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INTERIM REPORT

PARAGUAY--RURAL ENTERPRISE LOAN

March 19, 1976

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INTERIM REPORT - RURAL ENTERPRISES LOAN

INTRODUCTION

The Rural Enterprises Loan PRP (formerly called the Small Farmer Infrastructure Development Loan) was reviewed February 11, 1975, by the DAEC. Approval was given to start the intensive review for PP submission. An interim report was requested detailing the Mission's agribusiness strategy and progress. Discussion between Mission CDO, Henry Miles, and AID/W during his December TDY led to the deferral of final interim report review until after the GAMCO feasibility study was completed in March 1976. The complete GAMCO feasibility study is included as an Annex to this report.

The interim report focuses on three key elements of the project's design described as follows:

(1) The constraints to small farmer income which can be alleviated by the project

(2) Development and statement of our agribusiness strategy

(3) Identification of the implementing agency and the disbursement mechanism to be used.

The interim report, in addition, develops a preliminary version of the following: Project Assessment Form, Project Logical Framework, Miscellaneous Issues, and Mission plans for June 1, 1976 PP submission.

I. RATIONALE

The potential contribution of agro-industrial development to increasing small farmer incomes must be examined in terms of the specific rural development constraints which could be addressed by expanding rural enterprises. Toward such an assessment, the following sections summarize our present understanding of the economic environment faced by the small farmer and identify certain constraints which could be altered by the promotion of various types of agro-industries.

A. Target Group Definition

The target group is defined as those farmers who exhibit the conditions of production and income typified by farms of less than 20 hectares in the Central zone. (Baseline data as provided in the "Small Farmer Subsector Assessment".) Table 1 provides data characterizing this group of farmers.

TABLE 1

ECONOMIC CHARACTERISTICS OF SMALL PARAGUAYAN FARMERS

		Less than 3 Has.	3 and 4 Has.	5 to 9 Has.	10 to 19 Has.	20 to 29 Has.	30 Has. and above
1.	Gross Income a/ US$ *	373	836	1,040	1,444	1,916	3,371
2.	Annual Expenses US$	50	96	132	229	305	910
3.	Net Income US$ a/	323	740	908	1,215	1,611	2,461
4.	Net Cash Income US$ b/	141	370	511	760	1,027	1,524
	Multiples of the Smallest Farm						
5.	Size	1.0	2.6	4.6	9.1	16.3	41.7
6.	Net Income	1.0	2.3	2.8	3.8	5.0	7.6
	Farm Size and Land Use						
7.	Average Farm Size	1.4	3.6	6.5	12.7	22.8	58.4
8.	Has. Used for Crops	1.4	3.0	3.9	5.3	7.9	11.0
9.	Percent [illegible]	100%	80%	60%	41%	34%	20%
	Indicators of Family Labor Usage						
10.	Wage Payments/Ha. Crops US$	17	16	18	23	21	37
11.	Off-Farm Income-Wages Paid US$	140	57	22	21	-36	-174
	On Farm Consumption						
12.	On-Farm Consumption/Gross Farm Income	48.7%	44.2%	37.9%	31.2%	30.0%	26.2%
	Capital and Return to Capital						
13.	Capital US$ c/	787	1,302	1,893	2,800	3,857	11,302
14.	Capital/Hectare US$	566	364	291	221	169	193
15.	Return to Capital	.421	.568	.480	.434	.418	.218
	Technology Indicators						
16.	Value of Implements/Hectare US$	36.5	15.0	13.7	13.0	8.3	17.5
17.	Annual Expenses/Gross Farm Income	13.4%	11.9%	12.2%	15.9%	15.9%	27.0%
18.	Wages/Annual Expenses	49.2%	50.4%	53.6%	53.9%	54.7%	48.0%

* Calculated at the official rate of ₲126 to one US dollar, overestimating the dollar value.

a/ Includes on-farm consumption.

b/ Includes only sales minus annual expenses.

c/ Includes land, permanent structures, animals, implements, annual expenses.

First, farms of less than 20 hectares are characterized by low levels of income. As may be observed (lines 1, 3, and 4), farm income increases with increases in farm size, but far less than proportionally. There is a significant break in net farm income between farms of less than three hectares and those between three and four hectares. Beyond this size, the size strata bear a much weaker relationship to income as is illustrated by the multiples of the smallest farm size (lines 5 and 6).

Small farms can apparently be divided into two categories, (1) those without sufficient landarea to utilize all of the available family labor (less than three hectares) and (2) those which do not utilize all of their land area for crops (3 to 20 hectares). Land, thus appears to be a significant determinant of income only for absolutely small farms. Decreasing quality and fertility of the land, decreasing requirements for on-farm consumption, and decreasing availability of family labor are suggested as reasons for decreasing percentages of land under cultivation as farm size increases. Lack of remunerative prices, high unit cost of production, and lack of market facilities might also be suggested. Additional information suggests that as farms become larger (20 hectares and above) they tend to become more oriented toward livestock rather than cropping.

Some data exist for examining the proposition that lack of family labor is a limiting factor to increased crop production on farms above four to five hectares. Assuming that the family supplies the bulk of the labor requirement for crops and that outside labor is hired to handle peak requirements, we find wages paid per hectare of crops (line 10) consistent with the contention that crop area is limited by the availability of family labor. A crude test of this hypothesis can also be made by subtracting wages paid for labor from the family's off-farm income (keeping in mind the possibility of different wage rates) to determine which sizes of farms are net suppliers or users of labor. The smaller size farms tend to be net suppliers of labor (line 11), while farms 20 hectares and above appear to be net users of labor.

Small farms tend to use a significant proportion (one-third to one-half) of gross farm output for on-farm consumption (line 12).

Small farms are poorly capitalized (line 13 provides an estimate of capital in land, improvements, livestock, tools and equipment, and annual expenditures), yet on a per hectare basis are more highly capitalized than larger farms (line 14). The most reasonable explanation is that larger farms are more oriented toward extensive livestock. Also, the value of land per hectare was found to be greater on small farms than on larger farms.

Further, the return to capital is greater on small farms than large farms. This undoubtedly reflects both differences in farm organization and imperfections in the capital market (line 15).

There is little evidence to suggest that farms under 20 hectares differ markedly in the technology applied. Except in the case of the smallest farms--where the indivisibility of implements seems to affect the level of investment--the value of implements per hectare does not vary greatly (line 16). In other words, farmers who own more land and have relatively more access to capital do not appear to own more expensive mechanical implements, but rather buy more of the same inputs in relatively constant proportions. Further, the relatively constant ratio between gross farm income and annual expenses indicates a minimal level of purchased inputs on farms less than 30 hectares of size (line 17). Finally, wages are nearly a constant proportion of annual expenses over all sizes of farms examined (line 18). This apparent lack of difference in technology correlates well with additional survey information which indicates little difference in yields for various crops by size of farm.

With regard to the general level of technology, yield comparisons indicate that present Paraguayan production does not compare favorably with current U.S. levels or even with U.S. yields in 1960. Paraguayan yields do, however, compare favorably with their neighboring countries, Brazil, Argentina, and Bolivia.

B. The Economic Environment

For several reasons, expansion of agricultural production will continue to be basic to the economic progress of Paraguay. Approximately 36 percent of GDP, 85 percent of the value of exports, and 51 percent of employment is presently provided by the agricultural sector. In contrast to the inadequate growth of the domestic manufacturing sector--which is limited by the size of the domestic market and dwarfed by two large neighboring countries who are at a more advanced stage of industrialization--the growth of agricultural production at 5.9 percent annually in the 1970-74 period was reasonably good. Further, the more dynamic segment of the manufacturing sector is presently engaged in processing agricultural products for export. Since a large portion of employment is in agriculture, growth in domestic demand for locally produced goods is also closely related to the development of the agricultural sector.

To what extent small farmers will participate in the anticipated future growth of the agricultural production will largely depend upon the programming of the sector's development. Estimates of the annual growth rate of crop production indicate that those commodities which are mainly exported have expanded in volume at an average of 16.6 percent per year as contrasted with a figure of 1.4 percent per year for crops principally consumed domestically.

Further, this increase in production arose largely from bringing new land under cultivation. Thus the small farmer's ability to participate in future growth will depend upon his ability to expand production for exports (through increasing yields or expanded acreage under cultivation) and upon the extent to which the domestic market can be enlarged.

There is no reason to believe that Paraguayan small farmers will necessarily be excluded from production for the export market. To the contrary, there is little basis for arguing that a clear differentiation can be made between small farms and large farms in terms of crops they produced. Table 2 illustrates this point.

TABLE 2. DISTRIBUTION OF PRODUCTION OF SELECTED CROPS BY SIZE OF FARM 1972/73 CROP YEAR (by percentage of total production)

Crop Production	600+ Has.	51 to 600 Has.	10 to 51 Has.	1 to 10 Has.	Less than 1 Ha.	0-20 Has. (Estim.)
1. Corn	3.8	15.2	25.7	32.0	23.2	(70.6)
2. Cassava	2.2	12.8	37.8	44.6	2.5	(79.3)
3. Irrigated Rice	33.0	39.7	11.8	15.5	-	(22.6)
4. Cotton	6.2	25.4	23.0	38.4	6.9	(59.1)
5. Tobacco	0.6	8.5	48.8	40.8	1.8	(71.5)
6. Sugar Cane for sugar	5.5	25.6	15.0	51.9	2.0	(62.9)
7. Soybeans	24.3	40.8	20.9	13.5	0.4	(26.4)

To state that a particular crop belongs exclusively to "large farmers" or "small farmers" is clearly not very useful for analytical purposes. As indicated in the above table, basically subsistence crops such as cassava and, to some extent, corn are grown without regard to farm size. Further, although a commercial crop such as rice lends itself to mechanization, we nonetheless find it being produced on small farms. Finally, small farmer production of primarily export crops varies from a small but significant amount for soybeans to the major share for cotton and tobacco.

The question emerges as to whether present small farmers can participate in an expanding export market if the basic form of growth in output continues to be increasing the area under cultivation. First, it should be noted that the existence of small farms in Paraguay at this point in time is not the result of an overall land constraint. In fact, present estimates indicate that there

are 8.8 million hectares suitable for cropping with only 953,000 hectares currently being used. Migrations of the rural population from areas of established settlement (the minifundio zone in the immediate area of Asunción) to virgin lands has occurred at a substantial pace during the last two decades. More importantly, the new areas seem to have more productive soils than are found in the areas of historically high population densities. Reasonable explanations of the existence of small farms might be (1) the historical concentration of farms near Asunción in order to be near the one major urban market, (2) the lack of introduction of labor-saving technology to expand the capacity of family labor, or (3) the lack of infrastructure and marketing facilities in potential colonization areas.

As noted earlier, there also is unused land on a large number of small farms. The analysis of this situation indicates that one probable explanation for this phenomenon of unused land is that available family labor is not adequate to expand the area under cultivation. This presupposes the question of why non-family labor is not hired to expand production. The Subsector Assessment suggests that there is probably not a pool of unemployed labor which can easily be drawn upon for this purpose. An additional consideration is the low level of productivity in the Paraguayan agricultural sector (estimated at one-half of the average production per agricultural worker in Latin America). The level of output and earnings of farm labor is, of course, dependent upon the technologies employed in producing various crops and livestock. Perhaps improved technology is needed, not simply to raise per hectare yields, but to make the return to labor sufficiently high so that there is an incentive for family members to continue to work on the farm or to permit the farmer to pay wages which will attract hired laborers. The case could be made that net emigration from Paraguay and migration within the country--from the minifundio area to Asunción and new settlement areas--is an indication of the lack of reasonable income opportunities in the traditinnal farming areas. In turn, the lack of economic opportunities can be thought of as the lack of more productive technological alternatives to present farm practices.

An important consideration in expansion of small farmer production is the need to provide remunerative and stable prices to producers. Unfortunately, Paraguay faces some major marketing constraints posed by its location and its internal market. The internal market for agricultural products is limited because the total population is only 2.4 million. Further, Paraguay's population is mainly rural with only one major urban area (Asunción and adjoining small towns) of 486,730, and only six other towns with populations in excess of 10,000. Consequently, rapidly expanded

production for domestic consumption could quickly exceed local demand at a price which would be remunerative at the farm gate. Thus, expansion of production for domestic consumption must be carefully coordinated with increases in internal demand and efforts to enlarge domestic consumption by tapping unexploited markets with new and improved products.

As an exporter, Paraguay has a geographic disadvantage. A 1973 study indicated that freight costs, including handling charges in ports, ranged from US$30 to US$80 per metric ton from the major Paraguayan ports of origin to FOB Buenos Aires. The additional cost to a European port would generally fall in the range of US$25 to US$50 per metric ton. Consequently, the Paraguayan farmer is at a competitive disadvantage to producers in countries having lower transport costs to principal markets and would therefore receive a lower price for his products. It should be noted that with relatively large fixed transport costs, a small variation in price at the import location can cause a proportionally larger change in the price received by farmers. As an example, if the price of soybeans in Rotterdam drops from US$200 per metric ton to US$180--a 10 percent decrease--and transport costs are US$55 per metric ton, FOB price in Asunción would fall from US$145 to US$125--a 13.8 percent decrease. This larger percentage change would certainly be reflected in farm level prices.

Another problem related to location is the restriction placed upon the types of exports. Low value commodities such as corn and cassava cannot become commercial exports because such a great proportion of their CIF value would be transport costs. This suggests the need to focus on higher value exports and products which can be processed, or partially processed, within the country.

Paraguay's locational disadvantage may also affect the choice of agricultural technology by increasing real costs of agricultural machinery and other imports such as fertilizers and insecticides. With the possible exception of soybeans, the evidence is clear that most of Paraguay's crop-related exports are produced by labor intensive technology without any major degree of mechanization which may reflect the high cost of imported inputs.

The built-in disadvantage in marketing costs incurred by exports and the close relationship between economic and export growth suggests that Paraguay can ill afford inefficiencies in its internal marketing system. Further, the limits of the domestic market require careful organization of production and marketing if local market opportunities are to be fully exploited without creating price fluctuations resulting in unstable incomes and disincentives for those farmers producing primarily for internal consumption.

USAID has initiated a study of the price variations of a number of commodities consumed locally in order to determine the cause (i.e. seasonal production, daily variations of supply, or self-reinforcing cycles) and identify the stabilization approach which is most appropriate (i.e. processing, short-term storage, improved market information or quotas). Price data, by month, are reported in Table 3 for potatoes and lettuce. Widely fluctuating prices such as indicated above represent a disincentive to production among small farmers. Either they are affected directly by these fluctuations, or indirectly through lower prices offered them by intermediaries to compensate for the risk these intermediaries face in the day to day market. Appropriate policies, storage and processing facilities would undoubtedly reduce these fluctuations.

Although they certainly exist, the inefficiencies in the agricultural marketing system in Paraguay are ill-defined to date. Until recently much of the analysis of marketing apparently has been addressed to structural questions and their impact upon competition and relative market power. It is often observed that a few buyers and middlemen control the market. That monopsony power is thought to exist due to the limited number of processing facilities and that this market power results in lower farm gate prices even though the product enters a competitive international market. At the farm level, it is often argued that only one country merchant or itinerant trucker is the farmer's sole outlet, and may also be his only source of information about prices. Responsible persons believe that marketing margins are excessive and it is observed that the marketing system cannot cope with overproduction, how ever small.

Although it is generally believed that certain participants in the marketing system are in monopolistic or oligopolistic positions, there are scarce data indicating that such marketing power is exercised. Also, meager data seem to be available on the costs of performing various functions in the marketing system, who finances these functions, and who bears the risks. Thus, it would appear from available information about agricultural marketing that perhaps not enough attention has been given to concepts of market performance and behavior. USAID is presently collaborating with the GOP in a comprehensive study of the marketing system intended to answer these types of questions and to identify inefficiencies that can be attacked by specific programs

Certain general problems which we are reasonably sure have an impact upon the efficiency of the agricultural marketing system are worth highlighting. Farmers typically lack current market information, especially on prices (although this situation is improving). With the exception of a few products sold in export markets, there is little if any formal grading, and standards have not been developed for domestically consumed products. More-

TABLE 3

WHOLESALE PRICES FOR POTATOES AND LETTUCE 1972-1975

Average in Guaranies

		Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Potatoes	1972	19.95	19.50	21.60	27.39	26.05	30.15	35.[illegible]	39.48	33.21	30.62	29.[illegible]	30.[illegible]	28.72
	1973	25.35	26.37	23.14	20.85	20.70	19.37	19.1[illegible]	20.55	28.37	26.24	40.[illegible]	26.05	24.88
	1974	29.27	41.50	46.10	42.30	39.70	39.0[illegible]	35.84	26.92	20.95	25.39	21.80	21.50	34.88
	1975	35.45	40.61	35.95	37.41	43.78	37.67	53.75	72.00	79.19	78.27	48.80	47.17	51.03
Lettuce	1972	55.43	65.70	66.75	63.25	58.24	79.20	96.10	68.95	58.47	44.62	67.57	96.00	68.45
	1973	79.82	78.95	93.35	86.89	98.15	91.58	78.[illegible]	68.15	53.89	40.81	50.19	56.30	74.10
	1974	79.19	112.00	115.15	69.35	90.80	86.28	86.[illegible]	104.19	68.67	63.30	65.80	72.00	84.30
	1975	117.55	108.17	116.24	111.00	118.33	106.16	90.70	79.94	73.24	64.73	76.52	111.52	97.24

over, much of agricultural marketing is done on a very small scale, especially domestically consumed commodities, with the associated high handling costs per unit. And finally, the lack of adequate on-farm or community storage facilities forces small-scale farmers to sell most of their production during and shortly after harvest.

A second observatinn regards the logistics of moving agricultural production. Three-quarters of all national merchandise moves by road. Although the road system has expanded substantially in the last decade (from 1,345 miles in 1960 to 4,144 in 1972), only 733 miles are paved all-weather roads. Large areas of the country are still serviced by dirt roads which are closed whenever it rains (40 to 130 days per year), complicating transporatation of agricultural products. From July 1973 to November 1975 highway freight rates increased from 50 to 100 percent per ton-kilometer. The following table provides data on cost of truck transport in 1975 with comparisons to 1973 costs.

TABLE 4. FREIGHT RATES BY TRUCK FOR 1975

Cities	Distance (miles)	Tariff per Ton US$	US cents per Ton-Mile	% increase 1973-75
Asunción - Cnel. Oviedo	83	7.22 to 8.65	8.7 to 10.4	100 to 140
Asunción - Pto. Pte. Stroessner	203	14.43	7.1	99
Asunción - Encarnación	230	10.82	4.7	50
Asunción - Concepción	345	28.86	8.4	60

One approach to dealing with the problem of increasing transport cost is to establish marketing facilities regionally and to minimize shipping weights by drying or processing products near their centers of production.

C. Constraints to Increasing Small Farmer Income

The foregoing information provides the framework to identify constraints to increasing small farmer income and how these constraints might be attacked through the promotion of agro-industries. As will be recalled, our target group consists of two types of small farmers, those with inadequate land resources to effectively utilize family labor and those with inadequate labor resources to take full advantage of their available land. Increased production from both groups is largely dependent upon the export market in which Paraguay faces a locational disadvantage, or a local market which is limited by population, low per capita income, and which appears to be subject to wide variations in prices. Finally, the overall level of technology is low both in terms of output per man (labor productivity) and output per hectare. The small farmer developmental task ahead may be viewed as facilitating the recombination of labor and technology to efficiently exploit export and limited domestic market opportunities.

1. The Small Farmer Subsector Assessment suggests three general strategies that might be applied to the Paraguayan situation to increase small farmer income.

a. Intensification of production on the existing land resource base: Such a strategy implies (1) increasing the use of capital or labor resources (through additional credit) in the production of current commodities or (2) changing to more labor-intensive, higher-value commodities. The limits of this strategy depend upon the availability of capital and labor-using technologies which will increase production of the present commodities or the availability of a good market for higher value commodities in the second case.

In the case of land-short farmers, more capital and labor-using technologies would need to be introduced under this strategy to alleviate the land constraints or the crop mix must be altered to include labor-intensive, high-value crops. Thus, it appears that in order to successfully pursue a strategy of intensifying production on the smallest of small farms, new technology must be made available and/or development of the market opportunities for higher value commodities should be undertaken.

In the case of labor-short small farms, new technology would need to be introduced to extend the area that can be cultivated by the farm family--intermediate levels of mechanization (small machines or machinery services)--or other technology which increases the productivity of labor to permit farmers to hire additional labor. To assure the success of this approach, improvements in the efficiency of marketing are indicated to assure competi-

tiveness in the world market and accomodate larger volumes of production.

b. Expansion of land resources available to the small farmer: In Paraguay this strategy largely implies colonization of new areas for which projects have been developed and are being carried out. The limits of this strategy are imposed by the amount of land that can be productively used by the farm family under available technology, the colonists' access to the market, and the resources available to him to expand production. It would appear that in Paraguay many colonists do need additional resources, improved access to markets, and alternative technology which would permit them to fully take advantage of larger land areas. The ultimate limit of the strategy is, of course, the quantity of good agricultural land available for relocating small farmers. Although there are costs incurred in developing new land, in the aggregate, available land does not appear to pose a problem for this strategy in Paraguay.

c. Creation of off-farm job opportunities: This strategy implies agro-industrial development in the rural community or migration to urban employment. The limits of the strategy depend upon the market for agro-industrial products (either locally produced farm inputs or processed agricultural commodities) or, alternatively, the capacity of the urban sector to provide employment to those migrating to the cities. The large share of employment provided by the rural sector and the relatively slow rate of industrial development clearly suggest that the urban sector is ill-prepared to absorb large numbers of rural migrants.

2. Certain constraints to increasing small farmer incomes have been indicated that can be alleviated by promotion of agro-industries; others are, of course, outside of such a project.

a. Technology

Clearly technology is a constraint on both land-deficient and labor-deficient small farms. The development of the technology itself, with the exception of small machinery and tools, can probably not be undertaken by domestic agro-industrial firms in Paraguay (especially those of the size envisioned in this project) as occurs in more advanced countries. Nonetheless, rural enterprises can play a significant role in introducing new technology. Most improved technology is embodied in purchased inputs (recall the low level of purchased inputs as a percent of expenditures among small farmers). Such inputs could be manufactured locally, instead of being imported. This possibility is especially good for inputs of an intermediate technology nature such as small tillage machines, grain driers, silos for local grain storage, trailers and wagons. Some of these inputs are already produced within the country, but are custom-made, unit by unit, significantly increasing their cost.

Encouraging local enterprises to engage in the manufacture of inputs on a larger scale could reduce the cost of inputs, making new technology more affordable for small farmers. Further, the successful introduction of new technology implies efficient distribution of inputs at the time and place needed by small farmers. (The latter is particularly important, given the limited mobility of this group. Small farmers cannot normally journey to Asunción to seek new inputs.) Thus agribusiness enterprises which supply inputs for small farms, such as the cooperative supply stores in colonization areas can have an important impact upon promoting the use of new technology and reducing the cost of new inputs.

b. Stable and Remunerative Prices

Increasing demand and stabilizing prices for both new and traditional small farm products involves encouraging specific interventions in the marketing system. There is no magic formula; the marketing/pricing situation is different for each product suggesting the need for various kinds of market interventions. This project would rely upon the private sector and cooperatives to develop projects to match market opportunities for various commodities with the most indicated type of intervention. Such interventions could vary from local capacity to dry and store grains, to short-term storage for perishables (to reduce daily price fluctuations), to processing. Processing can have two impacts--(1) reducing the impact of seasonal production by processing for off-season sales and (2) reducing the bulk of products which are regionally produced to lessen the unit cost of transportation included in the final product to the consumer. Agro-industries can also be instrumental in enlarging the domestic market by seeking out market opportunities, organizing production at the farm level, and supplying a new product to the consumer. Market opportunities could be sought both in the domestic and export markets.

c. Labor Availability

Better utilization of labor on land-deficient small farms most often implies increased production of labor-intensive, high-value crops. These are typically perishable commodities subject to considerable price fluctuations and their production implies considerable risk to the farmer. To encourage farmers to allocate more of their resources to the production of these crops implies improving the marketing situation as indicated above. This asserts that a "demand-pull" strategy is more appropriate to increasing the production of labor-intensive crops than a production campaign.

Among small farmers with inadequate labor availability (a position which colonists find themselves as well),

intermediate technology involving small tillage and harvesting machines would improve utilization of family labor and would increase labor productivity and family income. As noted earlier, manufacturing and distribution of such implements by agribusiness firms could serve to alleviate the labor constraint faced by this type of small farmer.

d. Land

Colonization is already occurring at a fairly rapid rate in Paraguay. Small farmers appear to be migrating from the minifundio zone to areas where they can obtain larger land resources. Unfortunately, they often are limited in the use of greater land resources by the limit of available family labor and the lack of marketing infrastructure (both for products and farm inputs) in the colonization area. As a result, even given larger areas of land, their production patterns change little from those of farmers in the more densely populated areas. It has been observed that some of the most successful cooperatives in Paraguay are those serving marketing and input supply functions in colonization zones. Encouraging agro-industrial development in such zones would assist migrants in taking advantage of the larger land area made available by their relocation.

e. Capital

Capitalization of small farmers is affected indirectly through reduced prices of inputs and improved prices of products within the framework of this project. The Mission's project with CREDICOOP is one approach to directly addressing the capital constraint.

As indicated above there is a wide variety of ways in which promotion of selected agro-industrial activities can attack constraints to increased income faced by small farmers.

II. AGRIBUSINESS STRATEGY

A. The Hypotheses

The crucial step in developing our agribusiness strategy for the Paraguayan small farmer rests on two basic hypotheses and their tested outcome. The two hypotheses simply stated are as follows:

1. There exists in rural Paraguay enterprises and entrepreneurs which, if developed, would relieve one or more constraints to the increase of small farmer income in the zone of influence of those enterprises.

2. These enterprises have not been developed because there exists in Paraguay institutional and technical barriers to entry, which separately or jointly inhibit rural enterprise development.

B. Results of the Hypothesis Test

The Mission contracted GAMCO, Inc. of Atlanta, Georgia, to assist in testing these two hypotheses, as well as to identify specific enterprises, and to recommend ways of developing those which indicate the most potential in raising the small farmer's income. The complete GAMCO report is reproduced as an annex to this paper.

GAMCO tested hypothesis number one by extensive field work to identify projects and entrepreneurs. Section IV.A, Annex I lists 21 projects which are in the 'ready to go' stage if financial, promotional and technical assistance were available. We believe, and GAMCO concurs, that this approach, i.e. field identification of projects, can identify only a fraction of available projects which potentially can improve small farmer income. It is expected that as the commercial banks begin promoting the special line of credit envisaged by this loan that there will be many more projects, meeting the basic criteria, which will walk through the front door. The list developed, however, gives a point of reference which allows for the acceptance of hypothesis one as stated. Furthermore, the list establishes, in monetary terms, that sufficient immediately identifiable demand exists to disburse the loan in its currently anticipated amount of $2.5 million.

The test of hypothesis two principally relies on the analysis of institutional and technical barriers to rural enterprise entry. GAMCO in general terms identified the need for basic technical assistance to help new enterprise development. The different technical assistance needs can be grouped into four categories: (1) technical information and design; (2) management systems; (3) market development, both internal and external; and (4) promotion. Some firms meeting the general criteria of this loan will not need any technical assistance

while others will need considerable help to assure success. This type of technical assistance, although available, is currently not organized in such a way that it can be generally marketed to persons desiring to invest in small rural projects.

The starting point for testing whether or not institutional barriers to small rural enterprise development exist would be the financial sector, including government regulations which affect it. The GAMCO feasibility study identifies many such institutional barriers (see especially section V.D. Annex I). Mission review of the financial sector in the development of its Production Credit Guarantee Program adds additional insight. Final PP submission will describe in detail these institutional barriers as well as establish which ones can and cannot expect to be relieved by this project. An illustrative summary of specific factors which effect directly or indirectly the financing of or the cost to new enterprise development follows:

1. Commercial banks have a reserve requirement of 42 percent of total deposits. The effect on the commercial banks facing such a high reserve requirement is to maximize returns on the 58 percent of deposits that they can include in their investment portfolio.

2. One-half of the commercial banks' portfolio must be directed toward 'development' loans with a maximum interest rate of 13 percent per year. Banks direct most of this 'development' credit toward export industries, such as lumber mills, where they can charge commissions on foreign exchange transactions that the firm will need after it is operating. This connection will yield the banks up to a 20-percent return on their capital, rather than just a 13-percent return.

3. The Central Bank rediscounts 20 percent of the commercial banks' development loan portfolio (55 percent of total loan portfolio) for up to 360 days at five percent.

4. The other half of the commercial banks' portfolio is loaned out as commercial loans (usually less than one year to take maximum advantage of commissions) at an effective rate of between 20 percent to 24 percent.

5. High collateral requirements are required by the banking sector; for example, land is appraised at its fiscal value (used for tax purposes) and then used as collateral at the rate of 1.6/1. The real ratio of land collateral to capital is actually much higher since the fiscal rather than the market value is used.

High collateral requirements are used to cover the banks' investment since no risk or sensitivity analysis is being done.

5. Projects that are granted exemptions from import duties still must pay 15 to 18 percent in so-called nationalization expenses for imports. In addition to these taxes, there is another payment of approximately seven percent called Credit Formalization Expenses.

7. The banking sector at large does not actively promote or identify new projects, but rather relies primarily on established customer-bank relationships.

8. Most banks are not in a position to supply even basic technical assistance to new enterprises.

Based on these constraints, GAMCO concluded that "the universe of existing development entrepreneurs is largely composed of wealthy and/or land rich individuals who can meet the cash and collateral requirements imposed by the bureaucracy and the banking community". The above group of entrepreneurs, those currently with sufficient collateral, will no doubt be interested in developing some projects that will be of direct benefit to small farmers, but many other projects will be unattractive to them due to a combination of location and/or scale. People with limited collateral operate under obvious constraints with the present situation. Barriers to project development faced by these entrepreneurs who are not rich are also faced by the cooperatives. It appears that sufficient institutional and technical barriers do exist to accept hypothesis two.

C. Strategy Statement

Therefore, a simple statement of overall agribusiness strategy can be summed up as follows:

The agribusiness strategy is to alleviate enough of the existing institutional and technical barriers to promote the development of enterprises directly beneficial to small farmers but which currently are unable to enter the economy.

The implementation of the agribusiness strategy will be through a concessionary loan to the Central Bank; the mechanism is discussed in detail in the following section.

III. EXECUTING AGENCY

A. Introduction

The Central Bank of Paraguay is the proposed executing agency for the Rural Enterprises Loan. When the PRP was presented, only two executing agencies were considered: COMDESA, a private development bank, and the National Development Bank, a public development bank. COMDESA was the favored contender. The Central Bank became a contender for the loan within the past few months because of its active interest to participate in the Production Credit Guarantee Program.

Channeling the loan through the Central Bank would enable the entire banking system, plus COMDESA and the National Development Bank, to participate in the project. Thus, this choice increases the number of lending participants, including their branch offices located in the interior, without excluding participation of the other potential executing agencies. The one negative aspect, more time required to get the project underway, also has its positive side, enhancing those Central Bank activities that can make it a powerful development institution.

For those who are skeptical of this proposal because of A.I.D.'s experience in Ecuador, we cite the difference in attitude of Central Bank officials. In Ecuador the Central Bank looked upon development financing as something beneath it and eventually was successful in rejecting the transplanted technical assistance functions. In Paraguay, on the other hand, development lending has appeal and political support. The Central Bank has sought to engage the private banking system more in development lending but with little success, because it could find no way to do so. The Bank sees this project and the guarantee project as a means to fulfill its self-generated development lending objectives, and to do this, the Bank will reinforce its rediscount lines. In this connection, the Bank views the proposed loan and the guarantee system as a pilot project reinforcing their demonstrated interest in development activities in heretofore neglected sections of the economy.

The likelihood of the Central Bank's engagement in development financing is indicated by factors other than the attitude of its officials. It is the most prestigious financial institution in Paraguay. The Bank has well qualified employees because it pays relatively high salaries. The government ministries are losing their better professional employees to the private contractors working in the Itaipú Hydroelectric Project. The Bank, according to its manager, has lost none. This overall environment enhances the employing of highly qualified professionals to staff the development lending unit. Moreover, the general manager of the Central Bank plans to "borrow" potential candidates for jobs in the new unit from

Ministries or the Central Bank itself for up to 90 days. "Borrowed" candidates who perform well will receive a job offer. The others will return to their parent agencies. Borrowing employees is a common practice and using it as a mechanism to select employees proved highly successful in staffing the Housing Bank, which was established with AID support.

B. Central Bank Development Lending

The Central Bank has classified loans into two categories: development loans and commercial loans. Development loans are defined as those to finance fixed capital, whereas commercial loans are those used to finance working capital. By regulations, banks are required to have a minimum of 55 percent of their lending portfolios in development loans. The development portfolio is to be allocated to finance projects related to: exports, 25 percent; industry, 20 percent; agriculture, five percent; and stored commodities, five percent.

Development loans carry an interest rate of 10 percent plus commissions of two to three percent, depending upon the length of the loan. Currently there is no time limit on the length of development loans. Commercial loans, on the other hand, carry an interest rate of 12 percent, plus charges ranging from 10 to 12 percent. These loans are generally for 90 days. Development loans may be discounted up to 20 percent at an interest rate of five percent. Commercial loans are not eligible for rediscount.

The Central Bank has indicated a willingness to apply more liberal rediscount terms to the projects to be financed by the AID loan. It has also agreed to establish a new unit with the Central Bank which will organize and regulate the provision of technical assistance to borrowers and bankers in project development and monitoring.

Moreover, the private banks have agreed to participate in development lending as opposed to the primarily collateral lending they finance presently. When asked why they were interested in development banking, the bankers responded, "largely to change our image." This desire led the bankers' association to request a change in the regulation regarding the length of development loans which had a one-year limit. The request was granted and now there is no limit on the length of development loans. Some of the banks are carrying a few loans of five years. Moreover, as noted above, the Central Bank is willing to employ rediscount policies which will enhance the profitability of banks participating in these programs.

C. Mechanism for Implementing Project

The Central Bank agreed to establish a mechanism for implementing the loan which would organize and regulate the provision of technical assistance to banks and subborrowers in promotion, project preparation and evaluation, inspection, monitoring, financing and, in special cases, awarding guaranties for a percentage of losses incurred by banks.

The promotion activities would include locating investors, lenders, equipment, materials, technical assistance, partners and markets. Project development activities would include analysis of linkage of benefits to small farmers, costs, income, management requirements, equipment requirements, technical assistance requirements, sensitivity to changes in such variables as output level, cost of materials, selling price, working capital requirements, and provide information regarding source of inputs. The project development specialists would prepare projects for potential borrowers and evaluate projects. Advanced techniques of project analysis will be promoted by the Central Bank to enhance the reliability and effectiveness of the studies.

Monitoring and inspection services would include examining compatibility of equipment to project site conditions, analyzing changes from anticipated conditions and their effect on project, assisting investors to resolve technical problems, determining if project components meet specifications, evaluating the quality of output and analyzing actual versus projected cost of project to determine need for additional financing. Financing operations would include disbursing funds to lenders and rediscounting eligible loans. In special cases where the success of the project seems assured but the borrower's collateral is not sufficient to support the required financing, the Central Bank would consider issuing a guarantee. This would help resolve one problem often encountered by GAMCO: a project is undercapitalized because most funds are used to purchase fixed assets and there are insufficient funds left to finance working capital. Hence, the project moves insidiously to its doom.

D. Operation of Lending Office

Under this program, projects would be developed by participating technicians under contract with the beneficiaries under guidelines issued by the Central Bank. Assistance could also be available to participating banks to improve their loan approval procedures if necessary.

The banks can be reasonably expected to promote projects among their regular clients, who have adequate collateral and would not need a credit guarantee. Their projects probably would be of

the lesser risk variety and would probably be located not too far from Asunción. The participating technicians under the guidance of the Central Bank, being development oriented, would promote projects in priority areas as they seek financial gain by applying their expertise where it is appropriate; i.e., a hog specialist would need to search out a project in the interior, not in Asunción.

An important part of the technician's effort would be introducing prospective borrowers to the banks. This would be done at the earliest feasible time to ensure that minimum effort is expended upon promoting projects for which no lenders can be located. The costs of preparing the project and, if required, providing monitoring services will be agreed upon by the Central Bank and the participating technician before his incorporation into the system.

Projects promoted and developed will be presented to the banks for approval. The Central Bank will be apprised of each project as it is developed by receipt of a copy of the technician's report. The study will be reviewed to determine whether the project is feasible and whether it benefits the small farmer target group. The review will be performed by the personnel who administer the loan for the Central Bank. Upon being approved, the bank presenting the project would be eligible to receive AID funds to finance it.

E. Establishing the Mechanism

The Central Bank has agreed orally to increase its rediscount operation to channel this loan through the private banks as soon as AID approves the Rural Enterprises Loan Project or the Production Credit Guaranty Program for Paraguay. The Central Bank manager has already proposed a person to be director of the office. After his appointment, a staff of about five people, probably one lawyer, two engineers, two economists and a secretary, would be employed. Parallelly, consultants would be contracted to assist in establishing the Central Bank's reinforced discount operation.

In the first phase, the new staff would probably visit countries such as Uruguay, Ecuador, Honduras and Mexico to observe the operations of similar lending entities. This would enable them to evaluate the features of each different entity and adopt, adapt or reject them when establishing the lending mechanism for Paraguay.

F. Counterpart

Loan disbursements would be made into a revolving fund at the Central Bank. The Central Bank would be required to redis-

count participating banks' eligible notes in an amount not to exceed 70 percent of each note. This will ensure a local contribution of 43 percent. Thus, the criterion applied to AID funds which requires that loans can be used only to finance projects with direct positive affect on small farmers' income, would be applied to counterpart also. AID loan rollovers would be eligible for rediscounting notes guaranteed under the Production Credit Guaranty Program as well as those generated by projects benefitting small farmers directly as defined for this loan.

The funds would go to the Central Bank at two and three percent and would be passed on to the banks at a rate that would consider the cost to the participating bank, plus the risk involved in financing the subprojects, and cost of implementing mechanism.

USAID believes that the GOP should not receive grant funding to set up the office because most costs are continuous and must be included in the annual GOP budget at the offset to ensure continuity of this program. The Central Bank is willing, as stated previously, to pay these costs. The cost of technical assistance, on the other hand, is a one-time cost which would be made to insure the AID loan. AID would want to control this assistance, and would want authority to approve the consultants hired. Therefore, we believe that technical assistance costs should be grant financed. Under this proposal, the "start up" costs for the project would be divided between the GOP and AID in a ratio of about two to one, assuming the new operation breaks even during the second year.

G. Budget for Development Office

Salaries			
Director	$12,000 x 1 =	$12,000	
Promoter	8,000 x 1 =	8,000	
Project Specialist	8,000 x 2 =	16,000	
Monitor	8,000 x 2 =	16,000	
Secretary	4,500 x 1 =	4,500	
			$56,500
Per Diem			
Promoter	$10.00 x 100 =	1,000	
Project Specialist	10.00 x 100 =	1,000	
Monitor	10.00 x 200 =	2,000	
			$ 4,000
Travel			
400 TDY x 100 kilomters day 40,000 / 3 kilomters per liter = 13333 x .41 per liter gas		$5,500	5,500
*Intl. 6 x $4,000			24,000

* First year cost.

Equipment		
*Two field vehicles		$10,000
*Computer		20,000
	Office Costs	$120,000
Technical Assistance		
U.S. Specialist	$50,000	
Local Specialist	15,000	
Per Diem:		
10.00 x 100 =	1,000	
30.00 x 50 =	1,500	
		67,500
Gas: 150 x 100 ./. 3 x .41		2,050
Short-term consultants		25,000
Contingencies		5,450
Annual U.S. technical assistance costs		$100,000
	Total First Year Costs	$220,000
Central Bank financing over life of project 120,000 + 66,000 + 66,000		252,000
A.I.D. grant financing over life of project $100,000 x 2		200,000
Approximate cost of establishing and operating development window in Central Bank		$452,000

* First year cost.

IV. PROJECT ASSESSMENT FORM

The draft project assessment form included in this section has been developed by adapting pertinent sections of the "Chile: Agricultural Cooperative Development Loan" and the "Uruguay: Agri-Industry Development Loan." Section B of the assessment form deals with the issues of how the project will increase small farmer income, quantification of benefit impact including the calculation of two impact ratios and a determination of benefit incidence to medium and large farmers. The technical unit, when established at the Central Bank, will develop the final form to be used. The final form will be based on this draft and any additions made will have to be approved by AID.

A ranking system was considered as part of the assessment form but we feel that it would not be necessary, primarily because there is no control over arrival of projects to the bank, and a ranking system to decide between projects would not be particularly helpful. The GAMCO study identified 21 projects which would mean one approved project per 1.7 months over a 36-month disbursement period. The two ratios proposed in the GAMCO study, B.3.e. in the Project Assessment Form, will give the Central Bank and AID a way to determine over time which type of projects yield the most benefits to the target group, based on USAID dollars invested.

Replacing a ranking system will be a case-by-case decision as projects are brought in. The most important criteria in the final analysis will always be whether the target group will or will not be directly benefited as the result of project development. Of course, any project which participates in the production, marketing, or processing of cotton or tobacco would be disqualified, even though they are the two most important cash crops produced by small farmers.

PROJECT ASSESSMENT FORM

A. THE BORROWER

1. Name .....

2. Location .....

3. Current Activity .....

4. Address of enterprise .....

5. Total assets .....

6. Annual sales .....

7. Net worth .....

B. ANALYSIS TO DETERMINE ELIGIBILITY

1. Does the project finance the production, marketing, or processing of cotton or tobacco?

Yes _____ No _____

(Yes answer is automatic disqualification)

2. Describe how the project will increase small farmer income. (Include input or output to be industrialized).

3. Quantification of impact on the target group by the project.

a. Number of small farmers benefited _____

b. Dollar amount of USAID funds to be used _____

c. Estimate annual total net benefits (dollars) to be received by small farmers _____

(For a and c explain how calculated and any assumption made)

d. Based on 3.a,b,c, calculate the following two ratios:

Loan dollar per capita ratio = $\frac{a}{b}$

Benefits received--Loan dollar ratio = $\frac{c}{b}$

e. Detail what linkage exists between the enterprise and small farmers.

4. **Benefits to groups other than the target group.**

a. Impact on medium size farmers:

(1) Number of medium size farmers benefited _____

(2) Volume supplied _____

(3) Percentage of total plant production _____

b. Impact on large farmers:

(1) Number of large farmers benefited _____

(2) Volume supplied _____

(3) Percentage of total plant production _____

c. Does an economic justification exist for the utilization of substantial amounts of medium and large farmers' production? If so, explain.

C. SUMMARY OF FINANCIAL DATA

1. Requirements

a. Projected use of funds dollar amount for each category modernization_____, improvement_____, establishment of new enterprise_____, expansion of present line of production_____, expansion into new product line_____, working capital_____.

b. Amount of proposed investment

(1) Proposed loan_____
(2) Self-financing_____
(3) Other sources_____
(4) Total_____
(5) Foreign exchange_____
(6) Local costs_____

2. Projected rate of internal return over 10 years (or indicate alternate number of years) _____

3. Number of years required to recover investment_____

4. Principal anticipated markets

a. International (specify) _____
b. Domestic _____

D. INDICATORS OF PROJECT VIABILITY

Indicator	Yes	Yes, with Qualifications	No	Relevant
1. Provision of effective management for the project is now available or is assured in the project design				
2. Enterprise or cooperative manages its financial affairs well and is a good risk to meet its obligations				
3. Working capital required by enterprise or cooperative is assured				
4. Project has been determined to be of economic scale				
5. Adequacy of supply of raw materials and other inputs required has been demonstrated				
6. An effective market demand at level of production contemplated and at a satisfactory price has been demonstrated				

Explanation of negative and qualified responses

E. AREAS OF INTENDED IMPACT OF SUBPROJECT

Impact Area	Description of nature of effect to be produced	Baseline data and quantitative indicators - estimated outputs of changes					Source o and meth of coll
		Yr. 1	2	3	4	5	
1. Target group (small farmers) benefits incidence							
a. employment							
- direct							
- indirect (farm)							
b. income							
- salaries							
- other (benefits) of total paid							
c. increased production/ productivity							
- increase on-farm production							
- new technology imparted							
d. new alternatives for small farmer production							
e. other (specify)							
2. Agri-industrial infrastructure development							
a. new or expanded market development							
b. new, non-traditional product development							
c. removal of constraints/ bottleneck (specify constraints)							
d. traditional export							
e. other (provide services to small farmers, etc.)							

F. ENTERPRISE DESCRIPTION CHECK LIST

		Yes	No
1.	Utilizes normal agricultural raw material which has been traditionally produced in reasonable volume	_____	_____
2.	Involves minimum packaging costs and complexity	_____	_____
3.	Utilizes uncomplicated technology	_____	_____
4.	Maximizes utilization of existing facilities	_____	_____
5.	Complements existing facilities	_____	_____
6.	Involves uncomplicated marketing	_____	_____
7.	Will operate effectively within existing limitations	_____	_____
8.	Complements the domestic market	_____	_____
9.	Receives no excessive protection	_____	_____
10.	Exhibits good management	_____	_____
11.	Is solvent	_____	_____
12.	Has internal rate of return greater than 10 percent	_____	_____
13.	Utilizes over 50 percent domestic resources	_____	_____
14.	Contributes to improved income distribution	_____	_____
15.	Contributes to integration with neighboring countries	_____	_____
16.	Contributes to production of basic inputs for other agri-industries	_____	_____

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V. PROJECT DESIGN SUMMARY LOGICAL FRAMEWORK

(INSTRUCTION: THIS IS AN OPTIONAL FORM WHICH CAN BE USED AS AN AID TO ORGANIZING DATA FOR THE PAR REPORT. IT NEED NOT BE RETAINED OR SUBMITTED.)

Life of Project:
From FY _____ to FY _____
Total U.S. Funding $2,700,000
Date Prepared: 3/18/76

Project Title & Number: RURAL ENTERPRISES

PAGE

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: To increase small farmer net income.	Measures of Goal Achievement: 1. ____ number of small farmers receiving benefits. 2. ____ number of new employment positions created, in rural areas	1. Survey of each industry 2. Survey of each industry	Assumptions for achieving goal targets: 1. Internal stability continue. 2. No Adverse weather. 3. The incentives for investment established by this project ar sufficient to encourage firms to enter the economy.
Subgoal To relieve one or more of the constraints, to small farmer income, i.e. technology, transportation cost, labor, and price of both inputs and outputs.	1. Introduction of new technology. 2. Better and more stable prices paid for crops either traditional or new. 3. Price of inputs reduced or availability increased. 4. Reduced per unit transport cost. 5. Better utilization of labor. 6. Lower price of consumption goods.	1-6. Analysis of Project Assessment form.	

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PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project
From FY _____
Total U.S. Funding $2,700,000
Date Prepared: 3/11/76

Project Title & Number: RURAL ENTERPRISES

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Purpose:	Conditions that will indicate purpose has been achieved: End of project status		Assumptions for achieving purpose:
To establish a mechanism within the Central Bank capable of developing and promoting an agro-industrial infrastructure which serves the small farmer via commercial bank financing of agro-industries.	1. ____% of projects successful. 2. 100 % of loan funds finance small farmer agro-industrial projects through the commercial banking sector. 3. ____% of developed production processing or servicing capacity devoted to small farmers. 4. Application processing time not more than ____.	1. Bank records and inspection visits. 2. Bank records and inspection visits. 3. Review of individual enterprise records and inspection visits. 4. Central Bank records. NOTE: A project assessment form will estimate 1-3 before an enterprise is financed.	1. GOP import policies do not cha[illegible] 2. Economic disequilibrium in neighboring countries will not seriously jeopordize local industries due to contraband. 3. Sufficient crop production cre[illegible] is available from other source

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PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Project Title & Number: RURAL ENTERPRISES

Life of Project:
From FY _____ to FY _____
Total U.S. Funding $3,700,000
Date Prepared: 3/18/76

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	**Magnitude of Outputs:**		**Assumptions for achieving outputs:**
1. Permanently established unit at the Central Bank to administer a technical assistance system which will promote, evaluate, and provide technical assistance.	1. Six new full time positions established and paid for out of Central Bank budget. One U.S. specialist training and advising the team.	1. Review of Central Bank budget.	1. Commercial banks continue to interested in development le
2. Rediscounted subloans with U.S. loan funds to the commercial banking sector.	2. 1st year 500,000; 2nd year 1,000,000; 3rd year 1,500,000	2. USAID and Central Bank records.	2. Commercial banks will be agg sive in their own promotiona efforts.
3. Reduction of the following key institutional constraints retarding small rural agri-business projects:			
a. Lower capital requirement.	3. a. Land valued at market value an collectual requirement reduced from 1.6/1 to 1.25/1	3. a. Analysis of projects funded under this loan, using commercial bank records and inspection visits.	
b. Introduction of risk and sensitivity analysis.	b. Risk and sensitivity analysis used on 50% of approved projects.	b-h. Central Bank project records.	
c. Low rate of interest for all project segments, i.e. equipment, buildings, and working capital.	c. All projects pay maximum interest rate of 13%.		
d. Increased average length of loan and grace periods.	d. Average length of loan granted at least 3 years with a grace period when needed.		
e. Reduction of nationalization and Credit Formalization expenses.	e. 50% effective reduction in both charges.		
f. Introduction of technical assistance.	f. 75% of total projects receiving technical assistance.		
g. Improved project identification.	g. ___ potential projects identified each year.		
h. Exemption from duties of imported capital goods.	h. All capital goods imported exempted.		

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SUPPLEMENT I

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY _____ to FY _____
Total U.S. Funding $2,700,00
Date Prepared: 3/18/76

Project Title & Number: RURAL ENTERPRISES

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS			MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Inputs:	Implementation Target (Type and Quantity)				Assumptions for providing inputs:
1. U.S.	1st year	2nd year	3rd year		
a. AID Loan Dollars [illegible] million local currency	$[illegible],000	$1,000,000	$1,000,000		
b. AID Grant $200,000	$100,000	$ 100,000	0		
2. GOP					
Central Bank contribution	$ 120,000	$ [illegible],000	$ 66,000		
Commercial Bank contribution (43% compared to total USAID Loan input)	$214,2[illegible]	$ 428,571	$ [illegible]		

VI. MISCELLANEOUS ISSUES

Several issues have been raised in the two cables to which this report addresses itself. Our initial response to these issues is presented here to generate further discussion.

A. How will the project assure a satisfactory and continuing linkage between the small farmers and individual enterprises?

Identification of the linkage that will tie small farmers to the enterprise is a requirement for subproject approval. Cases which cannot identify either an economic or institutional linkage will not qualify. There are various possibilities regarding the linkages. Easiest are those cases where small farmer cooperatives undertake the project. Both ownership and management in this type of situation are directly controlled by the small farmers, assuring the most direct type of linkage to the target group. However, as pointed out in the GAMCO feasibility study, there exist insufficient numbers of suitable farmer cooperatives to reach a significant number of the target group.

Where private entrepreneurs undertake the project a different set of criteria must be used. Most cases will be able to demonstrate an economic dependence of the entrepreneur on the small farmer due to type of crop to be processed or the type of output or service to be developed and the location of the project. Where insufficient linkage can be demonstrated due to economic or location factors, a contractual relationship with CREDICOOP, AUCA (precooperative), CAH, or a cooperative would be required. AID will have post audit veto authority and where insufficient linkage has been demonstrated, the project would be rejected.

B. How will changes in the export markets affect projects developed as a result of this loan?

The commercial banks, which will be taking the risk, will necessarily analyze each project using their own criteria. Banks are familiar and deal with, on a regular basis, the problems faced by the export of Paraguayan agricultural products. Eighty-five percent of Paraguay's exports are, in fact, agricultural. Sensitivity analyses will be introduced to the banking system to improve their capability of analyzing market price changes. Further, projects which will depend on either the Argentine or Brazilian market for success will need an established relationship, contractual or otherwise, in that country for the marketing of the outputs.

It is of course impossible to determine a priori what percent of projects developed will depend on export markets.

However, using the list developed by GAMCO as a guide, a fair estimate would be one-third of the projects will be export oriented.

C. Assess the degree to which project benefits will accrue to persons not in the target group (i.e., larger farmers and entrepreneurs).

Benefits accruing to farmers not in the target group will be assessed by the Project Assessment Form. This issue highlights the importance of a linkage, either economic or institutional, between the target group and the enterprise. The required linkage is primarily needed to assure that the small farmer has first access to the enterprise. Some enterprises which have used all available small farmer output within their economic zone of influence will have to process larger farmers' products in order to use full plant capacity. Benefits that accrue to larger farmers in this manner should not be viewed in a pejorative sense, but rather as a necessary means of establishing plants of sufficient economic scale to be able to benefit the target group. The Project Assessment Form requires a justification for benefits received by farmers outside of the target group.

Benefits will, of course, accrue to the entrepreneurs who take the risk of establishing a new business. We expect this by definition in capitalistic societies. Currently under study are the level of risks faced by entrepreneurs and the normally expected rate of return to capital investments in Paraguay. If it appears after consideration of these factors that there exists the possibility of excess profits to entrepreneurs, design features will be developed to enhance competition and normalize profits.

VII. FINAL PP SUBMISSION

Mission plans to complete intensive review and present Rural Enterprises PP to AID/W June 1, 1976. June 1 presentation presumes no major changes to project design as detailed in this report and the timely provision of previously requested TDY assistance from AID/W.

Dr. Robert Adler, former program economist here and currently stationed in Lima, will assist the Mission with economic analyses. AID/Lima has agreed to a two-week Adler TDY on or about April 15.

We feel that with the assistance of Adler in addition to AID/W TDY's the intensive review can be completed to meet the June 1 submission date. The AID/W TDY's, a loan officer, and a financial analyst would probably be most productive if scheduled to coincide with or directly follow the Adler TDY.

We will be working intensively with Central Bank personnel for the next month (March 15-April 15) developing the mechanism for both the Productive Credit Guarantee Program and the loan. The Central Bank is assigning the personnel needed to complete the PP and to develop the PRP for the Productive Credit Guarantee Program. The PP will include a draft mechanism which has been agreed to in principle by the Central Bank and the Banking Association.

ANNEX to INTERIM REPORT

526010700410 1

PARAGUAY RURAL ENTERPRISE LOAN

Feasibility Study

G A M C O

Atlanta, Georgia

AID Contract 526-388

March 1976

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I. INTRODUCTION

This report is the result of four and one-half months of research and survey work, oriented to determine the feasibility of a developmental loan project to finance industrial and services activities that would have a favorable direct impact on small farmers' income. USAID Mission to Paraguay contracted the firm GAMCO, Inc., based in Atlanta, Georgia, to carry out the research and survey tasks. GAMCO provided 27 man-months of technical and administrative personnel to the project known as "Rural Enterprises Loan". Annex No. 1 contains the statement of work, scope of work and staffing that served as the basis for the services GAMCO was contracted to perform.

A. Project Background

A review of the scope of work described in Annex No. 1 can be summarized with the following question: What types of enterprises can positively affect small farmers' income in Paraguay? In order to answer this question, the survey team visited 62 agriculture-related cooperatives in Paraguay. A detailed list of these cooperatives is presented in Annex No. 2. In addition to the cooperatives, approximately 150 interviews were held with various international and national institutions as well as with established businessmen and private investors. A special emphasis was placed in concentrating the project identification process on industries and other relevant activities that might locate in the interior, away from the Asunción area. This was assumed to be a desirable goal, since any industrial activity that takes place in the interior would have a much greater impact (social and economic) than industries that locate in Asunción.

In an attempt to determine geographic characteristics and differences for the purpose of this study, the country was divided into 10 different areas, which consolidate the 19 departments that make up the political subdivisions of Paraguay. (See Figure No. 1). The basis for the determination of the 10 areas was a combination of two or more of the following factors:

-- Cooperative concentration and activity (starting point)

-- Similarity in terrain characteristics

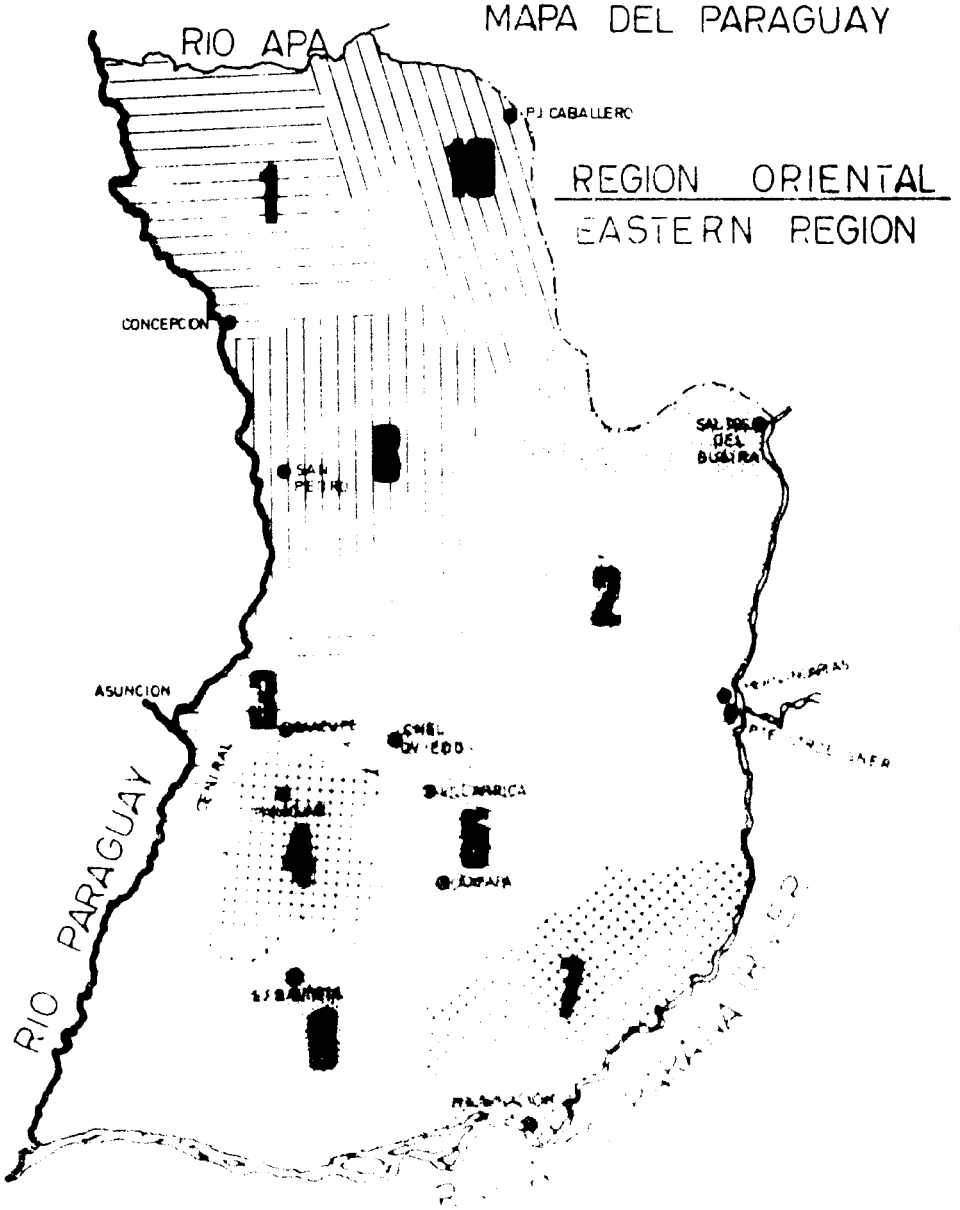
-- Similarity in degree of public infrastructure

-- Geographic relationship to central markets

-- Similarity in the types of agricultural activities

The department of Ñeembucú was visited but was not analyzed because it is primarily a cattle-breeding region. It is highly unpopulated and does not have an agricultural cooperative.

FIGURE Nº1 MAP OF PARAGUAY
MAPA DEL PARAGUAY



DISTRIBUCION GEOGRAFICA - GEOGRAPHIC DISTRIBUTION

1. CONCEPCION 2. CANINDEYU 3. ITAPUA 4. AMAMBAY 5. CENTRAL 6. GUAIRA 7. ALTO PARANA
8. CAAZAPA 9. MISIONES 10. PARAGUARI 11. ASUNCION 12. CORDILLERA 13. ALTO PARAGUAY

ELABORADO POR [illegible]

The interviews held with cooperative officials served general purposes, mainly:

-- To develop data necessary to review small farmer inputs and outputs. (Sections II and III of this report).

-- To understand the stage of development of the cooperative movement in Paraguay (described in the following sub-section).

-- To identify potential (short-and mid-term) subloan projects (Section IV).

Section V of this report reviews the development lines of credit available in Paraguay today. The last section (VI) presents conclusions and recommendations concerning the feasibility of the proposed loan project.

B. Observations Concerning the Stage of Development of the Agricultural Cooperatives in Paraguay

It is estimated by Paraguayan Government officials that there are approximately 141,000 small farmers (20 hectares or less) in Paraguay. If this figure is accepted as factual, it means that approximately only seven percent of the small farmers in Paraguay are members of cooperatives. Table No. 1 presents the number of cooperatives by region and their membership. Figure No. 2 illustrates the location of these cooperatives and their approximate area of influence (15 km. radius on the average).

The figures in Table No. 1 represent approximately 90% of the cooperatives and 99% of the cooperative membership of Paraguay. Of the total membership that appears in Table No. 1, approximately 70% is composed of small farmers. One-third of the cooperatives account for approximately 60% of the total membership in the country. Cooperatives are concentrated in the departments of Canendiyú - Alto Paraná, Chaco (mostly large farmers), and Itapúa. These same three zones are colony areas, and with some exceptions in the area of Alto Paraná, the membership is composed of immigrants: Mennonites in the Chaco, Germans and Japanese in Itapúa and Brazilians in Canendiyú - Alto Paraná. The colony areas seem to be the most responsive to cooperative efforts. This is partly explained because of the cooperative tradition of the abovementioned ethnic groups. The cooperatives in both Chaco and Itapúa are among the oldest in the country and are by far the best organized with a tendency to be vertically integrated (several industrial activities).

TABLE No. 1

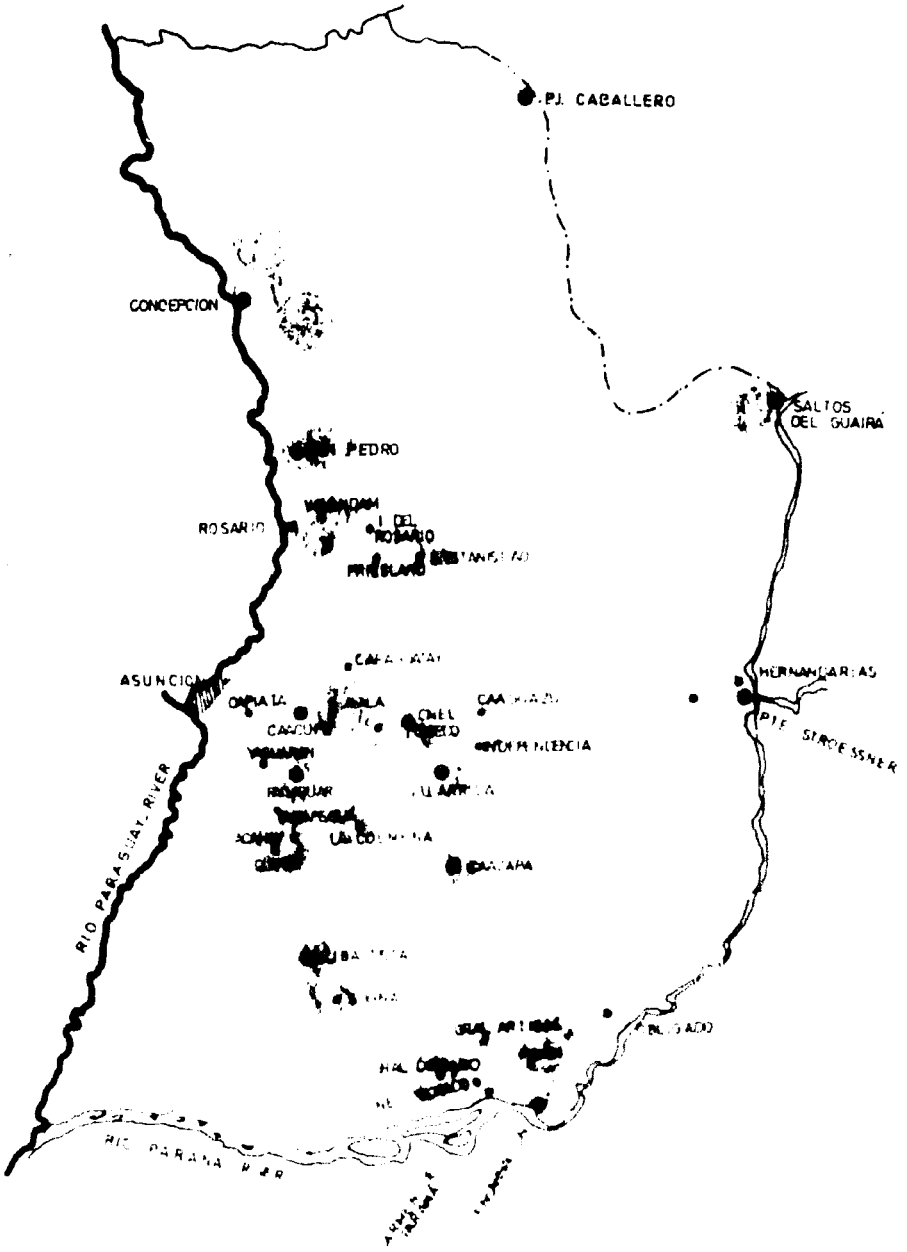
LOCATION OF COOPERATIVES AND MEMBERSHIP FIGURES

Zone	Area (Dept.)	Number	Membership
I	Concepción	4	402
II	Canendiyú - Caaguazú Alto Paraná	7	2,094
III	Central - Cordillera	9	682
IV	Paraguarí	7	773
V	Guairá - Caazapá	5	289
VI	Misiones	6	549
VII	Itapúa	12	2,360
VIII	San Pedro	8	790
IX	Chaco	3	2,372
X	Amambay	3	51
	TOTAL	62	10,362

The general opinion of the survey team was that only one-third of the cooperatives interviewed appear to have competent administration and leadership. The evidence that three of the most successful Paraguayan cooperatives are run by priests seems to indicate that the most scarce resource in the cooperative movement in Paraguay today is capable, trustworthy leadership. Small farmers, partly because of their cultural level and partly because of bad past experiences, have become a highly alienated group in many areas of the country.

In summary, the cooperative movement in Paraguay is still at an infant stage, and very likely it will be several years before a significant number of small farmers will become cooperative members. Capital, competent administration, and trustworthy leaders are the three major constraints. In practically all cases of the one-third of the cooperatives mentioned above, it was remarked that CREDICOOP is a major factor in the successful development and progress of their cooperatives.

FIGURE Nº2



COOPERATIVAS Y SU AREA DE INFLUENCIA

COAPERATIVES AND THEIR AREA OF INFLUENCE

ELABORADO POR AUTOR

II. REVIEW OF SMALL FARMER INPUTS

This section of the report describes the principal inputs utilized by the small farmers. The first part deals with personal consumption inputs. The second part deals with "nondurable" inputs, and the third and last part discusses the principal "durable" inputs.

A. Personal Consumption Inputs

Survey findings revealed important factors that partly explain the rather low loan recuperation rates encountered by many cooperatives. Several cooperative officials stated that the specialized nature of the cooperatives (production vs. savings and loans) had some counterproductive features. While it was generally agreed that production credits today are much more available than in past years, it was stated, however, that often the small farmer does not have enough cash to support his family and meet emergency expenditures during the average six months between crops. This situation often obliges the small farmer to deal with the acopiadores-almaceneros (general store owners who often act as middlemen of small farmer outputs). The small farmer can get cash from these middlemen, but most often he prefers to take the merchandise needed by him and his family. Several persons interviewed stated that this situation often had the following results:

-- The merchants do not charge monthly interest rates on the cash they lend, but have first claim on outputs.

-- Mark-ups on merchandise that are 30 - 50 percent higher than those charged for similar items in large urban centers.

-- Merchants do not pay for quality differentials.

The percentage mark-up is in direct relation to the distance from large cities like Asunción and Encarnación. The maximum mark-up is found in isolated border areas like Saltos del Guairá where survey findings revealed an average mark-up over Asunción prices of 50 percent. In many areas when it rains and the dirt roads are closed, the prices of personal consumption items are doubled immediately.

Once the small farmer has accepted money and/or merchandise from the store owner, he acquires an obligation to sell his production to the store owner. It is suspected by many that some store owners do not have accurate scales for weighing the small farmers' products. Since most small farmers do not have scales of their own, they have to accept the weight measurements of the store owner. Finally, according to survey findings by the Ministry of Agriculture, in 60 percent of the cases the store owners do not pay premium prices for quality

products, but rather pay as if all the products were of a lower quality. It is difficult to ascertain to what degree these allegations are true, but many cooperative and Ministry officials made such remarks. Table No. 2 lists the main personal consumption products purchased by small farmers.

Six of the interviewed cooperatives operate stores that provide their respective members with personal consumption items as well as agricultural tools. Some of them even accept implements on consignment from Asunción agricultural equipment importers. Table No. 3 identifies these cooperatives.

TABLE No. 2

PRINCIPAL PERSONAL CONSUMPTION ITEMS PURCHASED BY SMALL FARMERS

Products	Current Asunción Baseline Prices *
Sugar	34 ¢
Vegetable oil	110 ¢
Yerba Mate	30 ¢ 1/2 Kg. (packaged) 18 ¢ 1/4 Kg. " 40 ¢ Kg. (bulk)
Soap	12 ¢ bar
Salt	40 ¢ Kg.
Noodles	60 ¢ Kg.
Rice	55 ¢ Kg. (bulk) 120 ¢ Kg. (packaged-Primera)
Flour	80 ¢ Kg.
Corn	30 ¢ Kg.
Beans	48 ¢ Kg.
Starch	48 ¢ Kg.
Kerosene	35 ¢ Kg.
Galleta (type of bread)	60 ¢ Kg.
Caña blanca (rum)	80 ¢ Lt.
Guaviramí (rum)	60 ¢ Lt.

* Several of these prices fluctuate throughout the year; they are used here for illustration purposes.

TABLE No. 3

COOPERATIVES THAT OWN AND OPERATE GENERAL STORES

Name of Cooperative	Location
Colonias Unidas	Itapúa
San Luís	Itapúa
Friesland	Itapúa
La Paz	Itapúa
Volendam	San Pedro
Mennonites (all three)	Chaco

Source: GAMCO Survey

The Cooperatives listed in Table No. 3 are the best and more fully integrated (both vertically and horizontally) agricultural institutions in Paraguay. Their membership is composed of immigrants (mostly Germans) and first and second generation Paraguayans. These cooperative stores operate by extending credit to their members and receiving payment after the crops have been harvested.

It would be desirable to include as potential subloans of the Rural Enterprises Loan medium-term loans (three to four years) to develop cooperative stores. The benefits of such cooperative stores would be the following:

-- Reduce the cost of personal consumption items.

-- Minimize the small farmers' dealings with the almaceneros; thereby increasing the cooperatives' prospects for recuperating the production credits advanced to members.

The major constraint to establishing cooperative stores is the availability of capable and trustworthy individuals to operate such stores. Perhaps Peace Corps volunteers could train cooperative almaceneros.

B. "Nondurable" Production Inputs

The principal inputs of this type are the following:

-- Seeds and/or plant stocks

-- Fertilizers

-- Systemic insecticides

-- Contact insecticides

-- Bags and boxes

-- Labor

The seeds are acquired through different sources. In a few cases the cooperatives develop their own, but in most cases seeds are obtained from Servicio Nacional de Semillas through the National Development Bank. In the case of tobacco and cotton, seeds are often obtained through specific programs carried out by the Ministry of Agriculture. According to cooperative officials, these are the two most successful agricultural programs. A clear agricultural policy can be observed.

Fertilizers and insecticides are imported, and their national production is very unlikely. Cotton bags used for the collection and transport of cotton are produced in Paraguay by one textile mill. Bags are estimated to be very costly. The biggest demand is for jute bags. Jute is a material that is imported from India since there is no jute production in Paraguay.

Table No. 3A gives a detailed cost breakdown of production inputs for eight agricultural products. Figure No. 3 indicates the cost of agriculture field hand labor in eastern Paraguay. The remarkable difference between regions points out the more dynamic areas as opposed to the depressed regions where small farmers' income is, at best, marginal.

C. "Durable" Production Inputs

Agricultural tools (hoes, machetes, etc.) are usually purchased by small farmers at hardware stores in the cities or at general stores in small towns. Most tools are of Brazilian, Spanish, Argentine and, more recently, of Colombian origin. Tools are not produced in Paraguay, but presently a group of entrepreneurs is contemplating the production of such items.

The most common implements used by small farmers range from one to several of the following items:

Plows
Tooth harrowers

TABLE No. 3A

COST OF PRINCIPAL PRODUCTION INPUTS FOR SELECTED PRODUCTS

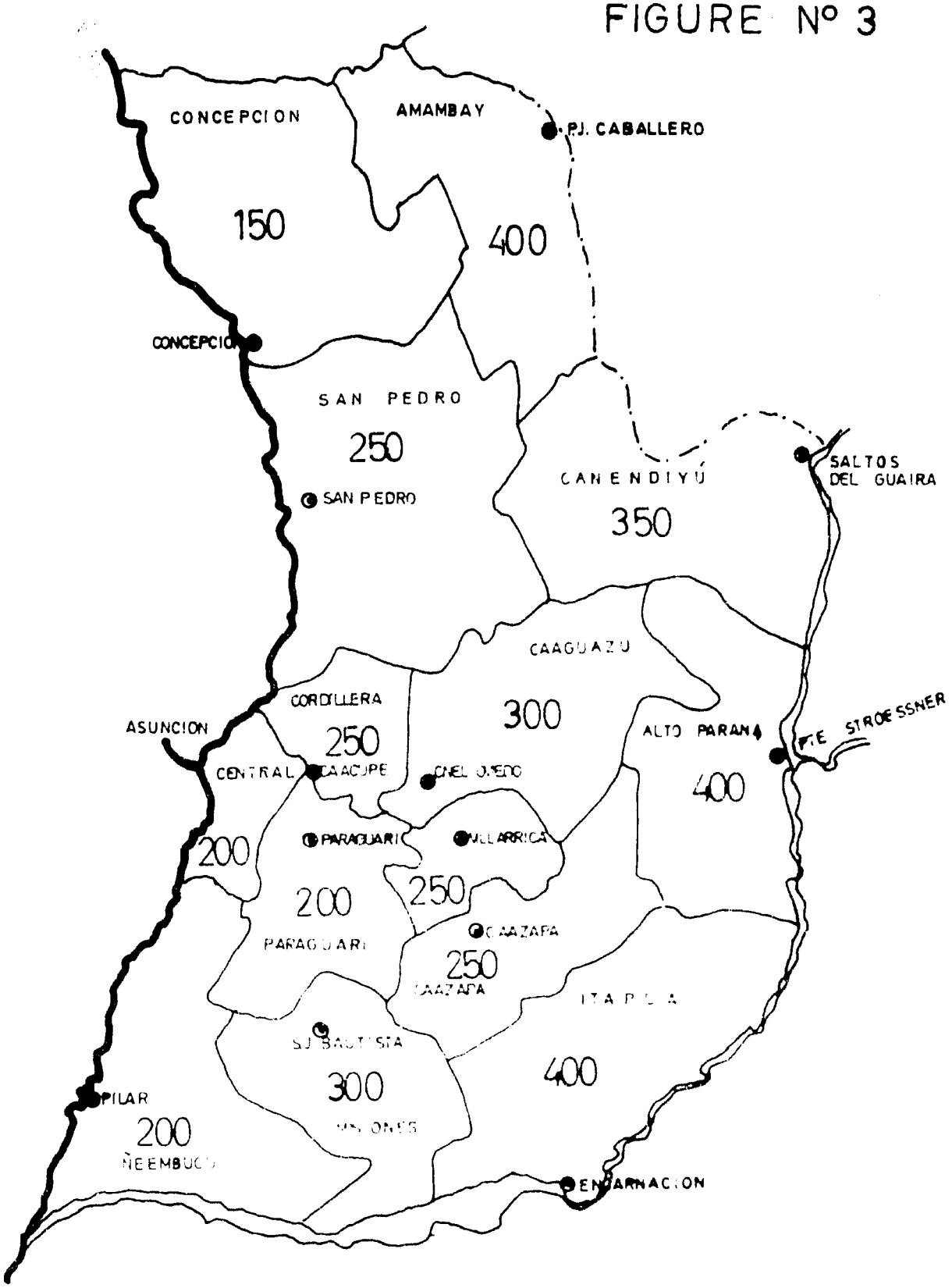
Inputs	Soybeans		Corn		Wheat		Irrigated Rice		Upland rice		Cotton		Tobacco		Tomatoes	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Seeds or plant stocks	50 Kg	40	20 Kg	20	100 Kg	50	150 Kg	65	35 Kg	52	25 Kg	30	25 gr	50	0.50	6,000
Fertilizers	130 Kg	43.84			80 Kg	50					225 Kg	47.42			1.650 Kg 3/ 0.000 Kg 4/	45 2
Insecticide (systemic)					2 Kg	250	1	500			1.5 lt	500			7 lts	850
Insecticide (contact)	2 Kg	600	1 Kg	600			2	700	2	750	4	700	1	800	29	700
Fungicide					300 gr	3,000 ₱/lbs							2	600	85	400
Bags	15	70	40	70	33	70	60	65	25	70	25	130				
Others	1	60						5.000 1/					0.50	200 2/	20,000 5/	1
Cost per ha. (With Fert.	15,000				11,810						17,000				300,000	
Cost per ha. (Without Fert.	4,500		4,000				22,000		5,000		7,000		3,000			

1/ Leeves Const.; 2/ Rope; 3/ Chemical fertilizer; 4/ Organic fertilizer; 5/ Sticks

Code: A: Quantity per ha.; B: Unit cost ₱/kilo.

Source: Cost sheet of BNF.

FIGURE Nº 3



DAILY LABOR COST BY DEPARTMENT

(¢)

ELABORADO POR GAMCO INC.
SOURCE: COST SHEETS OF NATIONAL DEVELOPMENT BANK

Row C cultivators
Back-pack sprayers
Sprayer carts
Disk harrows
Seed fertilizer machines
Corn shellers
Threshers
Elevators
Chain saws
Fence wire (nonbarbed and barbed)

There is practically no national production of the above listed implements (except wire). However, in section IV of this report, a detailed description is given in connection with the potential feasibility of the local production of these implements. Presently, most of these implements are imported from Brazil by the National Development Bank.

III. REGIONAL CHARACTERISTICS OF SMALL FARMER OUTPUTS

Small farmers in Paraguay produce a wide range of products. In fact, with the notable exception of coffee beans, tung, and most of the wheat production, a large percentage of the rest of the agricultural production is mostly in the hands of small farmers. Table No. 4 contains a breakdown by region that indicates the distribution of small farm units in Eastern Paraguay. Studying Table No. 4, it can be observed that small farmer concentration ranges from 89 percent in region number two to 97 percent in region number three, the average being about 95 percent. Small farm units are defined as 20 hectares or less. Perhaps a more significant indicator of "smallness" is given in the third column of Table No. 4, where the percentage of farm units from zero to five hectares is found. In the 0-5 range, we observe that the concentration percentages fluctuate more, and we see that in four regions over 50 percent of the farm units have less than five hectares, indicating the location of minifundio areas.

A. Regional Review of Small Farmer Outputs

In this section a description is given of the principal characteristics of the 5 areas of interest to this study. The information presented was obtained from:

-- The statistics of the Ministry of Agriculture Encuesta Agropecuaria por Muestreo 1972/1973, 1973.

-- The Small Farmer Subsector Assessment, USAID Mission in Paraguay, 1975.

TABLE No. 4

CUMULATIVE PERCENTAGE OF SMALL FARM UNITS BY REGION IN FOUR RANGES

Region		Total Number of Farm Units	Ranges (Has.) 0-1	0-5	0-10	0-20
I	Concepción	8,652	3%	23%	41%	88%
II	Alto Paraná	5,143	5	17	29	59
	Caaguazú	15,267	0.7	22	47	89
	Canendiyú 1/					
III	Central	13,872	16	72	89	97
	Cordillera	18,760	7	54	78	92
IV	Paraguarí	24,962	7	54	76	91
V	Guairá	14,714	12	56	73	93
	Caazapá	10,591	5	45	64	88
VI	Misiones	7,162	6	44	63	78
VII	Itapúa	15,905	2	22	42	76
VIII	San Pedro	14,775	5	25	42	85
IX	Chaco 2/	-	-	-	-	-
X	Amambay	2,891	-	2	9	73

1/ Canendiyú was created in 1974.

2/ Data not available.

Source: MAG - Encuesta Agropecuaria por Muestreo, 1972

-- Field interviews by GAMCO, Inc.

-- Various other governmental institutions.

Table No. 5 presents a quantification (percentage) of the number of hectares within each region dedicated to the cultivation of 22 different products. It was not possible to determine how many of these hectares are in the hands of small farmers. However, we have a good idea of the relative importance of small farmer contribution to the production of these products from Tables No. 4 and No. 5. Table No. 6 presents the average yield of 19 products by region. The regional presentation given below lists the principal products of each region. Only those products that compose 10 percent or more of the national production are included in each area's description. Also, whenever the 10 percent or more types of products have a higher yield than the national averages, such characteristics are identified. Figure No. 4 shows the geographic distribution of principal crops by region.

1. CONCEPCION

Number of Cooperatives: 4

Total Membership: 402

Number of Farm Units: 8,652

Principal Agricultural Products:

Castor beans	11,300 ha.* - 47% of national product
Corn	9,700
Cassava	8,000*
Cotton	5,700
Round beans	2,000

Area Characteristics

Concepción is clearly the most depressed area visited by the survey team. Traditionally a cattle raising area, its agricultural development is presently being constrained by a drop in price of its principal product, castor beans. Cooperative officials interviewed indicated that cotton is a promising crop for the region, given the department's climate. They also indicated that the lack of storage sheds for cotton forces the small farmers to sell at a disadvantage. Concepción's second largest agricultural product is corn. It is a traditional crop that small farmers prefer to plant, since they are knowledgeable about its cultivation. Overall corn yields

* Yield per ha. greater than national average.

TABLE No. 5

PERCENTAGE OF NUMBER OF HECTARES BY REGION AND PRODUCT

Products	Country Totals (000 Has)	Regions 1	2 a	2 b	3 a	3 b	4	5 a	5 b	6	7	8	9	10
Sorghum	5.5	-	4	-	9.2	-	-	-	1.8	2	-	6	76	-
Cotton	91.2	6	3	14	1	12	21	4	4	6	10	7	1	0.4
Upland rice	5.8	0.3	27	2	-	0.5	5	0.7	3	5	8	0.5	-	32
Sweet potatoes	14.3	5.3	3	17	10	11	10	6	2.5	5	6.2	6.3	2.4	-
Soybeans	81.4	-	9	3	-	-	4	3	2	12	59	2.4	-	7
Tobacco	20.4	2	11	29	1	9	10	3	9	1	1	22	-	-
Corn	192.6	5	5	11	5	8	16	7	6	4	16	8	-	3
Cassava	144.5	6	4	14	8	11	14	9	7	3	12	9.4	-	2
S. cane for sugar	17.7	-	-	3	18	-	8	60	-	-	-	-	11	-
S. cane for molasses	10.3	-	-	1	10	25	35	4	19	-	1	-	-	-
Irrigated rice	16.5	1.2	-	2	-	9	11	0.6	2	42	32	-	-	-
Onions	3.8	5	-	21	-	7	27	6	5	1	12	6	-	-
Wheat	20.3	-	2	-	-	7	10	-	-	22	36	16	-	-
Peas	3.2	4	8	4	14	29	10	6	3	1	10	6	-	0.6
Peanuts	18.0	4	1.1	16	2	11	12	3	7	2	7	6	24	2
Potatoes	0.6	-	-	18	2	18	15	3	21	-	18	-	-	-
Beans	46.6	4	3	11	6	9	17	7	8	5	12	6	-	-
Lima beans	8.4	2	14	13	3	9	2	7	7	1	16	10	-	14
Alfalfa	4.6	3	1	13	27	7	14	4	7	4	14	3	1	0.9
Castor beans	23.9	47	0.9	3	5	3	5	1	2	2	-	15	10	4
Sour Orange leaves 1/	301.8	-	-	14	0.3	31.5	4.3	0.1	3	0.1	-	46.3	-	-
Mint	4.3	-	93.5	3	-	-	-	-	1.5	-	-	-	-	1.5

1/ Tons of essential oil prod.

Source: MAG - Encuesta Agropecuaria por Muestreo 1973

1 - Concepción
2 - a) Alto Paraná
b) Caaguazú
3 - a) Central
b) Cordillera
4 - Paraguarí
5 - a) Guairá
b) Caazapá
6 - Misiones
7 - Itapúa
8 - San Pedro
9 - Chaco
10 - Amambay

TABLE No. 6

AVERAGE YIELD PER HECTARE BY REGION

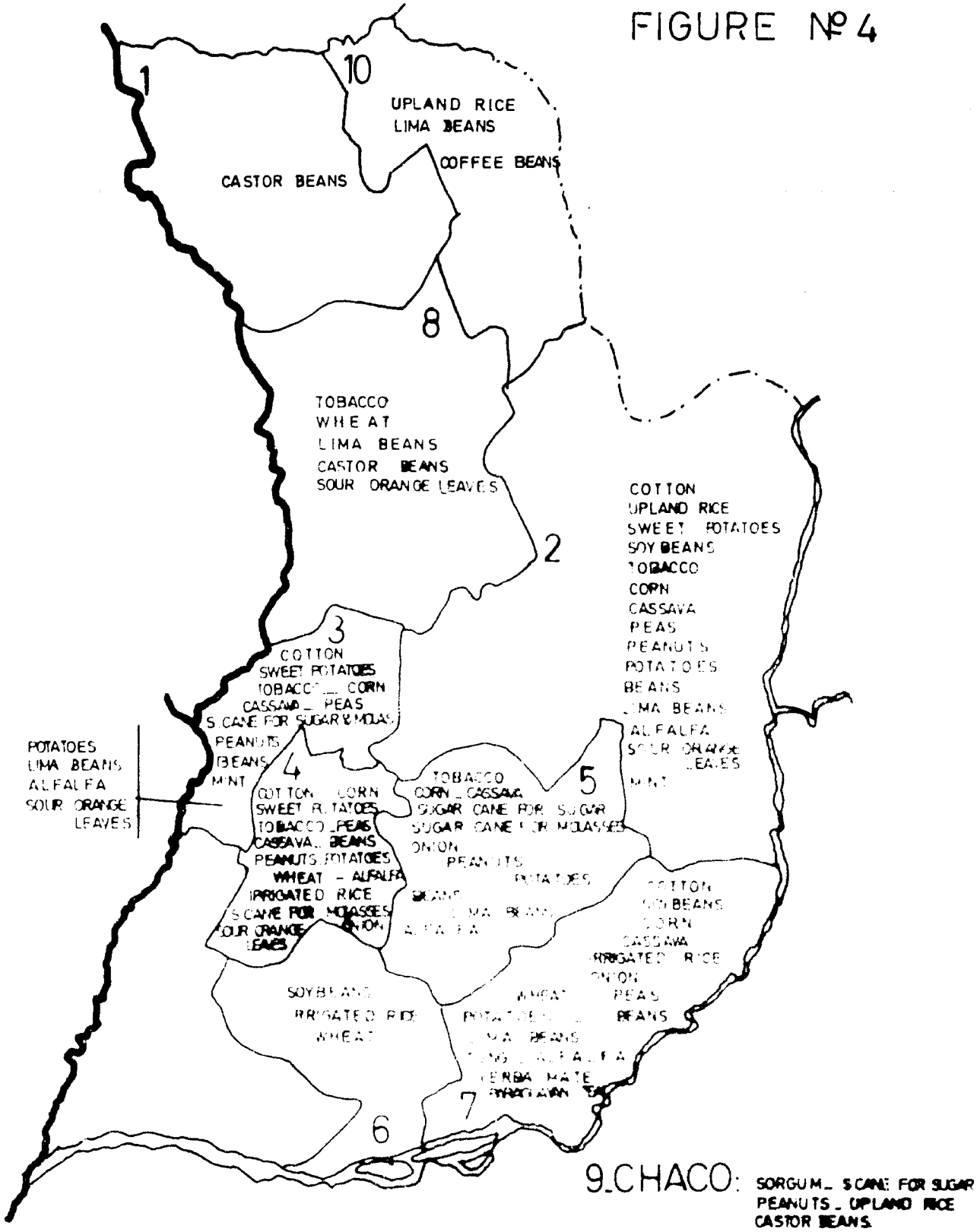
Products	Country's Average (kilos)	Regions 1	2 a	2 b	3 a	3 b	4	5 a	5 b	6	7	8	9	10
Cotton	1,051	958	1,125	1,020	1,044	964	1,039	1,283	915	1,159	1,268	1,129		974
Upland rice	1,354	870	1,314	1,122	1,200	833	875	294	1,446	1,966	1,961	600	-	1,352
Sweet potatoes	7,483	12,139	9,473	13,345	1,927	9,922	7,132	9,087	11,656	4,583	8,128	9,428	3,200	8,696
Soybeans	1,506	773	1,623	1,552	1,122	1,152	801	1,453	1,256	1,669	1,527	1,450	-	1,578
Tobacco	1,310	884	1,414	1,130	1,088	1,239	1,181	1,680	1,329	1,504	1,321	1,574	-	-
Corn	1,326	1,274	1,979	1,143	1,043	954	1,085	1,487	1,464	1,289	1,527	1,689	950	1,373
Cassava	13,914	28,813	14,653	15,865	1,500	11,640	13,972	12,804	14,037	7,809	14,914	17,146	5,101	37,638
S. cane for sugar	42,900	-	-	53,840	19,510	7,260	35,090	51,610	53,340	-	3,350	-	32,000	40,000
S. cane for molasses	33,100	20,430	20,000	15,080	4,110	34,910	35,230	23,050	49,110	44,820	8,080	54,130	28,000	-
Irrigated rice	2,162	1,127	-	4,690	-	1,416	1,959	2,339	1,526	1,810	2,772	3,263	-	-
Onions *	5,500	2,512	2,120	7,330	2,302	3,863	5,476	4,422	830	4,000	6,721	4,649	-	5,571
Wheat **	1,132	-	1,148	1,229	803	985	916	1,826	667	1,213	1,166	1,200	-	1,145
Peas	871	532	926	1,112	928	795	1,153	1,016	540	1,135	766	1,042	-	476
Peanuts	875	817	860	958	793	812	996	933	642	713	947	1,122	780	1,560
Potatoes **	6,042	-	6,500	7,022	2,833	4,318	8,050	5,600	5,296	6,666	7,000	4,000	-	8,000
Beans	788	759	850	882	966	624	727	1,034	749	743	687	935	600	630
Lima beans	849	836	1,057	874	931	547	814	1,068	614	504	821	802	-	883
Alfalfa	4,646	4,797	4,982	5,398	1,594	3,488	8,895	5,310	2,468	6,523	6,637	4,729	2,960	3,500
Castor beans	897	935	-	642	1,094	525	1,250	787	517	196	-	1,134	1,175	593

* = 1973/1974; ** = 1973

Source: MAG - Encuesta Agropecuaria por Muestreo 1972/1973

1 - Concepción
2 - a) Alto Paraná
b) Caaguazú
3 - a) Central
b) Cordillera
4 - Paraguarí
5 - a) Guairá
b) Caazapá
6 - Misiones
7 - Itapúa
8 - San Pedro
9 - Chaco
10 - Amambay

FIGURE Nº 4



GEOGRAPHIC DISTRIBUTION OF PRINCIPAL AGRICULTURAL PRODUCTS

ELABORADO POR GAMCO INC

are below national average by five percent, and usually draw one of the lowest prices in the nation. Cooperative leadersexplained that besides the castor bean prices and storage problems mentioned above, Concepción's small farmers are confronted by other problems:

-- Much of the land held by small farmers was previously timberland and the presence of tree stumps and logs prohibits mechanization.

-- Their geographic location and the particularly bad road system put them at a constant relative disadvantage with the rest of the nation, since the department of Concepción is the most distant from central markets.

All but one of the cooperatives interviewed, were experiencing serious financial problems because their members were not paying their financial obligations. The principal villain, according to the cooperative leaders, was the acopiador-almacenero (general store merchant). This almacenero is more successful in obtaining small farmer outputs than the cooperatives for the reasons discussed previously in Section II.A.

As shown in Figure No. 3, Concepción has the lowest wage rates for field workers. Not being a minifundio area, the low wage situation is likely to represent underemployment, as might be the case in the central area (sub-section 3 in this chapter).

This area's present situation undoubtedly merits the highest priority in the Rural Enterprises Loan. A considerable effort should be made by the institutions affected by the loan to promote any type of activity that might increase employment in this area.

Four promising projects were identified during the course of this study:

-- Castor oil extraction factory

-- Pasteurized juices and confectionery processing plant

-- Hog breeding project

-- Silo and Dryer project

-- Corn flour processing plant

2. CANENDIYU - ALTO PARANA - CAAGUAZU

Number of Cooperatives: 7

Total Membership: 2,094

Number of Farm Units:

Alto Paraná: 5,143
Caaguazú : 15,267

Percentage of Small Farmers:

Alto Paraná: 54%
Caaguazú : 84%

Principal Agricultural Products: 1/

	Alto Paraná Hectares	Caaguazú Hectares	Percent of National Product
Mint	4,000	131	[illegible]
Tobacco	2,500•	[illegible],100	39
Lima beans	1,204•	1,050	27
Onion	25	880•	22
Cotton	2,800•	15,000	20
Sweet Potatoes	366•	2,400•	19
Cassava	5,200•	31,000	18
Potatoes	2•	107•	18
Peanuts	200	2,800•	17
Corn	9,200•	22,000	[illegible].6
Rice (upland)	1,600	1,500	14
Round beans	1,500•	5,000•	14
Petit-grain		55 tons	14
Alfalfa	578•	55•	14
Garlic	12	247	13
Peas	258•	134•	12
Soybeans	7,000•	3,000•	11

1/ Figures derived fr[illegible] 1973 Agricultural Census. In 1974 Alto Paraná was subdivided int[illegible]anendiyú. Due to extraordinary accelerated development, present figures are probably two to three times greater than those shown above, particularly for soybeans, mint, and tobacco.

• Yield per hectare greater than national average.

Area Characteristics

Second only to Itapúa in terms of present agricultural development growth, this three-department area will very likely become the most important zone within Paraguay's interior. The rationale behind the conglomeration of these three departments into one for the purpose of this study is that all three have the following similar features:

-- Area of new colonizations

-- Terrain - high concentration of timber land, that is very fertile once it is cleared

-- Agricultural productivity being positively affected by significant migration of Brazilian farmers of Eastern European extraction

-- High concentration of small farmer cooperative development

-- Nearness to Brazil yields excellent alternatives to economical export logistics

The present and almost certain future economic growth of this region will shortly become Paraguay's best asset. This area has the highest potential of becoming the salvation of the small farmers of the central zone. The wages paid to field hands (see Figure No. 3) is a clear indication of the economic importance that this area is already showing. Most of the Brazilian immigrants are highly productive small farmers, and are already affecting native Paraguayan small farmers through the demonstration effect of more advanced farming technology. The isolation factor of the new colonies contributes to new cooperative development as it can be observed in the membership figures of Annex No. 2.

Interviews with cooperatives of these regions revealed the following problems:

-- Impediment to full land utilization and mechanization because of tree stumps and the presence in the fields of noncommercial logs

-- Too rapid growth has created an acute shortage of storage capacity

This area should have a priority ranking similar to Concepción in terms of project promotion for entirely different reasons.

The high priority ranking for Concepción would be an effort to create development, which by definition means long-term results. In this case, however, a high priority ranking is needed in order to cope with the rapid development of the zone. This area offers short-term results, and the impact of its development is much larger in magnitude because of the short-run benefit it can bring to small farmers who presently reside in several different areas of the country and who might relocate to this region. Development in Concepción, which is urgently needed, would be addressed to a smaller group of people.

Several projects were identified for the area:

Balanced feed mill
Milk, cheese and butter plant
Work clothes production
Machine shop
Silo and dryer project
Rice mill
Cassava flour mill
Mint crystals processing plant

3. CORDILLERA - CENTRAL

Number of Cooperatives: [illegible]

Total Membership: [illegible]

Number of Farm Units:

Cordillera: 15,7[illegible]0
Central : 13,8[illegible]

Percentage of Small Farmers:

Cordillera: [illegible]%
Central : [illegible]%

Principal Agricultural Products:

	Central	Cordillera	Percent of Nat'l Product
Abacachi pineapple	[illegible]40,000 1/	11,000,000	52
Cayena Lisa pineapple	734,000 1/	[illegible],700,000	
Peas	441 ha.	929 ha.	43
Sugar cane for forage and molasses	1,000	2,600	35
Alfalfa	1,250		34

	Central	Cordillera	Percent of Nat'l Product
Petit-grain		1,235 tn.	31
Banana "carapé"	820,000 1/	1,000,000 1/	
Golden banana	1,600,000 1/	675,000 1/	27
Sweet potatoes	1,470 ha.	1,600 ha.	21
Potatoes	12	109	20
Cassava	10,900	16,200	19
Sugar cane for sugar	2,770	57	19
Round beans	3,000 *	4,000	15
Corn	9,100	16,200	13
Cotton	1,300	10,600	13
Peanut		2,000	13
Lima beans	236 *	750	12
Tobacco	300	1,800	10

1/ Number of plants.

* Yield per hectare greater than national average.

Area Characteristics

The small farmers in these two departments survive under a set of rather peculiar circumstances. Sixty percent of them live on farms that have an average size of three hectares. This minifundio region does not appear to have much of a future unless some drastic changes take place. There is a host of underemployment as well as unemployment. These two departments rank second lowest in terms of field hand daily wages. Despite the fact that a considerable number of Paraguay's major industries are located in this area, there is a large unemployment problem. The soils in some sectors are among the least fertile in the eastern region. Most of the cooperatives in the area have too few members to be effective. The promotion and development of horticulture could be a partial solution to the problem of the small farmers. Its proximity to Asunción already makes this region the largest producer of vegetables.

Survey findings reveal a shortage of wooden crates and boxes for the collection and transport of fruits and vegetables. Cooperative leaders complained about the high cost of wooden boxes.

Most of Paraguayan handicrafts are produced in these two departments. Survey team members contacted the new Office of Handicraft Promotion (SPA) which is part of the Ministry of Industry and Commerce. This is a new service that has been in existence for less than a year. Its work program for the promotion and development of handicrafts in this area seems to be very promising. Such a program, to be effective, requires technical assistance and financial

support to SPA. On the technical assistance side, SPA's program is a natural for Peace Corps participation. GAMCO technicians put both of these two institutions in touch and preliminary discussions concerning possible cooperation have already taken place. In addition, the following potential projects were identified:

-- Fruit pulp and glazed fruit processing

-- Silo and dryer project

-- Candy manufacturing

There are several other potential projects in the Central Zone that are discussed in Section No. IV. These are not mentioned here because they are oriented to serve all small farmers in Paraguay (e.g. low cost intermediate technology implements) and not just these two departments.

4. PARAGUARI

Number of Cooperatives: 7

Total Membership: 773

Number of Farm Units: 24,962

Percentage of Small Farmers: 90

Principal Agricultural Products:

	Hectares	Percent of National Product
Sugar cane for molasses	3,625 *	35
Onion	1,125	27
Cotton	18,710	21
Round Beans	7,800	17
Corn	30,700	16
Potatoes	88 *	15
Alfalfa	647 *	14
Cassava	20,200 *	14
Peanuts	2,200 *	12
Rice (irrigated)	1,800	11
Tobacco	2,100	10
Wheat	2,500	10
Sweet Potatoes	1,395	10
Peas	318 *	10
Pimientos	1/	
Strawberries	1/	

1/ Data N/A. It is estimated to be similar to Central which is the other major production center.

* Yield per Ha. greater than National Average.

Area Characteristics

Paraguarí is very similar to the Central Zone and Cordillera in terms of the number of small farmers; however, there are some important characteristics that tend to set Paraguarí apart from the other two departments.

-- Paraguarí is an important surgarcane producer where there is even a sugar mill that processes the departments' total sugarcane production (400 tons).

-- Its agricultural production is more diversified (less fruits versus more vegetables).

-- Cooperatives appear to be more successful and one of the oldest and most efficient foreign cooperatives (La Colmena), composed of Japanese members, is based in Paraguarí.

-- According to cooperative officials, the lack of storage sheds is more critical, given their grain and tobacco production and the condition of their road system.

-- The tomato production has reached such a level that a tomato processing project might be developed.

Paraguarí, like the departments of Central and Cordillera, has a rather large percentage of small farmers who work on less than five hectares (54 percent). A businessman who has purchased and exported tomatoes from the area was identified as a potential investor for a tomato processing plant. A processing plant in the department would offer the minifundio farmers an excellent alternative to change to an intensive type of cultivation.

Cooperative officials stated that up to 20 percent of first class tobacco is lost to lower classifications due to the lack of adequate drying and storage facilities at the farm sites.

5. GUAIRA - CAAZAPA

Number of Cooperatives: 5

Total Membership: 419 *

Number of Farm Units:

Guairá : 14,714
Caazapá: 10,591

* Membership of two cooperatives was not determined.

Percentage of Small Farmers:

Guairá : 98%
Caazapá: 93%

Principal Agricultural Products:

	Guairá Hectares	Caazapá Hectares	Percentage of Total Has in Paraguay
Sugar cane for sugar	11,100 *	71 *	60
Potatoes	15	108	24
Sugar cane for molasses	371	1,975	23
Cassava	12,400	9,700	16
Round beans	3,200 *	3,600	15
Lima beans	570 *	573	14
Corn	13,800 *	11,000 *	13
Tobacco	700 *	1,800	12
Onions	237	257	11
Alfalfa	187	340	11
Peanuts	600 *	1,200	10

* Yield per hectare greater than national average.

Guairá and Concepción are among the most traditional agricultural areas of Paraguay. The principal agricultural product is sugar cane which is produced almost exclusively by small farmers. Caazapá's products are more diversified than those of the department of Guairá. This latter department has promoted the introduction of potatoes, grapes, and silk worms within the last few years in an effort to diversify its agriculture production. The results have been satisfactory, but there still is a long way to go.

There are several districts in the Department of Caazapá that are known to have excellent terrain for agricultural production, but the lack of roads stops any further agricultural development.

It was learned through field interviews that in this particular area the Crédito Agrícola de Habilitación (CAH), through the formation of AUCA (Asociación de Usuarios de Crédito Agrícola), and the coordination of technical assistance from SEAG (Servicio de Extensión Agrícola) have obtained excellent results. This institutional joint effort has yielded better crop results, and a high repayment record of production credits.

The latest development effort in Guairá is the promotion of hog raising among small farmers. One of the short-term projects identified by this study (balanced feed mill) is the next necessary step before the final stage of industrialization (slaughter and packing for export). An additional advantage of this region is that it is one of the few areas that is served by the national railroad. Up to the present, this advantage has not been truly capitalized by the area, because of the lack of diversification into activities that might draw advantages by using rail service.

The Caazapá area is an excellent one for potato production, but storage sheds and a refrigerated warehouse are needed before these promising agricultural products can be further developed. The field interviews helped identify the following potential projects.

-- Balanced feed ration plant

-- Yerba mate mill

-- Silos-dryer complex

-- Expansion of wine storage and processing facility

-- Charcoal processing plant

-- Charcoal briquette plant

6. MISIONES

Number of Cooperatives: 5

Total Membership: 540

Number of Farm Units: 7,162

Percentage of Small Farmers: 78

Principal Agricultural Products:

	Hectares	Percentage of Total Has. in Paraguay
Irrigated rice	7,000	42
Wheat	6,000 *	23
Soybeans	12,000 *	13

* Yield per Ha. greater than National Average.

Area Characteristics

The terrain in the Department of Misiones is characterized by open fields with low gradient, which can be prepared for **agricultural** use at a rather low cost. Misiones is different from the new regions which have excellent soils but are rather expensive to clear due to the presence of timber. This advantage is offset by acid soils that need to be stabilized with lime.

Given Misiones' terrain characteristics and the types of agricultural products that are developed there, it is perhaps the most mechanized region in Paraguay. This mechanization is due to the presence of large agricultural units, but small farmers benefit somewhat too because there is enough equipment in the area for them to rent.

The interviews held with the local cooperatives revealed that they (cooperatives) are experiencing a low rate of recuperation of the agricultural credits they provided to their members. Similarly, the production cooperatives do not commercialize their members' crops to the rest of the country. The small farmers sell their production to almaceneros, often because of the personal consumption items problem discussed previously.

The following projects were identified in Misiones:

-- Pasteurized juice processing plant

-- Coconut oil extraction plant

7. ITAPUA

Number of Cooperatives: 12

Total Membership: 2,360

Number of Farm Units: 16,905

Percentage of Small Farmers: 76

Principal Agricultural Products:

	Hectares	Percentage of Total Has. in Paraguay
Tung	25,000	99
Soybeans	54,000 *	59
Wheat	9,200 *	36

	Hectares	Percentage of Total Has. in Paraguay
Irrigated rice	5,500 *	32
Potatoes	108 *	18
Lima beans	1,326	16
Corn	31,500 *	16
Alfalfa	618 *	14
Cassava	17,000 *	12
Round beans	5,700	12
Onions	482 *	12
Cotton	10,000 *	10
Peas	327	10
Yerba Mate	30,000 **	

* Yield per Ha. greater than National Average.

** The relative position is not known but it is estimated to be over 50 percent.

Area Characteristics

Itapúa is the most important agricultural area in Paraguay. Its terrain has large sections of timberland that are very fertile once cleared. It is a traditional agricultural area and has the highest incidence of cooperative organizations and development. Along with Misiones, it is one of the better mechanized zones in Paraguay. It has a relatively good road system, even though most roads are unpaved. The cooperative development is highly influenced by the concentration of people of foreign backgrounds including: Poles, Germans, Ukranians and Japanese.

Members of the "foreign" cooperatives tend to have an average of 20 to 30 hectares. One cooperative, however, has an average of 50 to 60 hectares per member, but land utilization is about 50 percent. In this department the cooperative officials state that they have been getting excellent results in their work with the National Seed Service (SENASE).

Most "foreign" cooperatives finance 30 percent of the crop costs to their members. In most of these cooperatives the members are not obligated to sell their products through the cooperative. Those who do, receive a 10-percent advance before the products are actually sold. One cooperative expells the members if they do not sell their products through the cooperative. Almost all cooperatives have general stores for the convenience of their members. Cooperative officials remarked that the general store principle is an excellent tool to develop full cooperative integration and member participation in the pursuit of cooperative goals.

Despite the fact that Itapúa has a large silo infrastructure (both public and private), there is a shortage of storage space because production continues to grow every year.

The following projects were identified in Itapúa:

-- Tomato and soybean sauce plant

-- Balanced feed mill

-- Hog raising project

8. SAN PEDRO

Number of Cooperatives: 8

Total Membership: 790

Number of Farm Units: 1,475

Percentage of Small Farmers: 85

Principal Agricultural Products:

		Percentage of Total Has. in Paraguay
Petit-grain	182 tons	46
Tobacco	4,600 has. *	22
Wheat	4,100 has. *	16
Castor beans	4,100 has. *	15
Bananas	2,170,000 trees	15
Lima beans	830 has.	10

Area Characteristics

Agricultural development in the department of San Pedro is concentrated in the areas bordering the Paraguay River, alongside the road from San Estanislao to Puerto Rosario, and the area around the capital city of San Pedro. The rest of the department does not have much agricultural activity. The department has considerable concentration of timberland areas, a feature that makes mechanization difficult even by animal traction because small farmers' lots often have many tree stumps that take several years to eliminate by the conventional method of burning.

Of the eight cooperatives, two belong to Mennonites. Their presence in the area has been a favorable one for the Paraguayan

* Yield per Ha. greater than National Average.

farmers. Small farmers have also benefited from special programs sponsored by the German Government. There is high concentration of farmers who dedicate most of their activities to bitter orange plantations. They are presently going through a difficult period due to the low prices of petit-grain essence in the international markets. Several of the cooperative officials interviewed stated that technical assistance is needed, particularly advice as to the type of products they should plant. The cultivation of potatoes has had some favorable results, even though the average yield in the department is lower than in most areas (See Table No. 6). Most of the cooperatives interviewed (other than the Mennorites) would like to commercialize their members' products, but often can not because of the lack of funds. These cooperatives can only sell the products first and pay the members afterwards. Those that have done some commercialization have done so with some very good results in terms of the prices obtained for the products. In San Pedro the people interviewed commented on the difficulties in getting their members to market their products as a group because many sell to the almaceneros. The need for storage sheds was found to be generalized all over the department. San Pedro does not have the advantage of paved roads in its territory; therefore, the transportation of products by road is costly because of the extra distance that has to be traveled to connect with the paved road system.

9. CHACO

Number of Cooperatives: 3

Total Membership: 2,372

Number of Farm Units: Unknown

Percentage of Small Farmers: Not known. The only ones that can be quantified are the Indian cooperatives, which have approximately 350 members, with an average of twenty hectares per member. There are, however, several Paraguayan small farmers in the sugar cane area near Asunción.

Principal Agricultural Products:

Sorghum	4,200 has.	76% of total has.in Paraguay
Peanuts	4,300	
Sugar cane for sugar	1,350	
Castor beans	2,500 *	

* Yield per Ha. greater than National Average.

Area Characteristics

The terrain is semi-desert, with serious water problems. Most water, when found, is deep and highly brackish. The Mennonite colonies in the Chaco are the prime representatives of highly developed cooperativism. The members are all large farmers:

Cooperative Neuland :	600 has.	average per member
Cooperative Ferheim :	180 has.	" " "
Chortitzer Kommittee:	200 has.	" " "

There are several factories which process the members' products: three peanut oil extraction plants, a large tannin extraction factory, a large cheese and butter plant, and the only palo santo essence production plant in the world. Their cooperative general stores operate on a credit basis year around, until the members are credited for the crops they have produced. The balance remains as credit on each member's account. It is practically a cashless society.

They have organized several of the native Indians into small farmers with cooperative systems similar to theirs, including Mennonite Agricultural extension people who live with the Indians.

10. AMAMBAY

Number of Cooperatives: 2

Total Membership: 51

Number of Farm Units: 2,891

Percentage of Small Farmers: 73

Principal Agricultural Products:

	Hectares	Percentage of Total Has. in Paraguay
Coffee beans	unknown	97
Upland rice	1,900	32
Peas	1,220	14

Area Characteristics

The Amambay area is highly characterized by large timberland sectors. Its agricultural development is mostly the work of large farm units that have a high degree of mechanization. Most land clearing was done with heavy equipment: therefore, it is different in this

respect from Alto Paraná - Canendiyú, San Pedro, Concepción, and the agricultural areas in Itapúa.

One of the cooperatives is made up of Japanese members who also plant mulberry plants for the silkworm industry. The area's nearness to Brazil (dry border) permits direct commercialization with Brazil and the procurement of cheaper agricultural equipment and personal consumption items. This area is also unique in that all of the cooperative members have title to their land.

This is one of the richest regions in Paraguay with great potential for continued agricultural development. Practically all coffee production takes place in Amambay. The producers, who are generally large landholders, are organized into an association. The only problem detected through the interviews is the normal shortage of silos that is characteristic of boom areas such as Amambay. The capital city of Amambay has the largest concentration of lumber mills in one single district: 42 lumber mills in one industrial park.

IV. POTENTIAL PROJECTS

Shortly after the survey work got underway, potential industrial and service activities began to be identified in the interior. Many of these activities were at first thought to fit the criterion of affecting small farmers' income, but were later dropped from consideration because it was not clear how these industries would increment small farmers' earnings. After several more viable and direct projects were identified, it became clear that the ideal projects were the ones that are oriented towards a cooperative. In other words, the vertical and/or horizontal integration projects for cooperatives satisfy the mandate of the Rural Enterprises Loan. However, most projects that can affect small farmers' income are unlikely to fall within the technical, managerial, and capital availability of most Paraguayan cooperatives. As in most development programs, the human element is always the final constraint.

The projects that were identified fall under three categories. Following is a brief case by case discussion of each project within the three categories:

A. Short-term Projects

In this category the projects that are listed can be developed almost immediately since the identification includes entrepreneurs or cooperatives that are interested in undertaking the investments. The ultimate technical and financial feasibility of the projects would have to be developed by either the interested party or the lending institution. What has been done here is to identify, select, and

attempt to determine its impact on small farmers. It should be pointed out that the list is not finite, but rather it is a good illustration of the type of subloans that can be financed by the Rural Enterprises Loan. Undoubtedly there are more and will be more potential projects similar to the ones listed here. Table No. 7 presents a summary of the short-term projects, and Figure No. 5 illustrates the geographic location of the 21 short-term projects.

1. Fruit Pulp and Confectionery Plant

Products:

Fruit pulps, fruit candy and sweet potato pulp

Investment:

Equipment:	a.	Pulp processor	$112,640
	b.	Fruit confectionery equip.	42,000
	c.	Boiler	10,000
	d.	Building and installation of equipment (turn-key)	12,000
Total Fixed Capital Investment			$176,640

Capacity:

1,300 Kg/hr.

Impact on Small Farmer:

Industrialization of sweet potatoes and fruits that grow on small farmers' fields and often do not have markets. In some areas fruits are considered a plague because they are plentiful and there is no convenient way to handle them since they have no value.

Investor:

Dr. Eduardo Martínez Riella, Plant Manager of Industrializadora Guaraní S.A.

Plant Location:

Not determined. Depends on location economics analysis. Likely, near Central Zone (Zone III in study) Department.

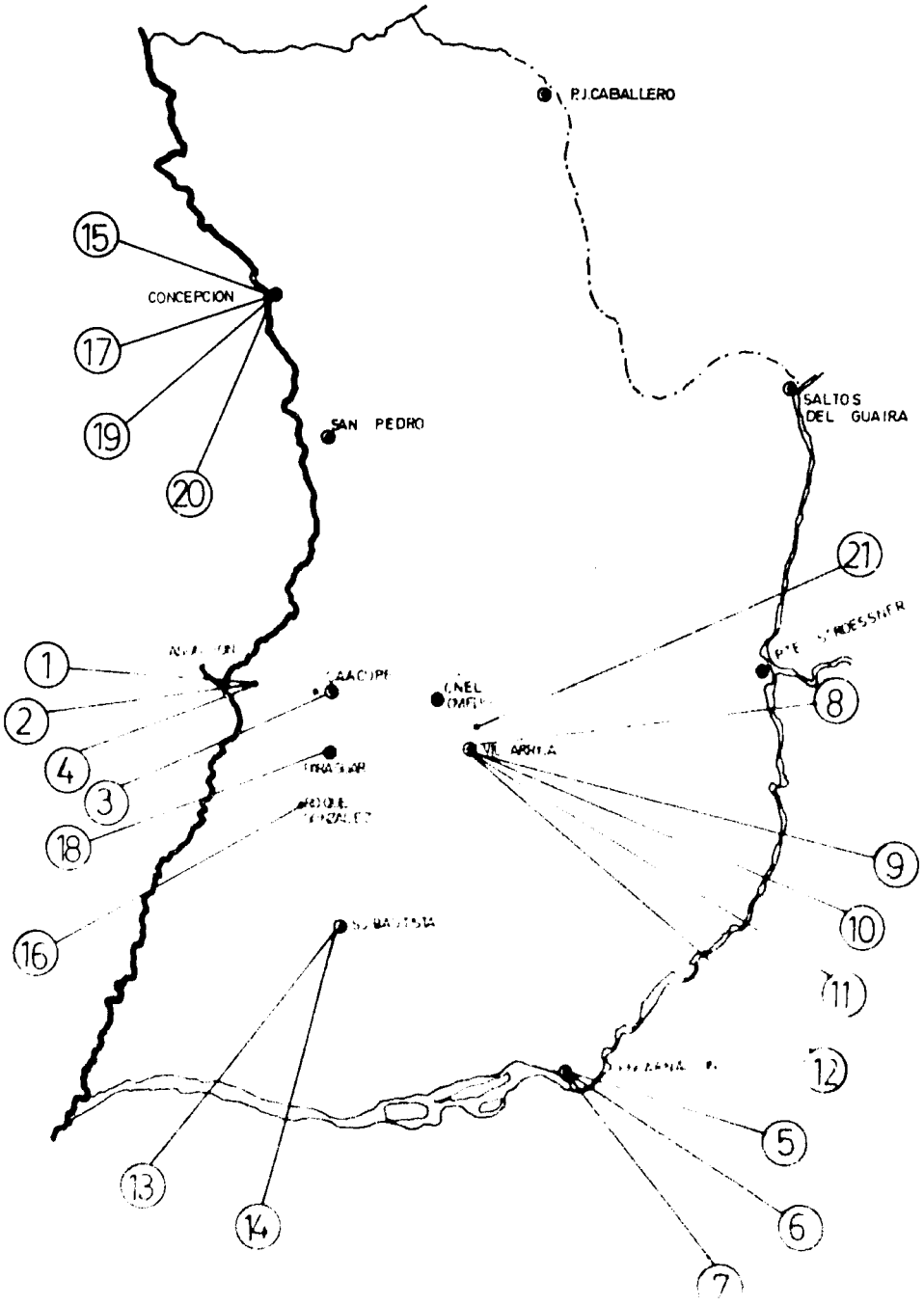
TABLE No. 7

SHORT TERM PROJECT SUMMARY

No.	Project	Location	Code	I/O Code	Investment
1.	Fruit Pulp and Confectionery Plant	Central	AB	O	$ 176,640
2.	Grain Silos and Dryer	Central	BB	I-O	110,000
3.	Candy Processing Plant	Caacupé-Cordillera	BA	O	23,000
4.	Prefabricated Storage Sheds for Small Farmers	Asunción	BA	I	25,000
5.	Hog Breeding Complex	Encarnación-Itapúa	AB	I	50,000
6.	Balanced Feed Mill	Encarnación-Itapúa	AB	I-O	100,000
7.	Tomato and Soybean Sauce	Encarnación-Itapúa	BA	O	71,000
8.	Balanced Feed Mill	Villarrica-Guairá	BA	I-O	25,000
9.	Yerba Mate Mill	Villarrica-Guairá	BB	O	112,000
10.	Grain Silos and Dryer	Villarrica-Guairá	AA	O	95,000
11.	Wine Processing Plant	Villarrica-Guairá	BB	O	100,000
12.	Conglomerate Charcoal Plant	Villarrica-Guairá	AB	I-O	20,000
13.	Pasteurized Juice Processing Plant	S.J.Bautista-Misiones	AB	O	155,000
14.	Coconut Processing Plant	S.J.Bautista-Misiones	BA	O	80,000
15.	Grain Silos and Dryer	Concepción-Concepción	AB	O	180,000
16.	Coconut Processing Plant	Roque González-Paraguarí	BA	O	105,000
17.	Castor Bean Oil Extraction Plant	Concepción-Concepción	AB	O	85,000
18.	Tomato Processing Plant	Paraguarí-Paraguarí	AB	O	750,000
19.	Fruit Juice and Pulp Processing Plant	Concepción-Concepción	BA	O	150,000
20.	Corn Flour Mill	Concepción-Concepción	BA	O	40,000
21.	Charcoal Processing	La Picada-Caaguazú	AB	O	24,000
					$ 3,044,640

Code:
- AA: New Project for Cooperative
- BB: Expansion for Cooperative
- AB: New Project Private Entrepreneur
- BA: Expansion Private Entrepreneur
- O: Outputs Project
- I: Inputs Project

FIGURE Nº5



GEOGRAPHIC LOCATION OF SHORT TERM PROJECTS

ELABORADO POR GANCO INC

2. **Grain Silos and Dryer**

Service:

Silos and dryer for corn

Investment:

Equipment: $100,000

Capacity:

150,000 Kg/month

Investor:

Cooperativa de Avicultores

Impact on Small Farmers:

The cooperative members would buy cheaper feed mix. They would also sell corn to the cooperative. Other (nonmembers) small farmers would be selling corn to the mill also.

Location:

Asunción - Eusebio Ayala Km. 5. The place where the cooperative has its mill.

3. Candy Processing Plant

Products:

Candy made out of guayaba, milk, sweet potatoes and orange; caramel candy

Investment:

Equipment:	a.	Sweet potato peeler	$ 3,000
	b.	Copper screener)	20,000
	c.	Copper tank)	
		Total equipment	$23,000

Investor:

Mr. Pedro S. Benítez, owner of candy factory "La Primorosa"

Impact on Small Farmers:

Would purchase small farmers' fruits to make candy to be exported in wooden containers (boxes)

Location:

Caacupé - Cordillera Department

4. **Prefabricated Storage Sheds for Small Farmers**

Product:

Prefabricated sheds (American patent)

No walls so that it can be used for drying.

No roof so that small farmer could use any roofing material available to him in his area such as straw, small boards, palm leaves, etc.

Capacity:

12 units of [illegible] m^2 ea. weekly

Investment:

Small additional equipment: $25,000

Impact on Small Farmer:

Small farmers will obtain better prices for their products because they lose quality grading by storing their outputs outside. In fact, at harvest time the farmers place as much of their production inside their houses as possible and the family has to move outside

Investor:

Rio Pozuelo S.R.L. - Asunción

Location:

Asunción

5. Hog Breeding Complex

Capacity:

8,400 hogs per year

Investment:

Buildings and necessary infrastructure $50,000

Impact to Small Farmer:

The firm would sell 70 percent of the production to the small farmers to be fattened; then the small farmer would sell meat, not grain, and make more money. The farmer's family cares for the hogs so it can be considered a marginal activity. The last stage of this firm's strategy is to set up a slaughter and meat packing operation.

Investor:

Itapúa 333

Location:

Encarnación - Itapúa

6. Balanced Feed Mill

Product:

Balanced mix feed - composed of:

70	percent	corn
20	"	soybean expeller
5	"	wheat bread
5	"	vitamins

Capacity:

32 tons in an 8 hr. shift - 10,000 tons/year

Investment:

a. Machinery $70,000
b. Buildings $30,000

Impact to Small Farmer:

Sell feed to small farmer at low cost; will buy corn. In order to provide 7,000 tons of corn in a year, there would have to be 1,200 small farmers with five hectares each planted with corn.

Investor:

Itapúa 333

Location:

Encarnación - Itapúa

7. Tomato and Soybean Sauce

Products:

- Tomato sauce
- Soybean sauce
- Soybean vinegar

Investment:

Land	$16,000
Building and warehouse	16,000
Tanks	7,000
Bottling equipment	2,500
Raw material	12,000
Oven	2,000
Warehouse for raw materials	3,500
Bottle stock	12,000
	$71,000

Investor:

Hiroaki Sakanashi, owner of Sanken Kogio Plant

Location:

Encarnación - Itapúa

Impact on Small Farmer:

Small farmers will sell soybeans and tomatoes to the factory.

8. **Balanced Feed Mill**

Product:

Balanced feed

Investment:

Complete mill $25,000

Impact on Small Farmers:

Small farmers will sell raw material to the mill. Example: corn, soybeans, molasses, etc.

Investor:

Molinos Harineros del Paraguay Guairá S.R.L.

Location:

Villarrica - Guairá

9. Yerba Mate Mill

Product:

Mate tea

Investment:

a.	Warehouse to store raw materials and milling equipment	$32,000
b.	Working capital	$80,000

Capacity:

800 ton/year

Impact on Small Farmers:

Presently the cooperative members sell their yerba to mills in nearby cities at a very low price . If the cooperative has its own mill, it is estimated that members would get an immediate price increase of 50 to 80 percent over what they can get from other mills.

Investor:

Cooperativa Agrícola de Producción - Colonia Independencia

Location:

Villarrica - Guairá

10. Grain Silos and Dryer

Product:

Dry grains for export

Investment:

a. Grain silos
b. Dryer, elevators, generator, etc. $95,000

Capacity:

3,000 tons storage and drying per year

Impact on Small Farmers:

The cooperative sells to exporters:

600 tons of soybeans per year
1,500 tons of corn per year

The object is to eliminate the middleman and to export directly.

Investor:

Cooperativa Independencia

Location:

Villarrica - Guairá

11. Wine Processing Plant

Products:

Wine and vinegar

Investment:

a.	Building	$24,000
b.	Storage	56,000
c.	Mill	8,000
d.	Press (continuous)	12,000
		$100,000

Capacity:

Additional 1,000,000 liters
Present capacity: 1,150,000 liters

Impact on Small Farmers:

Presently the cooperative can not accept new members because it is operating at full capacity. This expansion will permit them to increment their membership at least 50 percent. The farmers who do not belong to the cooperative sell their grapes at rather low prices to third parties. This expansion can also make possible for present members to expand their grape cultivation.

Investor:

Cooperative Ideal

Location:

Villarrica - Guairá

12. Conglomerate Charcoal Plant

Product:

Conglomerate charcoal briquettes. The bonding agent would be cassava starch.

Investment:

a.	Equipment	$16,000
b.	Building	4,000
	Total	$20,000

Capacity:

This system is what is known in the U.S. as charcoal briquetting except that in the States a different bonding agent is used. Tests were made at the Instituto Nacional de Tecnología y Normalización and the results show an increase in calories of 300 percent per unit of weight (kilo) over the plain vegetable charcoal produced in Paraguay.

Impact on Small Farmers:

It will benefit 300 small farmers in a new colony in Guairá. The land needs to be cleared and there is a lot of wood on the property.

The market would be low income households in Villarrica and Asunción. Low income families cook with charcoal and normally use one kilo per day. The conglomerate would cost 50 percent more per kilo, but the housewife would only use one-third as much charcoal. Therefore, she would have a 50 percent savings in the cost of cooking fuel.

A third impact would be to the small farmers in Villarrica who sell cassava to the only cassava starch plant in Paraguay.

In Table No. 6 we can see that the cassava yield per hectare in Itapúa is 12.8 tons/ha. Assuming a 10 percent starch content (final), each hectare will, on the average, produce enough cassava to produce 1.2 tons of starch.

The starch requirement is 5 percent in the conglomerate process. If the plant operates at 50 percent capacity, it would produce:

5 tons/hr x 4 hr = 20 tons
20 tons of charcoal require 1 ton of starch

Therefore, .85 to one hectare of cassava will be needed for each production day of the plant at 50 percent capacity. If the plant operates 250 days, there will be a need for an additional 220 to 250 hectares of cassava. In Table No. 4 we can observe that 93 percent of the farmers in Guairá have less than 20 hectares (second largest small farmer concentration department in Paraguay); 53 percent have less than five hectares. We can reasonably assume that this latter group would provide at least 80 percent of the needed cassava at the rate of one hectare per farmer. Therefore, the potential impact under this set of assumptions would be:

Cassava farmers:	235	hectares x 80% (0-5 farmers)
	= 188	0-5 farmers (1 ha. each)
	+ 24	5-10 farmers (2 ha. each)
	212	Total cassava farmers

Total Impact

No. of small farmers (0-10 ha.) to provide cassava	212
No. of colonists (the colony sells 20 ha. lots)	300
No. of low income families that would have a 50 percent cost reduction on cooking fuel	20,000

Other potential benefits:

The cassava starch plant will probably have to expand (a potential subloan if it happens) and hire more people.

An increase in the availability of cassava chips which can be used for the balanced feed mix project (No. 8) in Villarrica at very low prices. This lower price in turn will have an impact on the small farmers who will buy the feed mix, etc.

Investor:

Colonel Roberto Cubas Barboza (retired)
Villarrica - Guairá

GAMCO provided a significant amount of technical reference material on conglomerate charcoal processing systems. The material was retrieved by GAMCO's linkage to technical information sources at universities in the State of Georgia.

Location:

Villarrica - Guairá

13. Pasteurized Juice Processing Plant

Products:

Pasteurized fruit juices of oranges, grapefruits, guayabas and other fruits that grow in the region, but mainly the ones mentioned above.

Capacity:

150 Lts/Hr.
80 percent to be sold bulk in containers to other processors; 20 percent to be bottled in small units for local sales.

Investment:

a. Equipment	$130,000
b. Building	25,000
Total fixed investment	$155,000

Impact to Small Farmers:

Will give an opportunity to small farmers in Misiones to sell the fruits that grow on their land, most of which are not marketed today.

Investor:

Dr. Oscar Benítez Rapetti; San Juan Bautista, Misiones
He owns an ice cream plant

Location:

San Juan Bautista - Misiones

14. Coconut Processing Plant

Products:

Separation of the four products that the Paraguayan coconut yields:

Pericarpio (outer shell)	18%	sale to feed mills
Almendra (nut)	15%	sale to vegetable oil extraction factories
Pulpa (pulp)	24%	same as above
Carozo (inner shell)	41%	sold as fuel

Capacity:

4,000 kilos of cooonut per hour

Investment:

This is an expansion project. The firm has no debts.

a. Machinery	$30,000
b. Working capital	50,000
Total	$80,000

Impact on Small Farmers:

The coconut, similar to most fruits, grows wild in certain areas of eastern Paraguay. Traditionally, it has been called Paraguayan "gold" because it is often the only source of cash that small farmers have between crops. It is picked from the ground by the whole family.

When the plant operates, men and women come from all the surrounding areas by cart and even horseback to sell the coconuts that they have picked. It has not operated for one year because of a break among the partners and it is very much needed in the area. The partnership problem is now solved, but engines and other equipment are needed before it can operate again.

Investors:

Cocotera San Juan Bautista, represented by Dr. Oscar Benítez Rapetti

Location:

San Juan Bautista, Misiones

15. Grain Silos and Dryer

Service:

To store and dry corn, soybeans, round beans, and castor beans

Investment:

a.	Machinery	$50,000
b.	Silos and building	130,000
	Total	$180,000

Capacity:

5,000 tons of storage

Impact on Small Farmers:

Presently, Concepción's small farmers are among the poorest in the country. Two large middlemen have pretty much divided the collection (acopio) business of the area by product. Small farmers have only one alternative when it comes to selling their products in the city

of Concepción. Forage facilities would provide an opportunity for the small farmer to seek competitive buyers. The investor has already stated that he would begin the system of grading products and pay higher prices for quality products. This project could be tied with the cooperatives in the area and assure that the small farmers' position is improved even more.

Investor:

Antolín Ortiz Marin

Location:

Concepción

16. Coconut Processing Plant

Product:

Separation of the four products that the Paraguayan coconut yields.

Capacity:

20,000 kilos in 8 hours

Investment:

This is an expansion project

a.	Equipment	$ 75,000
b.	Building and storage	30,000
	Total	$105,000

Impact on Small Farmers:

Please see "impact" section in Project No. 14. The larger capacity will be translated into more coconuts which the small farmer and his family can sell for cash.

Investor:

Cocotera Roque González
Owner: Mr. Raul Doutrelau

Location:

Roque González, Paraguarí

90 percent of Paraguarí's farmers have less than 20 hectares (see Table No. 4)

17. Castor Bean Oil Extraction Plant

Product:

Castor Oil Types 1 and 3

Capacity:

a.	Equipment	$600,000
b.	Building and other construction	250,000
	Total	$850,000

Investment:

24 tons per hour for a total extraction of 7,000/year

Impact on Small Farmer:

This project would make the most significant contribution in years to the area of Concepción.

Concepción is the largest producer of castor beans in Paraguay (see Table No. 5). It also obtains the highest yield per hectare (see Table No. 6). Grain exports have not been very profitable because of depressed grain prices. Consequently, small farmers have been getting very low prices. An oil processing plant, however, would eliminate the price disadvantage of grains because of the weight-loss factor and the higher prices of the oil; after its aggregate value has been added, castor oil demands better prices. This project can be coordinated with the cooperatives of Concepción so that they can contract production commitments and negotiate minimum prices before they cultivate. It would assure a market and good prices to the small farmers of the area.

Investor:

Antolín Ortiz Marin

Location:

Concepción

18. Tomato Processing Plant

Product:

Tomato pulp and juice

Capacity:

1,200 Kg/Hr.

Investment:

Total turn-key cost $750,000

Impact on Small Farmer:

A project of this kind can only be implemented if the industry has an assurance that raw materials will be available in sufficient volumes. In this case, the investor needs to contract with cooperatives for the provision of tomatoes. This means that the cooperative members will have a guaranteed market and an understanding of the price ranges that will be paid for the product. The assurance of a stable market and the determination of minimum prices before planting is a very desirable feature for the small farmer. Also, the pressure of an industry of this type in a minifundio area is exactly what is needed to better utilize the small farmers' resources.

Investor:

El Paraguayo S.A.
Fenner & Huttinger

Location:

Paraguarí

19. Fruit Juice and Pulp Processing Plant

Products:

Pasteurized citrus and pineapple juice, banana, papaya and pineapple pulp

Investment:

Equipment, building turn-key cost $150,000

Impact on Small Farmer:

Same as Project No. 13. It will provide an additional source of income to small farmers. This income will be generated by the whole family.

Investor:

Casa Bordón S.C.M. - Concepción

Location:

Concepción, Concepción

20. Corn Flour Mill

Product:

Corn flour

Investment:

This is an expansion of an existing plant

Equipment modification cost: $40,000

Impact on Small Farmers:

This project could have a significant impact on the rest of the country. It involves the adding of corn flour to the wheat flour used for making bread. Pilot tests indicate that corn flour can be added up to a 30 percent content in the baking industry. Since Paraguay often imports wheat, this project could eventually prove that corn flour could replace thirty percent of the importation. It can also be added to noodles, therefore reducing again the wheat requirements. Since corn is a traditional crop in Paraguay, the introduction of corn flour will directly affect the small farmer. Concepción farmers would be benefitted because there will be an additional demand for corn by both the bakery and noodle industries in Concepción. Wheat costs 300 percent more than corn; therefore bread and noodle costs will be reduced.

Investors:

Industrializadora Paraguaya de Alimentos
Mr. Adolfo Lailla

Location: Concepción

21. Charcoal Processing *

Product:

Charcoal

Capacity:

4 kilns with capacity for 30 m^3 of wood to obtain 10 tons of charcoal per load

Investment:

Warehouse, office, kilns, Tools and other equipment	$24,000

Impact on Small Farmers:

The investor will provide the kilns and pay the farmers for their wood. The farmers presently burn the wood at no economical return to them.

Investor:

Raul H. Girala; Villarrica - Guairá

Location:

"La Picada" - Caaguazú

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* This project is related to project No. 12.
The charcoal will be sold to the briquette plant.

B. Medium-Term Project

This second group of potential projects is composed of a list of activities that could also affect small farmers' income. For each one of the projects there exists an interested party, but the amount of funds necessary for each project could not be quantified since the volume of production is not yet known. It is the opinion of the survey team that none of these projects could be implemented before 18 to 24 months. However, their promotion and the study of their feasibility should be encouraged and continued.

1. Tea Processing and Packaging

This industry could have a great impact in the area of

Misiones. Some pilot experiences have been made with favorable results. The next step is to organize the small farmers and provide them with plant stocks and technical assistance. Tea is a permanent type of cultivation in that the tea plants last many years. It is labor intensive, requiring many people to collectit, which is a good feature. Every fifteen days it can be cut and collected for a period of approximately nine months during the year. The second year after it has been planted the industrial process has to take place. The project is going to be carried out by a joint venture between an Argentine tea industrialist and a Paraguayan businessman.

Location: San Juan Bautista, Misiones

Entrepreneur: Mr. Ramón Duarte,
San Juan Bautista, Misiones

2. Cassava Flour Mill - Rice Milling - Mint Crystals Processing Plant

This project involves a cooperative whose members are producers of soybeans, cassava, rice and mint. The cooperative efforts at this time are being concentrated in the storage, drying and export of soybeans.

GAMCO helped this cooperative to find financial sources that will enable it to build the infrastructure necessary to handle its members' soybean crops. The next step for the cooperative is to look at vertical and horizontal integration of its members. There are three different projects and they all appear feasible: Cassava Flour Mill, Rice Mill, Mint Crystals Processing Plant.

Investor: Cooperativa de Productos Agrícolas
Saltos del Guairá

Location: Saltos del Guairá, Canendiyú

3. Dairy Plant - Work Clothes Plant - Machine Shop

In the colonization area of the department of Alto Paraná, the Cooperative Minga Guazú, headed by a priest, is the largest one in the department. The 452 members are small farmers and they have reached the stage of cooperative development that calls for horizontal and vertical integration. Three projects were identified which are oriented to increment their income:

a. Dairy Plant

Since the cooperative is beginning to provide its members with milk cows, next year it will have to plan for the

installation of a dairy complex that will produce milk, cheese and butter. This would result in more income to the farmers and better and lower-cost food products to cooperative members and to the nearby city of Pto. Pte. Stroessner. The city of Pto. Pte. Stroessner is experiencing a population boom because of the construction of the hydroelectric dam Itaipú. There should be no marketing problem for the dairy products because of the population boom.

b. Work Clothes Plant

The cooperative officials are concerned with generating employment for the large female population. Women can be offered employment in a cut and sew type of operation, which employment will help increment the income of their small farmer parents and families. There are enough workers (farmers and others) in the area to provide an ample market.

c. Machine Shop

Presently all equipment repairs have to be made in the Brazilian town of Foz do Iguazú because there are no machine shops in the Paraguayan city of Pto. Pte. Stroessner. To depend on a town in another country for repair work causes many delays. A machine shop in the cooperative is common, represents a more advanced stage of cooperative development, and, in this case, would eliminate the unnecessary delays mentioned above.

d. Hog Breeding Complex

The agricultural production of the Department of Concepción has the basic elements and climatic environment for an organized program for a hog raising complex that could sell live, fattened pigs to Brazilian markets. This project complements the short-term corn flour project. While there is interest from part of the private sector, the local cooperatives would have to participate as well.

Investor: Antolín Ortiz Marín

e. Dehydrated Vegetables

Vegetable production in Paraguay is subject to periods of surplus and deficits, depending on the seasonality of the harvests. A large entrepreneur in Guairá has interest in promoting the cultivation of various types of vegetables in the zone so that he can install a vegetable dehydration plant. This could be a very good project for the small farmers in the area and the population as a whole. The same equipment can be used to dehydrate fruit.

Investor: Mr. Fito Friedman

C. Latent Possibilities

This last category lists activities that were identified as potential subloans because their realization would have a favorable impact on small farmers. They remain latent because no entrepreneurs or cooperatives were detected as potential investors.

1. Villarrica - Guairá

Sugarcane Molasses Plant

In the Guairá area the small farmers have only the sugar mills as potential markets. The installation of sugarcane molasses plant would create the much needed competition for the small sugarcane production.

2. Coronel Oviedo - Caaguazú

Refrigerated Warehousing Units

This type of infrastructure is badly needed in this area to store potatoes and onions. Last year farmers got ₲19 when they sold most of their production; a month and half later the same product was selling for ₲43/kilo. This is an excellent cooperative type project.

3. Concepción - Concepción

Corn and Coconut Oil Extraction Plant

If the silo-dryer and the corn flour projects are developed, the next step is the pressing of corn oil which can be complemented with the pressing of coconut oil so that the extraction plant would operate more months throughout the year.

4. San Pedro - San Pedro

Banana Puree - Papaya Syrup Products

These two products are abundant in this region. Most of the production is wasted because it does not get collected due to the lack of markets in its raw form. The making of purée and papaya pulp could be an interesting activity in the San Pedro area.

5. Caazapá

Refrigerated Warehousing Units

The area needs this type of infrastructure. Like Caaguazú the area is a good producer of potatoes, but the lack of refrigerated storage units impares any further development of potato production.

D. Production Infrastructure Projects

A considerable amount of time was dedicated to an analysis of the national capabilities for the manufacture of minor agricultural implements (animal traction). Survey findings revealed that there are at least 18 metal working establishments in Paraguay that can contribute to the manufacturing of national implements. (See Annex NO.3). Several of these establishments have already produced minor implements, but due to reasons explained below, they have not continued to produce on a regular basis.

It was surprising to find the degree of intermediate technology already available in Paraguay, particularly in the machine shops in Encarnación, San Pedro and the Chaco; the latter two being machine shops and metal working establishments in the hands of Mennonite cooperatives.

The analysis revealed that many of these metal working establishments are capable of producing implements, but have not done so due to lack of central markets. The first constraint is the lack of capital. Most metal working establishments in Paraguay charged an advance of 50 percent of the total cost of a job in order to purchase the necessary metal raw materials which are imported products of relatively high cost. The second constraint is that practically all of these establishments do not have the administrative nor the marketing capabilities to sell implements to small farmers. Even in the cases where they would be willing to extend credit to small farmers, it would be very costly to:

-- Set up a sales organization to sell these products

-- Collect the installment payments

-- Hold inventory stocks in the hope that customers would walk in; this would imply publicity costs, etc.

Practically all implements used by small farmers today are of Brazilian origin. They are obtained through the cooperatives, CAH, CREDICOOP, or directly through the National Development Bank. Most transactions, whether directly or through the three institutions mentioned above, are channeled through the National Development Bank, which in turn purchases this equipment through a special line of credit offered by Brazil (CACEX). Brazil offers long-term credit (eight years) and low interest (8 percent) for the sale of Brazilian products. Equipment purchases are made in large volumes, and the Development Bank delivers the implements to the cooperatives. Not much was learned about what the ultimate cost of the implement is to the small farmer, but a list of implements was analyzed, and a few items were selected as potential implements that can be manufactured in Paraguay at competitive prices and quality.

The advantages of national production of implements are the following:

-- Spare parts and accessories could be obtained quickly and cheaper since they would not have to pay import duties;

-- Reduction of idle time at the field while the farmer waits for the imported spare parts to come in;

-- Local manufacturers can better adopt their products to their intermediate technology and to the specific needs of Paraguayan small farmers;

-- A saving of foreign exchange to the nation;

-- The development of an industrial sector that is basic to other sectors of the economy.

Out of nineteen different implements and tools that either the National Development Bank, CAH or CREDICOOP are procuring for small farmers, three are made in Paraguay; the rest are imported. Out of the sixteen imported implements and tools, the survey team concluded that at least seven can be manufactured nationally at competitive prices (see Table No. 8).

Economies of scale can be significant in machine shop types of operation; it is very likely that other implements could be manufactured economically if larger orders are placed. The absence of a national agricultural implement program makes it unlikely that the raw materials could be imported without taxes. However, a system of competitive bids, as suggested in the next section, would reduce the cost considerably and would help to obtain permits to import the raw materials without paying taxes.

1. Additional Implements and Equipment

It was learned during the field survey activities that small farmers do not own scales to weigh their products prior to selling; therefore, they depend on the buyers to do the weighing for them. It was also learned that there is strong suspicion on the part of some farmers that the buyers' scales might not be very accurate. Whether this is true or not could not be properly determined, but the availability of scales at the farm unit should be considered a basic tool. During the analysis of metal working establishments, a firm that manufacturers small scales of 100 and 200 kilos capacity was evaluated. The 100-kilo scale costs ₲1,800 and the 200-kilo scale costs ₲3,000. Large orders of 100 or more would reduce the cost approximately 15 to 20 percent.

TABLE No. 8

IMPLEMENTS THAT COULD BE MANUFACTURED LOCALLY

	Cost without Import Tax on R.M.	Cost with Import Tax on R.M.	Remarks
Plows 10"	₲ 8,645	₲ 11,464	Imported - ₲10,340
Row crop cultivator	9,485	12,450	Imported ones are between ₲12,000 and ₲13,000
Tooth harrows	11,115	14,742	Imported range around ₲13,000
Back-pack sprayers	9,000		Imported range ₲8,000 - ₲[illegible]
Threshers		225,000	Imported are ₲[illegible] but with more capacity. Not enough extra capacity to merit the price differential
Cart sprayers		60,000 to 75,000	There is no real competition of import equipment, but the national type is adequate and considered to be low cost
Water pumps		15,000	Imported vary between ₲13,000 and ₲1[illegible],500

Source: Survey of Metal Fabricating Establishments.

In Encarnación one of the metal working establishments makes a triangular-shaped tooth harrow that is especially suited for small farmer areas that have tree stumps and logs in the fields. The cost of this implement is only ₲4,000. This harrow could be used in Concepción, San Pedro, Alto Paraná and Caaguazú. Since the national production of implements has never been promoted, a lot of intermediate technology experience has never surfaced, even though it is present and could make a significant contribution towards the mechanization of small farmers.

Several of the machine shops that were evaluated were shown prints of agricultural equipment designed by the International Rice Research Institute (IRRI) and England's National Institute of Agricultural Engineering. The firms interviewed expressed a lot of interest, particularly in IRRI's grain batch dryer, and the design of an animal-drawn toolbar of the British Institute. The toolbar is a multipurpose implement that can be produced in Paraguay for approximately ₲35,000. Several implements can be attached to the toolbar: plows, harrows, seeders, weeders, and others. It is truly a fine example of an intermediate-technology implement that has a great utilization potential for small farmers.

2. Storage Facilities for Small Farmers

In at least 80 percent of the field interviews, the need for storage facilities for small farmers was rated as one of the highest priorities. According to statistics of the Ministry of Agriculture, the following percentages of spoilage are representative of those that can be quantified:

	Percentage of Annual Production
Rice	1 to 8
Cotton	5
Peanuts	10
Soybeans	2 to 3
Tobacco	10 to 20
Castor beans	5 to 10
Wheat	2 to 4

In some areas the spoilage goes as high as 30 percent in some products. Practically all spoilage takes place at small farm units. Last year, the quantifiable spoilage amounted to approximately $2 million. This figure does not include the losses due to the lower prices the farmer gets as a result of eroded quality.

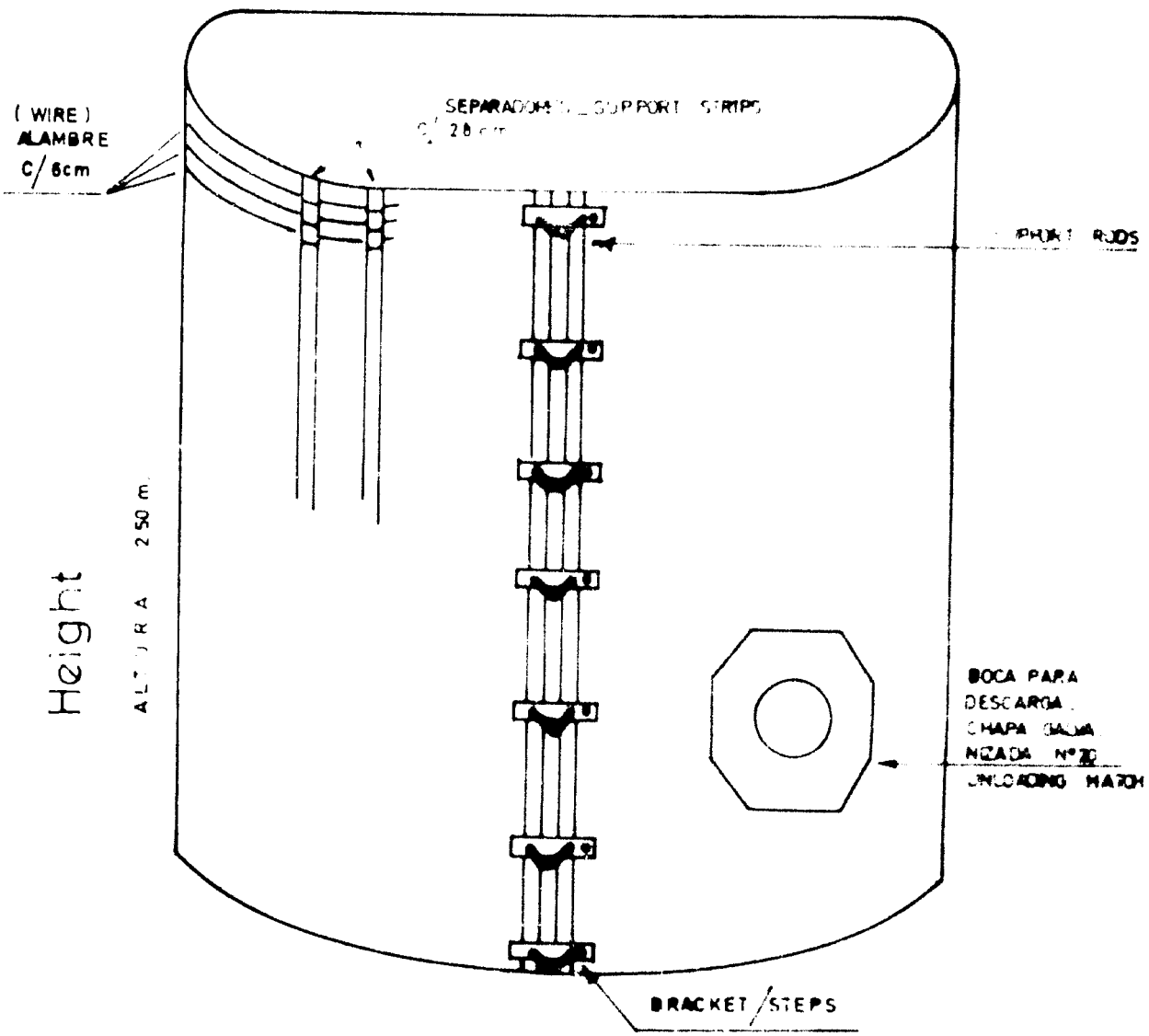
Many times it was remarked that the farmer has to sell at a disadvantage because the cooperatives do not have storage facilities, but the almacenero-acopiador does; therefore, the farmer has no choice but to sell without any bargaining power. In an effort to address part of the research work toward possible solutions to this problem two alternatives are discussed in sections 3 and 4.

3. Collapsible Wire Silos

In Figure No. 6 a drawing of a collapsible wire-bonded silo is presented. This type of silo is used in many parts of the

FIGURE Nº6

COLLAPSIBLE WIRE SILO



ELABORADO POR GAMCO INC.

world as an excellent solution to temporary storage problems. Its construction, due to its simplicity, is possible in Paraguay at a cost of ₲19,500 for a 10-ton unit. If several were manufactured, the cost would be even lower. All types of grain can be stored in the silos. The farmer would have to provide his own materials to cover the inside walls and the roof. He could use old plastic or textile bags or even cardboard.

4. Prefabricated Sheds

In Figure No. 7 an illustration of a prefabricated shed is presented. The cost of the shed is approximately ₲50,000. Estimates show that a small farmer could pay for the shed in less than three years just from the quality price increase that he can maintain in products such as cotton, tobacco, vegetables and others. This general purpose shed can be used to store whatever implements he might own. At the present time implements and other equipment are simply left outside the house.

There are indeed a number of potential opportunities for the development of agricultural implements and machinery in Paraguay. The basic intermediate technology is present, and capital could be obtained from the Rural Enterprises Loan funds. However, there is a need for an organized effort on the part of an institution that would act as a catalyzing agent and put all the various actors together.

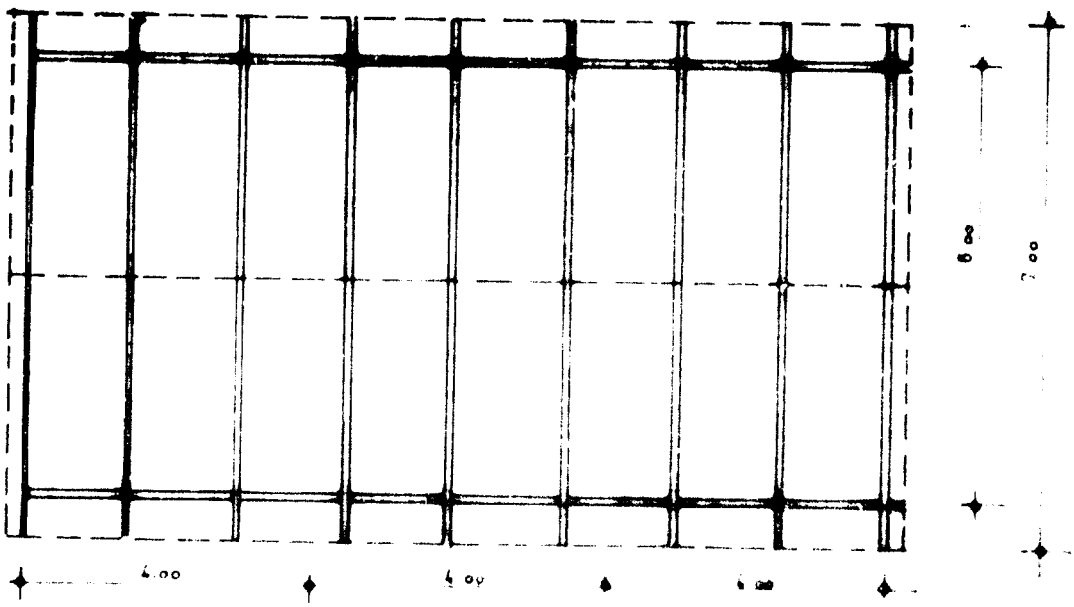
The first critical variable that needs to be developed is the willingness of either one of the three centralized markets to help this industrial sector. The three principal markets for small farm implements are: National Development Bank (BNF), Crédito Agrícola de Habilitación (CAH) and CREDICOOP. Out of the three, only CREDICOOP has shown some interest in the purchase of locally manufactured intermediate technology implements.

The promoting institutions ideally should be the central market institutions, but it is unlikely that they either have the interest, time, capital and/or money to perform such functions. The ideal situation would create the flow of interrelationship described in Figure No. 8.

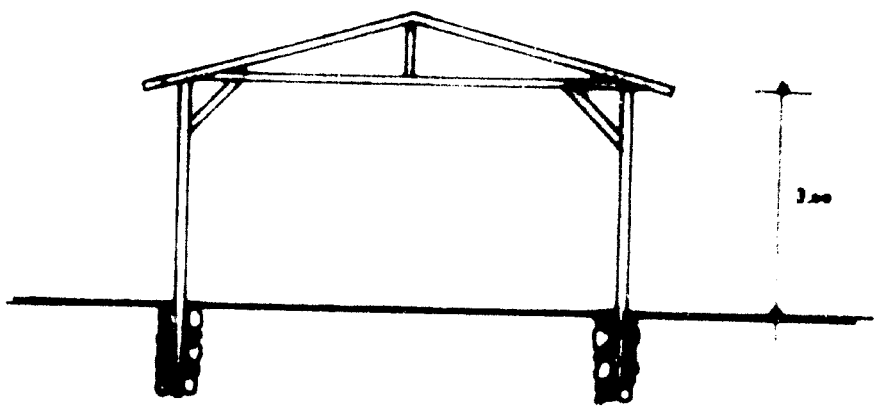
In some cases the first step can be avoided because there already is some experience in the manufacturing of implements. In these cases the interrelationship begins at the specification development stage. In the cases of new implements (e.g. the toolbar), the cycle begins as shown in Figure No. 8. It was estimated that approximately $120,000 of working capital are needed to finance a three-year production plan of the eight implements listed in Table No.8, given the estimated yearly demand figures for the eight products. These figures include plow accessories as well.

FIGURE Nº 7

PRE-FABRICATED STORAGE SHED



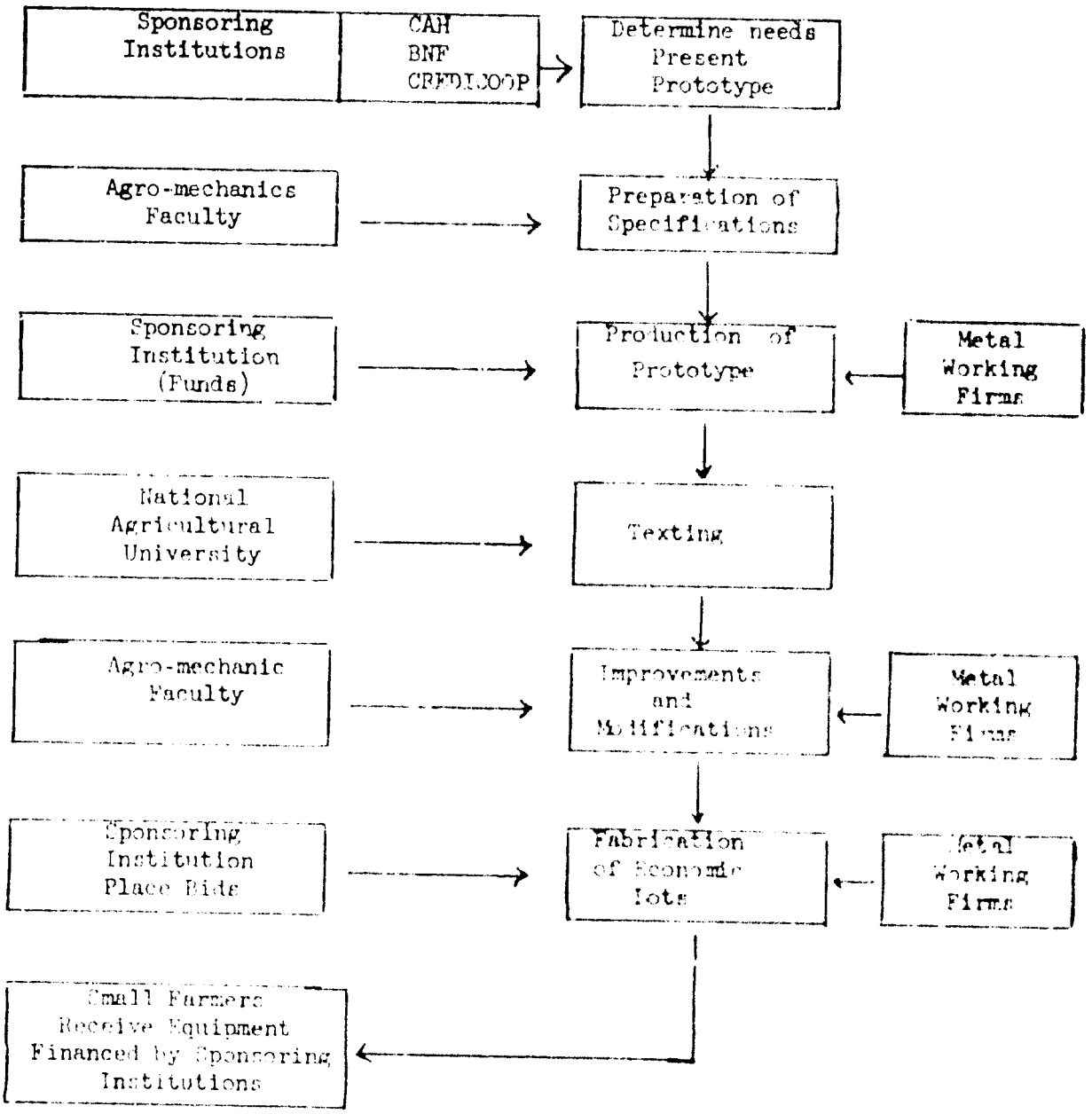
CEILING STRUCTURE



SECTION

FIGURE No. 8

PRINCIPAL ACTORS IN A NATIONAL IMPLEMENTS PROGRAM



E. Constraints to the Development of Nontraditional Agro-Industries in Paraguay

Agro-industrial development, unlike popular thought, is not a simple endeavor. For the most part, what is needed is the following:

- -- Existence of entrepreneurs willing to invest in this activity;
- -- Technical knowledge of the various production alternatives;
- -- Availability of food technicians with laboratory experience to control quality and sanitation;
- -- Knowledge of markets in the micro sense, not only a macro familiarization of potential markets;
- -- Existence of sufficient agricultural production in certain areas so that the industry will receive enough raw materials. This normally means cooperatives contracting production with industry.
- -- Attractive development funds for both equipment and working capital so as to "spin-off" the sector.

In the case of Paraguay, it is very difficult to find any more than two of the abovementioned critical variables. This is particularly true in the case of vegetables.

Growing vegetables, given the "intensive" characteristics of their cultivation, is an ideal solution for the small farmers in the departments of Central, Cordillera, Paraguarí and Guairá. As can be observed in Table No. 4, over 50 percent of the small farm units in these four departments have less than five hectares

The Instituto Nacional de Tecnología y Normalización (INTN) has a modern pilot plant that processes 24 different products, as can be observed in Table No. 9. The plant is very new and has hardly been used. The purpose of the plant is to train food technicians and to develop interest among the private sector in this type of production. Up to the present time, this has not been accomplished. Being aware of the constraints in Paraguay for the development of agro-industries previously mentioned, the survey team suggested to the Institute that it rent the plant to cooperatives so that the original purpose of the plant could be accomplished. The Institute's response was positive, and it was stated that INTN could receive the raw materials, would process them, and would deliver the finished product to the cooperatives. This appears to be an ideal solution because it has the following features:

-- The INTN has qualified technicians whose salaries are already paid by the Government;

-- The plant was donated by the U.N., therefore there are no amortization or interest charges;

-- No investment other than working capital would be needed to make the first trials;

-- It would break the vicious circle of farmers not producing quantities of the products on Table No. 9 because there is no industry. The potential entrepreneurs often do not invest because there is not enough production to fully utilize a minimum-size commercial plant;

-- INTN cost would be only variable costs.

TABLE No. 9

LIST OF PRODUCTS THAT CAN BE PROCESSED AT INTN's PILOT PLANT

Marmelade: Orange - Grapefruit - Tangerine

Citrus pulp

Tomato juice

Tomato purée

Whole tomato in solution (salt)

Whole tomato (natural

Peeled tomatoes

Tomato pulp

Nectars: banana - oranges

Strawberry - syrup and pulp

Dehydration: green peppers - carrots - onions - cabbage - onion pulp - garlic pulp

Salt: onion - garlic

Frozen strawberry pulp

Frozen whole strawberries

Source: Instituto Nacional de Tecnología y Normalización (INTN)

The only constraints to this proposal are to find markets and to find the cooperatives that might be willing to follow the plan. If markets (large food processing companies) are found in Brazil or Argentina, it is evident that the potential economic returns to the cooperatives would be much better than selling their vegetables fresh. It is known that there is a large potential market in the United States and Europe for dehydrated foods. What needs to be developed is individual contacts with buying firms. After a successful experience and through the demonstration effect and the availability of more trained technicians, the Paraguayan private sector would react faster to this type of business.

V. ANALYSIS OF DEVELOPMENTAL CREDIT LINES AVAILABLE IN PARAGUAY

There are three major sources of industrial development funds in Paraguay. The first and largest is the National Development Bank (BNF) which operates with IDB and German Government funds. The second is COMDESA, a private sector finance company, which operates mostly with USAID funds. The third source involves the thirteen commercial banks that operate in Paraguay.

A. Commercial Banks

The commercial banks in Paraguay operate on the basis of a reserve requirement of 42 percent of total deposits. In 1972 a law was passed by the Central Bank that ordered the commercial banks to dedicate a minimum of 50 percent of their loan portfolio to "development" loans. The same law specified that the 50 percent should be divided as follows:

-- 25 percent to industry
-- 20 " to exports
-- 5 " to agriculture

under the following terms:

	Interest Percentage	Commission Percentage	Total Percentage
Loans of less than 240 days	10	2	12
Loans of 240 days to 365	10	2 1/2	12 1/2
Loans of more than 1 year	10	3	13
Commercial loans (mostly less than 1 year)	12	8 to 12	20 to 24

The difference between loans to industry and to exports is not well defined; therefore, the industry often has access to the export loans as well. The 5 percent to agriculture is used to finance the purchase of agricultural products at harvest time. Since most of this production is exported, we can conclude that practically all the development loans are export oriented.

The commercial banks, confronted with a high reserve requirement ratio, a cost of approximately 8 percent (time deposits), and an administrative cost that ranges for most banks between 4 percent to 7 percent, have a preference for export-related loans, as can be observed in the following illustration:

Case One - Guarani Loan to a Dairy Products Firm: A loan of ₲12,600,000 ($100,000) to a dairy products firm for 365 days; by law interest rate plus commission would be 13 percent. At the end of the 365 days the bank would recuperate ₲1,638,000 or a 13 percent profit, plus the original ₲12,600,000.

Case Two - Loan to a Lumber Mill that Exports: A 365-day ₲12,600,000 loan to the lumber mill will be similar in terms of the profit that the bank gets from the dairy case. The difference comes when the lumber mill exports. The bank that lends the money will be handling the foreign exchange transaction of the exports. The Central Bank keeps 50 percent of the dollars that come in as a result of the shipment; the other 50 percent is kept by the bank to finance imports of its clients. When a client of the same bank wants to purchase dollars, the bank sells these dollars, but charges a 2 percent commission; therefore assuming that the lumber mill that gets the ₲12.6 million eventually gets the bank's $300,000 of foreign exchange.

13% at ₲12,600,000	₲1,638,000
$300,000 at 2% commission at official exchange rate ₲126/$1	756,000
	₲2,394,000

By giving preference to exporters in the use of this cheaper (13 percent) money, the eventual return to the bank is 19 percent because the linkage returns are higher than those of transactions not involving exporters.

The Banco do Brasil and Banco de la Nación Argentina are subsidiaries of the Central Banks of their respective countries. These two banks operate commercial banks in Paraguay, but offer long-term credit for the purchase of equipment that is manufactured in their countries. According to official figures of the Paraguayan Central Bank in December 1975, 90 percent of the development loan portfolio of commercial banks involved loans of less than one year; 5 percent, two years; and the other 5 percent over two years. The total development portfolio was approximately $90 million.

B. Banco Nacional de Fomento (BNF)

The BNF was instituted in 1961 and is the only development bank in Paraguay. In October 1975, the BNF had an industrial loan portfolio of approximately $34 million.

The BNF will finance only those industrial development projects that are included in the industrial priority list prepared by the National Planning Secretariat. It will finance up to 70 percent of a priority project at an interest rate of 12 percent with up to a two-year grace period. Most loans are granted for eight to ten years. After the grace period, amortizations take place every six months. BNF does not finance working capital.

The German Government extended an industrial line of credit to Paraguay that the BNF administers. The German credit is for projects that involve the purchase of German equipment. The subloans undertake currency exchange risks with German credit. This feature hurts many Paraguayan industries both when the mark revalues or when the dollar devalues. The Guarani has been traditionally tied to the dollar.

C. COMDESA

COMDESA is a widely held private finance company with an equity capital of approximately $1.5 million. It has received $5.5 million from USAID. Part of COMDESA's portfolio is oriented to industrial projects. COMDESA, like the BNF, can finance up to 70 percent of the total cost of an investment project.

COMDESA will finance working capital if it is part of the whole financial package of a project. Its interest rate is 12 percent for dollar loans and 14 percent for guarani loans. The dollar loans pass the currency exchange risk to the borrowers. COMDESA loans have up to a one-year grace period if the loan is for five years, and two if loans are between five and ten years. Most loans are of five to six years' duration. COMDESA began operations in 1971. In Table No. 10 a description of the available development credit lines is summarized.

D. Principal Constraints and Special Features of Development Finance in Paraguay

A development investment in Paraguay, whether it be a new industry or an expansion, has to undertake a number of cash expenditures that endangers the solvency of the project, as well as impedes the undertaking of projects by many potential entrepreneurs.

An industrial project, if of the type contained with the list of industries classified as "necessary" or "convenient" by the Technical Planning Secretariat (STP), is given a number of benefits in terms of income taxes and dispensation of import duties on equipment of foreign origin.

TABLE No. 10

SUMMARY OF MAJOR CHARACTERISTICS OF DEVELOPMENTAL CREDIT LINES

Institution	Currency Exch. Risks	Special Requirements	Terms	Interests & Commissions	Percentage Financed	Collateral Requirements
Banco do Brasil and Banco Real	Yes (U$S)	Brazilian equipment only	$ 50,000- 2 to 3 yrs. $100,000- 3 to 4 " $150,000- 4 to 5 " $200,000- 5 to 6 " $250,000- 6 to 7 " More up to 8 yrs. Amortization: every 6 months	7% annual on unpaid balance 3% annual on unpaid balance	90% of value of equipment	Value of equipment 60% - 65% The rest real estate at a rate of 1.6/1
Banco de la Nación Argentina	Yes (U$S)	Argentine equipment only	Up to 8 1/2 yrs.	Same as above	85% of value of equipment	Same as above
Banco Nacional de Fomento (BNF)	German line only (Mark) IDB line: No	German line German equip.only; IDB line: No; only national priority projects no working capital	Up to 12 yrs. Most projects 8-10 yrs. 1-2 yrs. grace period	10 1/2 to 12%	Up to 70% of whole project	50% value of equip. 60% value of bldgs. and land; the rest realestate at a rate of 1.6/1
COMDESA	Dollar loans to purchase equip.: Yes (U$S); Guaraní loans: No	Mostly national priority projects	Up to 10 yrs.; most projects 5-6 yrs. If loan 1-5 yrs 1 yr. grace period; If 6-10 yrs., 2 yrs grace period	12% Dollar loans; 14% Guaraní loans	Up to 70% of whole project	Same as BNF
All 13 commercial banks (including the first 3 above)	No - Guaraní loans only	Agric.development Industrial dev. Export development	Up to 240 days Up to 360 days More than 360 days	10% annual plus 2% commission 10% annual plus 2 1/2% commission 10% annual plus 3% commission	-	Less than 1 yr. Usually no more Real estate or other at a rate of 1.6/1

Even when the conditions of either necessary or convenient are met, an investor has to pay 15-18 percent of the total cost of the imported equipment in border-connected taxes (nationalization expenses). Since Paraguay does not produce any capital equipment, these taxes are paid on all industrial projects. In most industries the CIF cost of equipment plus installation, on the average, make up 60 percent of the cost of a project. The border taxes, therefore, create an additional 10 percent cash expenditure over the total cost of a new project or 15 to 18 percent if it is an expansion project requiring only equipment.

In addition, there is an average 7 percent cash payment of the total amount of a development loan that has to be paid for the various administrative costs and taxes directly connected with the granting of a development loan (credit formalization expenses). The total impact of these various taxes and expenses in a new project (assuming that no import taxes are involved) is approximately 16 to 17 percent of the total amount invested; in the case of an expansion it would be 20 to 22 percent.

The willingness and benefits of BNF and COMDESA to finance up to 70 percent of the total cost of a development project, which can be considered to be a truly "developmentalist" effort, are offset by the tax burden and administrative costs that have to be undertaken. It was not possible to determine how many projects actually get financed at the debt-equity ratio of 7:3. What could be determined is that, characteristically, entrepreneurs, due to cash limitations, often tend to overvalue the construction costs and, if possible, the equipment cost, so that they can apply these "surpluses" to the 30 percent equity portion of a project. It is believed that the entrepreneurs generate the "surpluses" to pay the tax burden, and apply their own money to the wealth creative portion of the project.

The 7:3 debt-equity ratio is very dangerous in terms of the insolvency potential that is present. This is particularly true in new enterprises where almost invariably they have to experience a learning curve of two to three years' duration. If cash flow calculations in the feasibility studies are not accurate (which they normally are not, given the rather crude methods of calculation, where only point estimates are generated and no sensitivity analyses are performed), a new enterprise with no reserve capital can easily go into insolvency. This would be particularly true when investment surpluses are generated because, in effect, the true debt-equity ratio is larger than 7:3. The break-even point under such conditions is very high and in order to operate profitably under these sets of circumstances, it is necessary to lower variable costs as much as possible, the two principal components being raw materials and labor.

The protective coverage that banks obtain through the high collateral requirements (1.6/1) that is imposed on clients, takes away some of the interest for the "going concern" of the business enterprise. Among all this, it must not be forgotten that industries in Paraguay must strive for high rates of return because only 80 to 82 percent of the total investment is composed of productive (wealth creative) elements and they must also carry the burden of the tax and administrative costs discussed above.

In summary, it can be concluded that the universe of existing development entrepreneurs is largely composed of wealthy and/or land rich individuals who can meet the cash and collateral requirements imposed by the bureaucracy and the banking community.

VI. CONCLUSIONS AND RECOMMENDATIONS

Survey findings and project identification experiences indicate that the proposed loan is indeed a viable endeavor that could generate subloans that would have a direct impact on small farmers' income. The ideal projects are those that contribute towards the horizontal and vertical integration of cooperatives. However, given the present stage of development of cooperatives in Paraguay, most projects will have to be carried out by entrepreneurs.

Channeling the funds through the commercial banking system is an interesting and promising alternative. However, the true willingness of commercial banks to enter the development finance field has to be confirmed after the terms and conditions of subloans are specified. Perhaps a good indicator of what is an acceptable return to commercial banks for the administration of the subloans is a profit rate of four to five percent. Banks presently are charging 4 percent on the guarantees that they sell (offer) to clients. This means that the interest rate that commercial banks could charge to subloans should range between 9 and 12 percent without commission charges. The former rate is similar to the total rates charged by Banco do Brasil and Banco de la Nación Argentina for their equipment finance credits, and the latter is similar to rates charged by COMDESA and BNF on development projects.

The length of the subloans should be up to eight and one-half years, with a grace period of up to two years, depending on the needs of the project. Both of these recommendations are corroborated by the experience of the Banco Nacional de Fomento (see Table No. 10) and the Argentine and Brazilian banks. Working capital should be financed either as part of a project or by itself. Working capital loans that are not part of a project should be carefully evaluated and reasons should be identified as to why working capital cannot be obtained through the regular development portfolio of commercial banks. In other words, the price impact on small farmers should be demonstrated by the use of these cheaper funds. The time length for working capital loans that are not part of a project should not exceed three years.

Loans that include working capital as part of a project should finance only permanent working capital. This means working capital necessary to operate a plant up to a maximum of two months (preferably 45 days), given the plant's production output and labor and administrative expenses. To finance the complete working capital requirements of some agro-industries requires large quantities of money because a year's supply of raw materials must be purchased over a short period of time. The conventional development loans take care of that necessity.

In those cases where the required equipment is from either Brazilian and/or Argentine origin, the existing credit lines of these two countries should be used rather than USAID funds. The part that USAID funds play in such cases could be the financing of downpayments on equipment (see Table No. 10), buildings, plant sites, working capital, etc.

In terms of the percentage of a project that could be financed, the 70-30 debt-capacity ratio should be the maximum but by no means the rule. Only hardship cases should be leveraged to that extent, and only when evidence of stabilization factors like sales contracts for two or three years exists. It would be highly desirable to remove as many as possible of the taxes on new projects. The following is a list of some of the major taxes that need to be reduced to a minimum or completely eliminated. It is written in Spanish so as not to lose its legalistic meaning in a translation:

Nationalization Expenses (Gastos de Nacionalización)

-- Liberación de los derechos adicionales, complementarios aduaneros.

-- Recargo de cambio.

-- Arancel consular.

-- Impuesto en papel sellado y estampillas (párrafos 2-6-56-66).

-- Artículo 27 de la Ley 1003/64.

Credit Formalization (Gastos de Formalización de Crédito)

-- Ley 1003 (on capital and interest)
the 2 percent charge on Letter of Credit by commercial banks; 1 percent commission charge of Central Bank.

If Law 1003 cannot be eliminated, then the credit instrument for the handling of loans should be promisory notes and not drafts because the former is taxed at 1 percent and the latter at 1.5 percent.

Since banks will be assuming the risk for the subloans, it is naive to believe that they will not be attempting to cover themselves as much as possible. An attempt should be made to get the banks to agree to accept 70 percent of the value of equipment and other fixed assets (building and plant site) as part of the collateral package. For the remaining 30 percent, instead of the present 1.6/1 collateral rate, an attempt should be made to obtain at least a 1.25/1 rate.

The final outcome will be the result of future conversations and negotiations with the Central Bank and the commercial banks. Good financial judgment must remain, but developmental features similar to the ones suggested here should be present. Table No. 11 summarizes the suggestions described above.

TABLE No. 11

SUGGESTED FINANCIAL PARAMETERS FOR FUTURE SUBLOANS

Currency Exchange Risk	Special Requirements	Loan Period	Interest	Percentage to be Financed	Collateral Requirements
Assumed by Central Bank	Attempt to use the CACEX and Argentine Bank credit lines when applicable	8-1/2 year maximum up to two years grace period	9 to 12 percent with no commission charges	up to 70 percent including working capital	1.25/1 at least

The cooperation of the Ministry of Industry and Commerce on this program will be a desirable thing. The cooperatives already enjoy a lot of tax benefits, and many of the potential projects will fall under the category of "necessary" industries. However, it is possible that in the future some industries, while they might have a significant impact on small farmers' income, might be classified under the category of "convenient" or under no category at all. It would also be a very desirable developmental feature if the tax advantages and other exemptions afforded to "necessary" industries are automatically given to subloans of this project upon approval by the Central Bank and AID(similar to what occurs with loans financed by BNF). Perhaps the Central Bank is the best agent to deal directly with the Ministry of Industry and Commerce on this matter.

A. Necessary Loan Infrastructure

In order to assure that subloans are developed and that these are indeed the type of projects that will have an impact on small farmers' income, a team of technicians would have to be formed at the Central Bank level. Such team should be composed of two or three technical people, preferably engineers, and two economists. This team would perform three major functions:

-- To promote the program by continuing the function of project identification similar to what the GAMCO team did during the course of this study.

-- To evaluate subloans as they filter through the commercial banking system. They should apply the more sophisticated evaluation techniques such as internal rate of return, discounted cash flow, and, most importantly, sensitivity analyses, particularly with those subloans that are highly leveraged. It would be very desirable to acquire IBM's newest mini-computer (approximate price $20,000) which, among other statistical features, allows one to run sensitivity analyses.

-- To inspect ongoing projects to see that the functions intended are being performed. To provide technical assistance in those cases where needed in an effort to increase the probability of success. This function should be particularly welcome to the commercial banks when they are evaluating "riskier" projects. In other words, the existence of this team, if properly trained, should be viewed by the commercial banks as a risk-reduction element.

It will be up to this team to determine whether or not a project should be financed, but in all cases their justification and final decision should be approved by USAID.

It can be anticipated that there will be several projects that can have a significant impact on small farmers' income, but that the entrepreneurs, even though they meet the technical and administrative requirements necessary to carry out a project, will not qualify financially for a loan even under liberalized loan parameters. Many young professionals and small businessmen who do not have either enough cash or the collateral support necessary will be left out of the universe of potential entrepreneurs. This will probably be more true in the interior than in the Asuncion area.

The availability of qualified entrepreneurial talent is the most scarce resource in developing countries. This is particularly true in Paraguay. Often, when such talent exists, the lack of adequate

funds and/or collateral becomes an impediment to development and the enlargement of the middle class. Where available funds are not adequate, it would be an ideal developmental effort if COMDESA, as authorized by its charter and acting as a minority partner, could borrow the funds from the Central Bank and invest them as equity capital in a project. However, the project itself merits developing because of its impact on small farmers' income. The design of such strategies, assuming that COMDESA wants to participate, would have to include some kind of convertible stocks or debentures. Exercisable by the original entrepreneur and/or if traded by COMDESA, the original entrepreneurs would have first option. This is just the type of development experience that COMDESA is lacking. Its nitche in the development finance system of Paraguay is not quite clear now because it largely duplicates efforts with the National Development Bank, and if this loan program is developed through the commercial banking system, its role will become even less clear.

COMDESA cannot be expected to react quickly or even favorably to such an alternative, since in addition to being understaffed, it does not have any real experience in the investment field. Its perception of risk is heavily oriented towards that of a banking agent; i.e. administering borrowed funds for a commission and not as an entrepreneurial agent. A formula would have to be derived so that in case of failure, once the commercial banks would take their coverage, COMDESA would be next (before the original entrepreneurs). If there were not enough left to fully recover the investment, then there would have to be a guarantee scheme that would cover the loss either partially or wholly. COMDESA could be the guarantor behind promising projects that are short of capital or collateral.

The advantages of such a system would be:

-- Considerable enlargement of the universe of potential entrepreneurs that would make subloans.

-- The commercial banks themselves would be more liberal if they knew COMDESA were a partner in certain projects.

-- It would give COMDESA a nitche in the development world that it is supposed to fill, but has not at the present time.

-- It would give COMDESA the experience necessary within two or three years to continue making investments with its own money.

-- It would act as a stabilizing agent within the project by bringing in administrative controls and methods which are necessary in any new firm and often neglected in small- and medium-size industries.

It is because of the above that this alternative should be carefully considered as opposed to providing guarantees directly to the original entrepreneur. This is only offered here as a suggestion because the loan potential goals can still be reached without this scheme, as survey findings have revealed.

B. Catalyzation of Potential Programs

As a result of survey findings and throughout this report, four programs have been suggested: national agricultural implement plants; utilization of a pilot plant at INTN; promotion of wire silos and storage sheds; and the development of cooperative general stores. All of these programs were identified as significant endeavors that address themselves to problems of magnitude.

In order to carry out such programs, an institution or a group of people needs to act as the catalyzing agent. This would be a costly effort, and at the present time the only organization that in principle seems to have some interest is CREDICOOP. It is doubtful that CREDICOOP can undertake the development of these major programs, given the human and capital resources that it presently has at its disposal. Perhaps with some additional support, it can spearhead these programs. None of the four programs mentioned above will be developed, unless someone acts as the catalyzing agent.

C. Qualification Analysis of Subloans

In determining the subloan's qualification for financing under these programs, the first and most important consideration is: How is this project going to increment small farmers' income? This important question has to be answered by the entrepreneur or cooperative that will benefit from the funds. It will be the responsibility of the evaluating team at the Central Bank to check the justification given by the interested entrepreneur or cooperative. The other project considerations should also be analyzed by the Central Bank, but this is the responsibility of the commercial banks which, after all, are the ones that are assuming the risks. Conventional evaluating techniques used by the bank are efficient and conservative in nature. The relevant question is, what impact will each project have on farmers' income? The development of a quantitative model only has some significance when the first question has been satisfied. With reference to an evaluating model, the following comments merit consideration. Small farmers' income can be incremented in three alternative ways:

-- Increase the volume of his production by the addition of new markets for his products. This "volume" benefit is a form of income incrementation that assumes the farmers have more land to cultivate, or that part of their production is not being utilized.

-- Better prices for his products.

-- Cheaper prices for his inputs.

The impact of any of these three alternatives varies in degree, and only after a few loans are analyzed will experience indicate which alternative seems to yield the greatest benefits. Once this is known, the Central Bank team can promote this type of activity.

Another consideration to be kept in mind is that there is no control over the arrival of projects that are to be analyzed. It is not expected that many projects will be at the bank's door at one time. Each application will have to be studied on a case by case basis. The final criterion after some experience is gained would be to develop two ratios:

$$\text{Loan dollar per capita ratio} = \frac{\text{Number of farmers directly benefited}}{\text{Dollar amount of USAID funds to be used}}$$

$$\text{Loan dollar multiplier-effect ratio} = \frac{\text{Total monetary benefit to farmers}}{\text{Dollar amount of USAID funds to be used}}$$

ANNEX No. 1

ARTICLE I - STATEMENT OF WORK

A. Objective for Which the Technical Services are to be Used

To prepare elements of a project paper (PP) for a loan which will finance agro-industrial subprojects for small farmer infrastructure development and employment generation. The types of industries to be financed through the loan will be functional and crop-specific agro-industries but will not include traditional "infrastructure" areas such as roads or electric power.

B. Description

1. Objectives

Objectives of the proposed loan include: (a) increased agricultural processing capacity for products grown by small farmers; (b) more firms providing small farm inputs and purchasing outputs to increase geographic coverage and to encourage market competition; (c) more market opportunities for both traditional and nontraditional small farm production; and (d) job creation in labor surplus areas.

2. Methodology

Information inputs for the PP will be developed through two methods. First, the consultants will analyze available data and opinion, including the ongoing USAID/GOP Small Farmer Subsector Assessment and secondary data available in the Ministry of Agriculture and Ministry of Industry and Commerce, BID, OEA, IBRD, and local organizations such as CEPEX, CAH, and others. Second, the consultants will conduct basic exploratory research including direct interviews with institutions and industries.

C. Scope of Work

The Contractor shall provide 27.64 man months of professional, technical, and clerical personnel necessary to perform the services called for herein in the staffing pattern set forth below. This effort shall be directed towards the accomplishment of the following:

1. Analysis

a. Review of small farm inputs both for production and personal consumption and demand for inputs not readily available.

b. Review of small farm outputs including marketing arrangements and identification of problems such as transportation shortages, spoilage, etc. (To the extent possible, the consultants should obtain

information for a and b above from the Small Farmer Subsector Assessment and interviews with leaders of cooperatives. Emphasis should be placed on special characteristics and problems of the geographic areas in eastern Paraguay in which the small farmer target group is concentrated.)

c. Review of human resources including managers and skilled/unskilled labor available for the creation of new industries or the expansion of existing businesses to better serve the small farmer.

d. Identification of other constraints, in addition to shortage of capital, which inhibit development of agro-industries in Paraguay.

e. Comparative analysis of banking institutions and other sources of finance to assess the relative position of these organizations and to select the institution or institutions through which A.I.D. loan funds could be channeled.

f. Examination of the role and function of various Paraguayan organizations, including CREDICOOP and UNIPACO, in terms of their relations to agro-industries and service enterprises.

2. Development of criteria for selection of subprojects

The consultants should develop a list of criteria for the lending institution or institutions through which A.I.D. loan funds are channeled which will insure that subprojects contribute to the objectives of the loan. Criteria should reflect the following considerations:

a. Measures such as internal rate of return and sensitivity analysis for agro-industrial and service industry projects, and other indicators of subproject profitability and feasibility that can be used to evaluate projects submitted.

b. Determination that the subprojects will have a significant impact and will establish a long-term relationship with the small farmer.

c. Criteria must provide a system which will assign priority to subprojects so that they can be rank ordered in terms of a and b above.

d. The amount of imported raw materials and capital goods required should be an important factor in subproject selection, with industries using a large proportion of domestic resources receiving higher preference than those which require imports.

3. Identification of potential subprojects

The Contractor should develop a list of potential subprojects which will provide for prompt initiation of the loan project and will illustrate in the PP the types of activities which the project will finance. For each opportunity identified, the Contractor should provide the following information:

a. An estimate of the benefits to the small farmer. These benefits can be stated quantitatively, qualitatively, or a priori, depending on the nature of the opportunity and the information available.

b. The Contractor will state in detail how the benefits were calculated.

c. The Contractor will list investors interested in undertaking the subprojects identified.

ARTICLE II - STAFFING

The level of staffing for the performance of this contract shall be 27.64 total man months of direct specialized labor in the categories specified below:

Number	Category	Man months
1	Senior Development Specialist	4.5
1	Mechanical Engineer	4.5
2	Agricultural Engineers	9.0
1	Economist	1.5
1	Secretary	4.5
1	U.S. Industrial Engineer	3.64
	Total	27.64

ANNEX No. 2

LIST OF COOPERATIVES THAT WERE INTERVIEWED

Zone	Location	Name	No. of Members
I	Loreto-Concepción	Co'e Pyajhu Ltda.	240
	Loreto-Concepción	Candido Silva Ltda.	38
	Concepción-Concepción	Del Norte Ltda.	40
	Belén-Concepción	Ypané Ltda.	84
	Sub-Total		402
II	Saltos del Guairá-Canendiyú	COPASAGU	343
	Hernandarias-Alto Paraná	Palma Ltda.	15
	P.P.Stroessner-Alto Parana	Minga Guazú	452
	J.E.O'Leary-Alto Paraná	J.E.O'Leary Ltda.	240
	Hernandarias-Alto Paraná	Mayor Alfredo Plá	220
	Colonia Yguazu-Alto Paraná	Takushin Yopoira	140
	Cnel. Oviedo-Caaguazú	Cnel. Oviedo Ltda.	684
	Sub-Total		2,094
III	Capiatá-Central	Hortifrut Ltda.	20
	Capiatá-Central	Asuncena-San Blás	27
	Capiatá-Central	Ybyraró Ltda.	25
	Pirareta-Cordillera	Moisés Bertoni	8
	Itacurubí-Cordillera	Itacurubí Ltda.	97
	Caraguatay-Cordillera	Caraguatay Ltda.	26
	Caraguatay-Cordillera	Promoción Ltda.	370
	E.Ayala-Cordillera	La Barrereña Ltda.	109
	Sub-Total		682

Zone	Location	Name	No. of Members
IV	Yaguarón-Paraguarí	San Buenaventura	18
	Yaguarón-Paraguarí	Yaguarón Ltda.	171
	La Colmena-Paraguarí	La Colmena	52
	Acahay-Paraguarí	Acahay Ltda.	87
	Carapeguá-Paraguarí	Carapeguá Ltda.	150
	Paraguarí-Paraguarí	Paraguarí Ltda.	125
	Quiindy-Paraguarí	Quiindy Ltda.	170
	Sub-Total		773
V	Villarrica-Guairá	Ideal Ltda.	85
	Villarrica-Guairá	Independencia	45
	Iturbe-Guairá	Santa Clara Ltda.	*/
	Buena Vista-Caazapá	El Progreso Ltda.	*/
	Yuty-Caazapá	Yucy Ltda.	289
	Sub-Total		419
VI	San Ignacio-Misiones	Segunda Coop.Triguera	35
	San Ignacio-Misiones	Misionera Ltda.	21
	San Ignacio-Misiones	San Ignacio Ltda.	374
	San Juan Bautista-Misiones	San Juan Bta. Ltda.	119
	Sub-Total		549

*/ Membership was never properly determined.

Zone	Location	Name	No. of Members
VII	Obligado-Itapúa	Colonias Unidas	329
	Encarnación-Itapúa	Del Sur Ltda.	240
	Carmen del Paraná-Itapúa	Carmeña Ltda.	170
	San Luís-Itapúa	San Luís Ltda.	152
	Cnel. Bogado-Itapúa	Cnel. Bogado Ltda.	206
	Fram-Itapúa	Apereá Ltda.	30
	Fram-Itapúa	Fram Agrícola Ltda.	226
	Pirapó-Itapúa	Pirapó Agrícola Ltda.	300
	Capitán Miranda-Itapúa	Capitán Miranda Ltda.	44
	"	Cerrito Ltda.	70
	"	Ing. Agr. H. Bertoni	53
	"	Agrícola Pioner	40
	Sub-Total		2,360
VIII	San Pedro-San Pedro	Trigenar Ltda.	13
	Itacurubí del Rosario-San Pedro	Itacurubí del Rosario Ltda	33
	Volendam	Volendam	160
	Villa del Rosario-San Pedro	Villa del Rosario Ltda	120
	Pto. Rosario-San Pedro	La Rosarina	80
	Friesland	Friesland	196
	San Pedro-San Pedro	Norteña San Agustín	130
	San Pedro-San Pedro	San Pedro de Ycuá-mandiyú	58
	Sub-Total		790

Zone	Location	Name	No. of Members
IX	Chaco	Ferheim	800
	Chaco	Neuland	172
	Chaco	Chortitzer Komittee	1,400
	Sub-Total		2,372
X	Pedro J. Caballero-Amambay	Aquidabán Ltda.	14
	Pedro J. Caballero-Amambay	Amambay-Agrícola Ltda.	37
	Sub-Total		51

S U M M A R Y

Zone		No. of Cooperatives	Membership
I	Concepción	4	402
II	Canendiyú-Alto Paraná Caaguazú	7	2,094
III	Central Cordillera	9	682
IV	Paraguarí	7	773
V	Guairá-Caazapa	5	289
VI	Misiones	5	549
VII	Itapúa	12	2,360
VIII	San Pedro	8	790
IX	Chaco	3	2,372
X	Amambay	2	51
	Total Membership		10,362

ANNEX No. 3

LIST OF METAL WORKING ESTABLISHMENTS THAT COULD PARTICIPATE IN THE MANUFACTURING OF AGRICULTURAL IMPLEMENTS

1 - Victor Koop - Asunción

2 - Fundería Milán - Asunción

3 - M/M - Asunción

4 - Astillero San Isidro S.A. - Asunción

5 - Industrias Ybycuí - Asunción

6 - Fabrimet - Fernando de la Mora (Asunción)

7 - Agrometal - Asunción

8 - Taller 14 de Julio - Asunción

9 - Talleres Gadea - Asunción

10 - Talleres Borgman - Friesland

11 - La Agrícola - Encarnación

12 - Taller Cooperativa Colón (Chortitzer) Chaco

13 - Industria Metalúrgica Horst Marteus - Chaco

14 - Fidelin Varela - San Ignacio

15 - Heriberto Schebella - Encarnación

16 - Taller Andrés Riecan - Carmen del Paraná

17 - Super Básculas Longhino S.R.L., Villarrica - Guairá

18 - Jorge Paredes Cabello - Asunción