES" (In Millions of Bs.)

	1953	1954		1955		1956 1/		
	Reverti-bles	Reverti bles	Counter-part	Reverti-bles	Counter-part	Reverti-bles	Counter-part	TOTAL
Cochabamba Milk Plant					100		50	150
Grain Storage					100			100
Yucca Mill		38						38
Irrigation Works, Cochabamba & Oruro	60		159	30			200	449
Small Irrigation Works					20		10	30
Internal Migration			35	2			180	217
Reyes Cattle Project			20		50			70
Villamontes Irrigation Project			200		150		180	530
Guabirá Sugar Mill	147		280		400			827
Roads, North of Santa Cruz			130		150			280
Santa Cruz-Cochabamba Highway			45					45
Air Strips					30			30
La Paz-Beni Road						30		30
Caranavi-Altamarani Road			170		250		50	470
Animal Vaccine Labs - La Paz			65		180			245
Cattle Development					50			50
Sucre Cement Plant							90	90
Rice Mills				1.7				1.7
Tarija Flour Mill		12.7		2.5		9.5		24.7
Fisheries				35				35
Rabbit Growing				50				50
Coffee Processing				15				15
Animal Sanitation						20		20
Refrigeration Plant, La Paz						100		100
Canal at Desaguadero						536		536
Total	207	50.7	1,104	136.2	1,480	695.5	760	4,433.4

1/ Until June 30, 1956.

Source: United States Operations Mission and La Acción de Gobierno en el Ministerio de Economía Nacional and additional data of the Ministerio de Economía Nacional.

TABLE LII

UNITED STATES ECONOMIC AID TO BOLIVIA

July 1953-June 1954	**Quantities**	**Amount in US$**
Food and Fibers	Wheat & Flour	$ 8,216,744.47 1/
	Lard	499,977.27
	Cottonseed Oil	194,618.27
	Cotton	949,963.76
	Transportation	1,034,066.60
		$ 10,945,370.37
Development Items		1,251,365.31
Total July 1953-June 1954		$ 12,196,735.68
July 1954-June 1955		
Food and Fibers	Wheat & Flour	$ 9,931,833.53
	Rice	1,102,220.07
	Lard	1,361,746.11
	Cottonseed Oil	1,364,077.97
	Milk	390,868.81
	Cotton	2,527,651.83
	Transportation	1,672,866.64
		$ 18,351,264.96
Development Items		5,735,847.83
Total July 1954-June 1955		$ 24,087,112.79
July 1955-June 1956		
Food and Fibers	Wheat	$ 7,072,054.10
	Flour	2,398,126.20
	Rice	825,611.01
	Lard	1,015,000.00
	Cottonseed Oil	500,000.00
	Milk	720,000.00
	Cotton	2,000,000.00
	Transportation	2,289,496.44
		$ 17,520,287.75
Development Items		6,309,143.00
Total July 1955-June 1956		$ 23,829,430.75
Total Food and Fibers		$ 46,816,923.08
Total Development Items		13,296,356.14
GRAND TOTAL - July 1953 - June 1956		$ 60,113,279.22

1/ Includes $8,000,000 estimated value of surplus agricultural commodities.

Source: United States Operations Mission

TABLE LIII

"COUNTERPART" GENERATED BY UNITED STATES AID DELIVERIES
(In Millions of Bolivianos)

1954 - Counterpart special account - food & fibers	Bs.	2,380	(A)
" " " development items		264	(E)
Total - 1954		2,644	
1955 - Counterpart special account - food & fibers		5,850	(A)
U.S. Owned Local Currency - food & fibers		946	(A)
Total - foods & fibers		6,796	
Counterpart special account - development items		1,925	(E)
Total - 1955		8,721	
1956 - Counterpart special account - development items		4,721	(E)
U.S. Owned Local Currency - foods & fibers		14,576	(E)
Total - 1956		19,297	

(A) Actual

(E) Estimated

Source: United States Operations Mission

APPENDIX

APPENDIX I

THE PARITY RATE OF EXCHANGE

To compute purchasing power par for Bolivia is not an easy task. First of all the Bolivian cost of living index is not very representative of the actual situation while the ever-increasing difference between the official and the free rate of exchange tends to distort all economic data further.

If we want to go back to the time when there existed a perfect equilibrium rate of exchange, we practically have to go back as far as before the Chaco War which would be meaningless insofar as actual results are concerned. Taking other periods would provide similar problems of rather arbitrary judgment.

Since for the purpose of the present study a uniform rate of exchange was needed which would at least be more or less realistic, the month of December 1951 was taken as a base to compute purchasing power par. The year 1951 was the last year before the revolution which brought about so much social change and it was also one of the better years in Bolivia's economic history.

Although in December 1951 the official rate of exchange of the boliviano was Bs. 60 to the dollar, the black market rate of Bs. 190 to the dollar had acquired more or less general acceptance (see annex to Chapter III). Therefore, this rate was taken as a base for our calculation, made as of June 30, 1956, as follows:

Re = 190
P1 = 2043 1/ (based on the cost of living index for La Paz which was 5041 in December 1951 = 100 and which had gone up to 102,970 in June 1956 = 2043)
P2 = 105 2/

Using these indices we came to the following rate of exchange:

$$RP = \frac{190 \times 2043}{105} = 3696.86$$

This rate was then checked with a number of business firms, mines, etc., all of whom seemed to agree that on June 30, 1956 an exchange rate between Bs. 3500 to Bs. 4000 to the dollar would be more or less realistic. There seemed to be uniform agreement that the rate certainly would not be less. Consequently - to provide some margin of safety - the exchange rate of Bs. 4000 to the dollar was used all through the report, in spite of its obvious defects.

1/ Cost of Living Index for La Paz - Dirección Nacional de Estadística Boletin No. 77

2/ Index numbers of cost of living (United States) - Monthly Bulletin of Statistics; United Nations, August 1956

APPENDIX II

TWO HYPOTHETICAL EXPORT CASES

1. Exporter A in Oruro wants to export Brazil nuts since the world price is so good. He had a bad experience early in 1953 when he was doing compensation transactions which were then suddenly and retroactively abolished so that he lost his dollar balance with the Central Bank and instead received local currency at an unfavorable rate. Yet he decides to try again in 1954. So he is going to find a foreign buyer. This is not easy since in accordance with Bolivian regulations the foreign buyer has to put up 100% of the purchase price with the Central Bank before the goods may be shipped, while international usage calls for a lesser deposit. In addition the foreign buyer is likely to have friends who have had bad experiences before in Bolivia insofar as quality is concerned. In spite of all these difficulties, however, he succeeds in finding a buyer who puts up the money.

Now the Bolivian exporter proceeds to buy the product which involves new problems. The Brazil nuts must be bought in the Beni and cannot be shipped to La Paz unless numerous documents are filled out. In this specific case, a "Guia de Explotación" must be obtained from the Forestry Department. This takes several weeks. In the meantime, the Brazil nuts have to remain in storage in, let us say, Riberalta or Guayaramerin, with the danger of becoming rancid because of the hot climate.

Now the exporter really runs into some problems since the employee handling the matter keeps insisting that the documents must be filled out differently. Although this is a purely technical matter, it involves new negotiations and delays, all of which takes time at a moment when time is of the essence.

At any rate, after three weeks of constant follow-up, the matter goes through and the shipment arrives at the La Paz Airport. Now the municipal authorities - contrary to law - insist that a municipal tax is due. This is paid immediately and under protest to avoid further delays. However, it appears that another document is missing, the "Guía Externa". Immediately a visit is made to the respective office which issues this document. Here a problem arises for the head of the office has just been fired and his replacement has not been appointed as yet. After two months a new official is appointed and the document is signed.

After all this, a beginning can be made with the application for an export license for which proof has to be submitted that the dollars covering the shipment are actually deposited with the Central Bank. The Bank now indicates that it cannot give any confirmation to this effect since the deposit appears to have been made by a private firm in Spain instead of a bank (all this takes several weeks again). Finally the Central Bank is convinced that a foreign bank is involved. Suddenly an employee of the Central Bank, eager to make promotion, finds some reference to Paris in the documentation. Promptly the matter is referred to higher authority and the Central Bank now questions the country of origin, stating that it appears to be France instead of Spain. After a few weeks this hurdle is

overcome thanks to good common sense at the higher levels of the Bank. After a few weeks of delay the export license section of the Central Bank discovers that the exportation of the particular product was prohibited all the time since the exporter was not located in the Beni where the goods were actually produced. Consequently, the matter is taken up again with the Office for the Promotion of Exports, which states that it cannot do anything. Thus the matter involving the export of, let us say, some seven tons of nuts is referred to the Minister of Economy who promptly decides that an Oruro firm can indeed export. With this decision in his hands the exporter goes again to the office for the Promotion of Exports which finally rejects his application for another reason. Here the way out proves more difficult since the office is now requesting something which is humanly impossible. Thus the final result is that the seven tons of nuts remain safely in Bolivia while the prospective exporter is congratulated by all his friends for not having bought more, so that he only loses a little.

2. Exporter B is interested in selling cacao beans. After all, world prices are attractive and Bolivian production of cacao beans is increasing slowly but surely. Being an old hand in the export business, he goes through all the above motions. The deal looks a sure thing. Suddenly a young official spoils everything by bringing up an old decree which has never been applied before but which is legally in force. The decree states that all seeds to be exported must be of good quality and must germinate properly. Nobody can deny that cacao beans are a seed even if their normal destination is to end up in someone's stomach. As a result, the official wins his case and the beans stay in Bolivia.

APPENDIX III

A HYPOTHETICAL IMPORT CASE

Miner A who operates a small mine near Oruro needs a truck. His present truck is about eight years old and to increase output he needs better transportation

Being a small miner he can only import through the Mining Bank. Thus he makes an application to the Secretary of the Mining Bank for the importation of a truck at the current (low) rate of exchange.

The Secretary keeps the request for about a week and then sends it to the Bank's Manager where it remains another week. From there the request is sent to the Foreign Exchange Section of the Mining Bank where it will remain from two to three weeks until it is passed on to the Committee of Acquisitions which meets only once a week.

Since the Committee can only handle about fifteen cases a week at the most, the application may remain for a period ranging from several weeks to several months with the Committee After this, the request is sent on to Oruro for technical advice which may take up to one month. From there it is returned to the Technical Section of the Mining Bank in La Paz where it remains only one week. After this the application goes back to the Committee of Acquisitions involving a few more weeks' delay and then back to the Manager of the Mining Bank. The Manager sends the request to the warehouse which returns it to the Manager, all of which takes about a month Then the Manager sends the application again to the Foreign Exchange Section of the Mining Bank where it remains about two weeks until it is ready for further processing by the Central Bank

The Secretary of the Mining Bank now sends the request to the Manager of the Central Bank who passes it on to the Monetary Department of the Bank, all of which involves from two weeks to one month. After the Monetary Department of the Central Bank has studied the case, it goes to the Export Section of the Central Bank where it remains from two to three weeks, after which it is sent back to the Mining Bank.

After all these steps have been taken the Mining Bank may open a credit However, in the present hypothetical case - which could very well be true - our small miner had a bit of bad luck. Unfortunately, while the application was in process the price of the truck changed so that for a price increase of about $50.00 the whole procedure has to be started all over again This he does This time everything goes all right and the permit is finally granted However, upon presenting it to the Central Bank, Miner A is informed that the Central Bank has no dollars available at the moment, leaving him again where he was before.

APPENDIX IV

PERSONNEL AND DRILLING EQUIPMENT OF YPFB

Personnel employed as of December 31, 1955

Total Personnel	Employees	1,307
	Laborers	2,154
	Total	3,461
of these, the following are stationed at Camiri:	Employees	323
	Laborers	910
	Total	1,233

Technical Personnel of YPFB

Petroleum engineers	14
Geologists engaged in:	
a) exploration	9
b) exploitation	2
c) gravimetric work	14
d) seismic work	5
Mud specialists	2
Civil engineers	12
Radio engineers	1
Chemical engineers	7
Mechanical engineers	6
Electrical engineers	1
Lawyers	4
Auditors	20

Drilling Equipment

Rigs now in use:

2	drilling rigs	Oil Well	capacity 6000-8000 feet
2	" "	National Supply Co.	" " "
1	" "	Cardwell	" " "
2	" "	Emsco	" " "
2	" "	Oil Well (steam)	5000 feet
1	" "	Cardwell	" "
1	" "	Failing	2500 "

Source: YPFB

APPENDIX V

YPFB'S OIL FIELDS, PIPELINES AND ESTIMATED RESERVES

1. Oil Fields

a)	Camiri	type of crude	Parafin	API 54°
b)	Sanandita	"	"	" 40°
c)	Bermejo	"	Mixed	" 28°
d)	Guayruy	"	Parafin	" 59°
e)	Toro	"	Mixed	" 21°

2. Probable Reserves

Camiri	47,670,000 bbs.
Sanandita	2,000,000 "
Bermejo	15,000,000 "
Guayruy	5,000,000 "
Camatindi	10,000,000 "
Total	79,670,000 "

3. Depth of Sands

First group,	north zone		1805 - 2231 feet
" "	south "		3117 - 3478 "
Second "	north "	(Camiri, Parapeti)	2411 - 2576 "
" "	south "	" "	3658 - 3822 "
Sararenda			4019 - 4127 "
Santa Anita			4429 - 4538 "
Sand No. 13			4561 - 4584 "

4. Thickness of Sands

First Group			138 feet
Second Group,	north zone	(Camiri - Parapeti)	56 "
" "	south "	" "	154 "
Sararenda			108 "
Santa Anita			108 "
Sand No. 13			23 "

5. Well Capacity

C-80 (Camiri) - 1500 bbs. a day - daily capacity (initial) of best producer
C-13 (Camiri) - 250 bbs. a day - daily capacity of the poorest well

6. Pipelines

Camiri-Cochabamba	- 331	miles	- 6"	I.D.-	total	cap.	(actual)	8,000Bls/day
Branch to-Sucre	44	"	- 4"	"	"	"	"	4,000 "
Camiri-Yacuiba	166	"	- 6"	"	"	"	"	5,000 "
Cochabamba-La Paz	234	"	- 6"	"	"	"	"	8,000 "

7. Storage

La Paz	2,000,000 Glns.
Oruro	2,250,000 "
Potosí	216,000 "
Tarija	200,000 "
Santa Cruz	950,000 "

Source: YPFB

APPENDIX VI

MAIN PROVISIONS OF THE NEW BOLIVIAN PETROLEUM CODE (As of June 30, 1956)

AREA

Exploration area ranges from maximum 370,650 acres in Zone I to 1,853,250 acres in Zone III, half of which must be returned to the government upon entering development stage. The minimum exploration area is 12,355 acres. The minimum exploitation area is 2,471 acres. There is a limit on the number of concessions held at any one time by one person or entity which shall all together not exceed from 1,235,500 acres in Zone I to 7,413,000 acres in Zone III.

TERM

Forty years.

BONUS

Prospective concessionaires may offer special benefits. For this reason an abstract of each application shall be published for 15 days to allow submitting of competitive applications.

OBLIGATIONS

Proof of technical and financial capacity must be established. Guaranty deposit of five cents to twenty cents (U.S. currency) per each 2.47 acres depending on zone, must be made. During exploration stage, holder must spend annually in actual operations a minimum of 20-80 cents per 2.47 acres, depending on zone.

EXPLORATION STATES

Zone I - Maximum, four years
Zone II - Maximum, six years
Zone III- Maximum, ten years

DRILLING OBLIGATION

During the first seven years of development, a minimum of 16,405 feet of hole must be drilled for each 247,100 acres held. During next eight years, a minimum of 32,810 feet of hole must be drilled for each 49,420 acres held. Lack of drilling may be offset by paying a fee ranging from $6.10 to $9.14 for each foot not drilled.

ABANDONMENT

Concessionaire may relinquish his concession at any time either totally or partially.

APPENDIX VI, Cont'd.

DEPLETION ALLOWANCE

Fixed at 27 percent of gross value of production, provided amount does not exceed 50 percent of net profits.

LAND RENTALS

During exploration stage from 2 cents to 7½ cents (U.S. currency) per each 2.47 acres per year depending on zone and period. Initial development fee equals 40 cents per each 2.47 acres in Zone I; 30 cents in Zone II; 20 cents in Zone III. Development rentals range from 8 cents to $1.50 per each 2.47 acres per year and are largely deductible from royalty.

ROYALTY

Fixed at 11 percent. At government discretion, royalty may be reduced to 7.5 percent for maximum of 15 years, except in Zone I.

INCOME TAX

30 percent on all net profits.

DEDUCTIONS

All exploration, development and drilling costs are deductible for income tax purposes. Annual losses may be carried over for a maximum of seven years, while capital brought to Bolivia may be amortized at rate of 20 percent a year.

TAXES

All taxes, rentals and royalties - except development fee and special premiums - paid by concessionaire in any one year shall never exceed 50 percent of net profits. If net after income tax is greater than all payments combined, concessionaire will pay 50 percent tax on excess unless his profit, after paying income tax, should be less than 10 percent of non-amortized capital. If net is between 10 percent and 15 percent of investment, only half of excess will be taxed at 50 percent rate.

EXPORTS

Exports of petroleum products by holder are not taxable.

IMPORTS

Importation of machinery and equipment shall be duty free.

FOREIGN EXCHANGE

Concessionaire may retain full proceeds of sales in foreign exchange and deposit them in banks abroad.

APPENDIX VI, Cont'd.

PERSONNEL

At least 30 percent of upper level of employees and 85 percent of all laborers employed by concessionaire must be Bolivian nationals.

Source: Código de Petróleo Edición Oficial 1955, Publicaciones de YPFB.

APPENDIX VII

PRIVATE CONTRACTS UNDER UNITED STATES AID PROGRAM

1. International Development Services - Supervised Credit - $333,000, 3 years; 6 United States employees, no locals. In process of extension one additional year at additional cost of $120,000. To provide a staff of technicians to plan, organize, and administer a cooperative program of supervised agricultural credit within the Agricultural Bank of Bolivia.

2. University of Tennessee - Management - $421,000, 3 years; 6 United States employees, no locals. To assist the University of San Andres in the planning, establishment, and operation of a center for training in public administration, to assist in providing training courses for Bolivian Government employees and to assist in the development of technical consultative services to governmental and non-governmental groups.

3. Ford, Bacon and Davis, Inc. - Mining - $162,000, approximately 10 months; 6 United States employees, no locals. To conduct a survey of the Bolivian mining industry, to evaluate investment opportunities, and to make recommendations for sound and practical improvements designed to enable industry to make a maximum contribution to the national economy.

4. Thompson-Cornwall, Inc. - Construction - $430,000, 16 United States employees, and local personnel to maximum extent possible. To procure materials for and construct a highway bridge over the Piray River on the highway between Montero and Portachuelo in the Department of Santa Cruz.

5. Tippetts, Abbett, McCarthy, Stratton - Engineering - $30,000, 4 United States employees and 2 locals. To complete the design and to supervise and inspect construction operations of the Piray River Bridge.

6. Schuster & Davenport - Petroleum Code - $60,000, approximately 8 months; 2 United States employees, no locals. To survey existing Bolivian petroleum laws and regulations and to assist Bolivian Government officials to draft a petroleum code. (Contract completed - new code implemented).

TYPICAL CONTRACTS WITH LOCAL FIRMS FINANCED FROM COUNTERPART FUNDS

1. Guisbert, Inc. - Bs 1,000,000,000 (estimate). For construction of the Pedro Domingo Murillo Industrial School in La Paz.

2. Bartos, Inc. - Bs. 1,200,000,000 (estimate). For construction of houses, dormitories, machinery pool buildings, health center and mechanics school buildings at Muyurina project.

3. Bartos, Inc. - Bs. 138,000,000 (estimate). For construction of buildings for a yucca mill in Santa Cruz.

4. Associated Engineers - Bs. 280,000,000. For construction of buildings for an animal vaccine laboratory in La Paz.

5. Bartos, Inc. - Bs. 1,200,000,000 (estimate). For construction of highway from San Pedro to Caranavi. (Amount to be increased)

6. Bolivian Army Engineer Battalion - Bs. 60,000,000. To build a bridge on the highway between Tarija and Villazon.

7. Bolivian Army Engineer Battalion - Bs. 20,000,000. To survey the extension of the San Pedro-Caranavi road to Santa Ana.