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CONFERENCE REPORT

Executive Agribusiness Workshop

El Pueblo, Peru

March 9-11, 1984

Editor:

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Organized by:

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1. SUMMARY OF CONCLUSIONS

The Executive Agribusiness Workshop took place at the El Pueblo Hotel, Vitarte, Peru, March 9-11, 1984.

The objective of the Workshop was to promote the role of private business in development in general, and to stimulate Peruvian non-traditional agricultural exports in particular.

According to the expressions of satisfaction received after the Workshop from the participants, these two goals have been achieved as regards the proceedings.

To progress from the general to the specific, the organizers started immediately after the Workshop to provide support services to farmers and Peruvian and North American companies to facilitate private agribusiness ventures oriented towards the exportation of non-traditional agricultural products.

Two months after the close of the Workshop, the organizers registered the following projects:

1. SPICES.- Two United States firms have each offered to buy 100 TM of dehydrated chili and ground paprika, respectively. They have provided seed and cultivation systems to one dozen Peruvian producers who are planting them in order to test if the grade of hotness and color will conform to the requisites of the external market.
2. COLORANTS.- A U.S. firm provided the design and specifications for a turmeric hammermill to a Peruvian exporter and offered to buy the product. Three Peruvian exporters have been put in contact with four U.S. firms not represented at the Workshop that wish to buy annatto, bixin, cochinitilla and carmin.
3. LEMON ESSENCE.- A subsidiary of a U.S. firm established in Peru agreed, under its program of diversification, to buy sour lemon from producers in Lambayeque for the extraction and exportation of lemon essence. A Peruvian processor was assisted in establishing contact with a United States importer of lemon essence who was not represented at the workshop.
4. FRUITS.- A processor of passion fruit was assisted in the sale of his frozen pulp stock, valued at U.S.\$ 1.2 million, to three U.S. companies (in initial execution). A producer of strawberries entered into negotiations with a U.S. importer/distributor.
5. VEGETABLES.- A joint venture in asparagus in Pisco has been planned by a Peruvian partner and a North American firm.

6. FISH. - A group of Peruvian entrepreneurs has been put in contact with a U.S. firm which owns a factory boat with the view to forming a joint venture in the fishing of jack mackerel and mackerel, in coordination with the Ministry of Fishing. Two Peruvian firms that wish to export jack mackerel pulp have been put in contact with three U.S. firms.

7. SHELLFISH. - Two Peruvian exporters of scallops have entered into communication with two importers in the United States.

8. PALM OIL. - A U.S. firm is studying the feasibility to establish a mother farm and contract with Peruvian producers of the palm.

9. CACAO. - A Peruvian processor has obtained technology from a U.S. firm.

10. JOJOBA. - A Peruvian farmer who wishes to cultivate jojoba has been referred to a U.S. firm which contracts the transfer of technology for the cultivation of jojoba.

11. OTHER PROJECTS. - A North American bank established in Peru has contracted a specialist in non-traditional crops. Two consulting firms - one Peruvian, one North American - have formed a consortium to provide services in non-traditional crops.

In the process of providing support to the participants after the Workshop, the organizers gave major emphasis to export centers for fresh produce (see pp. 17 and 18) in the hope that if large volumes can be assembled it would be feasible to penetrate important external markets, and obtain the necessary technology to make it profitable.

The effort was divided into five stages:

- 1) Definition of the demand by product and buyer.
- 2) Location of the corresponding production potential and identification of leaders (producers and exporters) in the process of planning the Centers.
- 3) Promotion among producers, dimensioning of the packing plants, obtaining seeds, and production tests.
- 4) Finalizing partnership, contracts, incorporation of Centers as stock companies (S.A.), installation of equipment (or adaptation of existing installations).

5) Technology transfer, production, and export.

At the time this report went to press the first two steps had been completed. In the U.S., ten firms have been identified which are definitely interested in importing from Peru 16 fruits and vegetables, principally during December - April. Also, some well-known Peruvian farmers and exporters have indicated their wish to participate. Their radius covers the valleys of Ica-Pisco, Cañete, Chancay - Huaura, and Olmos - Motupe. FOPEX, ONA, and the magazine Agronoticias are collaborating in the execution of the third stage.

In this way, the organizers of the Workshop consider that attention has been paid to all the seven factors basic to an agribusiness system: market and the corresponding technology (U.S. partners), management (exporters), land and labor (farmers) and infrastructure (installed or to be built) - except the credit factor.

As the Workshop has considered (see pages 10 and 11), lines of credit are available in Peru for the production and packaging of non-traditional agricultural products. However, at this time, the procedures used do not always obtain the results desired by everyone. To fill this gap in the system of the export centers, the organizers have agreed with the Central Bank to undertake a project to facilitate credit to non-traditional agricultural products. That project will consist of three stages:

- 1) Analysis of the legal and regulatory regime by experts accompanied by consultation of the users of credit.
- 2) Meeting of senior bank representatives to define the problems and recommend solutions (including incentives).
- 3) Training course for loan officials of private and public banks.

MEETINGS OF THE WORKSHOP

The program (see Appendix 4.1) included presentations of representatives of the Government of Peru: Ing. Carlos Hurtado Miller, Minister of Agriculture, who analyzed the outlook for Peruvian agriculture; Dr. Richard Webb, President of the Central Reserve Bank, who presented a summary of the grave financial situation of the country, underlining the necessity for promotion of non-traditional exports. Representing the private sector, the speakers were Mr. Juan Martinotti, Industry Society, who emphasized the need to increase agricultural production through the utilization of input, machinery, and most of all improved seeds; and Gonzalo Garland, President, Association of Exporters who presented a revealing analysis of the statistics of non-traditional agricultural exports.

After the inaugural session, the work of the seminar was divided between two working groups and plenary sessions. The working groups analyzed in depth the key aspects of the agenda such as farmer/agribusiness relations and agricultural credit, and formulated conclusions with regard to priority products which should be promoted. The plenary sessions listened to the reports of the working groups, commented, and drew conclusions. A synopsis of the reports and conclusions follows.

The Workshop brought together 81 participants of whom 50 represented Peruvian entities and 31 foreign organizations. Of the Peruvians 20 were agribusiness executives, 9 farmers, 3 executives of private banks, 11 government officials and 7 representatives of voluntary organizations. Of the rest, 9 were agribusiness executives from the United States, 9 executives of Peruvian subsidiaries of multinational agribusiness companies, 5 from the U.S. government, 2 from international banks, and 6 from U.S. voluntary organizations.

1.1 Relations between farmers and agribusiness

Two groups of participants studied the case histories included in the documentation for the seminar: the case of Chimachoy, a locality of small farmers in the Guatemalan highlands that illustrates the relations between cauliflower producers and a freezing plant for export. And the case of the Mumias Sugar Company of Kenya which established a mother farm around a sugar refinery and contracted additional sugar cane from 13,000 farmers of limited resources.

After analyzing the good and the bad of the actions of the farmers and the agribusiness companies, and considering similar Peruvian experiences, the participants formulated a series of recommendations in respect to contracting agricultural products from independent producers by agribusiness, as follows:

- Participation - Direct participation of the producers in the agro-industrial companies is desirable, through participation in the capital stock, or committees involved in the different stages of auxiliary process such as production, assembly, and classification.
- Crisis - The crises that affect agroindustries due to external causes outside of their control must be confronted with solutions that contemplate the survival of the plant as well as the producers, sharing equally the adjustments that the crisis warrants.
- Product Flow - The disequilibrium to which the industry may be subjected due to over or under supply of raw materials can be avoided in part through the appropriate programming of the sowing season, and adequate supervision.
- Contracts - The contract between the company and the producers must be sufficiently clear and simple to be applicable. It must include clauses of flexibility to both parties, especially if the product is sensitive to the fluctuations of the market.
- Establishing the price - Establishing the price through the free play of supply and demand is not applicable when there are no alternative markets or products for the farmers. Sometimes it is desirable to establish the price by weight based on average yield for a predetermined area prior to sowing.
- Grouping of the Producers - The organization of the producers is a positive factor for the agroindustry permitting better coordination in programming, provision of services, storage, and negotiation of buy-sell contracts, and improves communication between both parties in times of crisis.
- Mother Farm - The mother farm maintains a suitable high technology nucleus farm, owns the processing plant, and provides production services to small and medium farmers who sell raw materials to the company, under contract. There was a consensus that ownership of the land by independent farmers is much more desirable than large landed estates, whether government or private. And that it should constitute 70 - 75% of the total of the cultivated land. The company must provide services of mechanization, fertilization, phyto-sanitation, transport of the product from the land to the factory, and agricultural extension services, charging the cost under the buy-sell contract.

- Foreign Technical Consultants - Besides contributing technical and administrative capabilities, particularly at the beginning, it was considered that the most positive aspect of the participation of foreign consultants is to generate confidence of the investors, especially the international financial entities.
- Administration of Projects - Feasibility studies must be complete. The farmers and the personnel of the company must be trained. There should be a single, central administration, properly organized. The farmers that supply the processing plant must have additional land for subsistence crops.

1.2 Agricultural Credit

The two working groups that discussed public and private credit found that in reference to financing non-traditional agricultural exports, the bottle neck is not the availability of funds but the procedures utilized in lending.

The group that discussed the subject of private credit concluded that to realize the objectives of the Non-Traditional Export Fund it was necessary to redefine the policies of this Fund as follows:

1. Agricultural property must be considered as real credit collateral without recourse to additional guarantees at present.
2. In the cases where the Agrarian Bank approves the establishment of a second crop lien, the procedure must be speeded up to complete the certification within less than the 60 days actually required in order to avoid damages.
3. There is a need for a Guaranty Fund that would function as an insurance company, insuring previously qualified exporters against the following risks:
 - a) Non fulfillment of payment on the part of the importer. Letters of Credit, confirmed and irrevocable, are not always paid.

b) Guaranty to the financial entity that gives credit to exporters in case of non-completion of exportation or if the export fails to meet the requirements of the importer.

c) Guaranty for financing of the assembly or the building of inventories.

d) Guarantees of payment to the financial entity that sponsors the exportation in case the export is not approved in the United States by the FDA.

The purpose of the Guaranty Fund would be to give confidence to the banks and the financial community to provide capital to the exporter, but also to harshly penalize the exporter if he squanders the credits, taking judicial action against him and refusing him all future credit.

The group called on the government to create Venture Capital Companies that would have as their object the promotion of new companies that would undertake projects considered risky by existing financial entities (granting them tax incentives). Also, that the government revise the existing legislation concerning litigation under international private law which is currently limited by the decision of the Treaty of Cartagena.

The Public Credit group recommended the following:

- a) Officials of financial institutions as well as farmers should receive training in the elaboration, implementation, and evaluation of investment projects in non-traditional crops.
- b) Financial institutions should develop programs to publicize the lines of credit, through agrarian organizations.
- c) There is a need for the simplification and speed-up of the procedures and credit approval for the agricultural sector.
- d) It is necessary to have Agricultural Insurance, considering the existence of some limitations on credit, connected mainly with the requirement of real collateral levied by the financial institutions. In the first stage the insurance premiums would be paid as part of the cost of financing.

1.3 Opportunities for Agribusiness in Peru

The second plenary session of the Seminar, after receiving the reports of the working groups that formulated recommendations about farmer/agribusiness relations and credit, discussed various strategies of increasing production. The presentations included the point of view of the National Agrarian Organization, of the International Finance Corporation, a food marketing firm, and of one firm that offers irradiation technology for fresh produce using Cobalt 60.

The second round of working group sessions was focussed on discussions of four categories of products. Investigations before the Workshop (see Chapter 4 - Opportunity Profiles) indicated that Peru offers interesting perspectives of increasing exports of (1) spices, colorants, essences; (2) fruits and vegetables; (3) table fish and shellfish; (4) industrial raw materials. The proceedings included presentations of Peruvian experts in relation to current production, its potential and problems; and foreign experts who discussed the international market and its demands. The conclusions were derived from the general discussions, in the working groups, and in the third plenary session with animated and informed participation.

1.3.1 Spices, Colorants and Essences

There exists a growing necessity to substitute synthetic products utilized in the food industry. As scientific investigation defines more and more the carcinogenic qualities of the synthetic products, the demand for the natural flavorings and colorings grows. (However, the change is slow, and natural additives are not always able to replace synthetics). There is competition among the suppliers of natural additives. The market values standard quality and rapid shipment.

The demand in the United States for these products is considerable. In some cases, Peru has already gained an important part of this market:

COCHINEAL AND ANNATO IMPORTS
TO UNITED STATES

AMOUNTS IN UNITS
(Lbs)

| COUNTRY | 1982 | 1983 |
|-----------------------|-----------|-----------|
| BELGIUM AND LUXEMBURG | 4,671 | 165 |
| CANADA | - | 2,517 |
| COSTA RICA | - | 550 |
| DOMINICAN REPUBLIC | 597,295 | 487,886 |
| ECUADOR | 1,984 | 2,725 |
| FRANCE | 3,005 | 2,687 |
| GUATEMALA | 110,880 | - |
| JAPAN | 192 | - |
| KENYA | 1,389,780 | 2,154,925 |
| HOLLAND | 242 | 242 |
| PERU | 1,853,693 | 1,604,747 |
| PHILLIPPINES | 37,078 | 28,247 |
| SOUTH AFRICA | - | 831,046 |
| UNITED KINGDOM | 117 | - |
| WORLD | 3,998,937 | 5,115,738 |

(IN THOUSANDS OF U.S.DOLLARS; BASED ON CUSTOMS VALUE)

| COUNTRY | 1982 | 1983 |
|-----------------------|-------|-------|
| BELGIUM AND LUXEMBURG | 5 | 9 |
| CANADA | - | - |
| COSTA RICA | - | 4 |
| DOMINICAN REPUBLIC | 168 | 354 |
| ECUADOR | 62 | 69 |
| FRANCE | 201 | 165 |
| GUATEMALA | 38 | - |
| JAPAN | 2 | - |
| KENYA | 320 | 446 |
| HOLLAND | 6 | 4 |
| PERU | 860 | 904 |
| PHILLIPPINES | 38 | 44 |
| SOUTH AFRICA | - | 159 |
| UNITED KINGDOM | 10 | - |
| WORLD | 1,711 | 2,160 |

Source: U.S. Department of Commerce

UNITED STATES: SPICE IMPORTS PER COUNTRY OF ORIGIN
1981-82

| COUNTRY OF ORIGIN | 1981 | | 1982 | |
|-------------------|------------------|------------------------------|------------------|------------------------------|
| | <u>Kilograms</u> | <u>('000) US Dollars</u> | <u>Kilograms</u> | <u>('000) US Dollars</u> |
| <u>PAPRIKA:</u> | | | | |
| Hungary | 2,458 | 88.7 | 500 | 13.6 |
| India | 1,997 | 35.6 | --- | --- |
| Morocco | 6,120 | 212.7 | 19,619 | 710.2 |
| Peru | 13,803 | 67.8 | --- | --- |
| Spain | 210,277 | 5,896.9 | 85,610 | 3,995.5 |
| Switzerland | --- | --- | 108 | .9 |
| | | | | |
| TOTAL | 234,655 | 6,301.7 | 105,837 | 4,720.2 |

Source: U.S. Department of Commerce

It was estimated that Peru could capture 30% of the American market for paprika (about 14,000 MT/year), increasing the export considerably. Paprika is defined as dehydrated, ground, sweet red pepper conforming to certain specifications.

Peru has a comparative advantage because the major part of paprika consumption in the U.S. is produced north of the Equator during the months of September to December. In consequence the distributors have to maintain an inventory during the rest of the year - under refrigeration - and have no alternate sources. In this manner, countercyclical paprika, as in Peru, has a good opportunity to enter. Spain has been the principal exporter to the United States thanks to the monetary devaluation. The yields of the principal producing countries have been from 3.5 to 6.0 MT/ha. The median FOB price has been \$1.50/kg. The key elements to consider are the season, yield and color.

Peru has a long tradition in the cultivation of the hot pepper. The level of demand for chili in the U.S. is comparable with sweet paprika. However, the principal exporting countries (China, India, Pakistan) have sufficient geographic diversification to produce it all year, and the cost of labor is very low. In the international market for chili, the determining factor is taste (content of capsaicin).

Peru is already the third exporter of turmeric to the United States, after India and Jamaica. However, India supplies about 90% of the U.S. market due to the high quality of the turmeric produced in the State of Kerala (Aleppey) containing more than 5% curcumin. The content of curcumin is important because the product is used as a colorant (70% in curry and mustard powder). The food processors have preferred yellow synthetic colorant Number 5 (tartrazine) due to its low cost (10% of curcumin) and photochemical stability. However, yellow N° 5 has received unfavorable publicity through reports that indicate that the product causes hyperactivity in children. At the same time the price of curcumin has reached its highest level historically (1.50/kg) in 1984. The importers are interested in diversification outside of India.

Another important colorant for Peru is annatto. Of the 2000 MT of seeds of annatto imported into the U.S. annually, Peru is the country of origin of 700 MT - equal to Kenya which is another important supplier. The quality of the product depends on the bixin content. The Kenyan annatto seed has declined somewhat recently (apparently due to mixing seeds of previous crops with the current crop; if the product is not sold fresh, the quality deteriorates since bixin is unstable).

An interesting opportunity exists in dehydrated ginger due to political disturbances in the principal producing countries (Nigeria, Sierra Leone, India). China and Jamaica (that produce the best quality ginger) have not increased their production notably. Hence the price in 1984 (\$2/kg) is double the price in 1981-82.

In general terms, the working group concluded that there exists a necessity to increase the harvest and primary processing of the spices and colorants through price incentives to the producers with the idea of increasing the quality of the export product (at premium prices). Also discussed was the desirability of quality certification. The certification would be obtained by agreement between the producers and exporters, official norms of the government, technical norms of ITINTEC, and selection of inspectors in Peru.

1.3.2 Fruits and Vegetables

Peruvian exports of fruits and vegetables have been concentrated in a few products, the majority non-perishables: canned asparagus, tomato derivatives, tropical fruit purees, frozen and canned olives, garlic, dried vegetables. The benefits for the country have been fewer risks, more value-added (referring to processed products) and easier coordination with the national market.

The working group considered, however, that the export of fruits and vegetables (refrigerated or frozen) merits more attention for the following reasons: The markets of the industrialized countries (which pay in hard currency) are expanding in reference to fresh or frozen products, and contracting in reference to canned products; anyway, the demand for fresh products cannot be satisfied by processed products; in the industrialization of fruits and vegetables Peru suffers from the disadvantages of small-scale production, capitalization and technology compared to foreign industries, while Peru enjoys comparative advantage in terms of countercyclical climate to produce fresh fruits and vegetables during the winter months in the Northern Hemisphere. Export in fresh is compatible with the processing industry, because the Peruvian production of many fruits and vegetables can be maintained during most of the year, and the months of peak external demand are the months of peak production.

An attempt was made to define the fresh products that have a comparative advantage in the North American market and which currently are being produced in Peru:

- green and white asparagus (August - January, canned from February - July);
- strawberries (October - January, with marmelade from the rest);
- artichokes (complemented by marinating the hearts);
- mangoes (December to March);
- tomatoes (processed for tomato paste in 55 gallon drums during "winter window");
- moderate climate vegetables (cauliflower, broccoli, Brussels sprouts, snow peas [frozen] primarily for the institutional market).

To obtain a significant presence of these fruits and vegetables in the U.S. market (as Chile has done), the necessity to consider optimum quality, sufficient quantity and a continuity of supplies of the product was recognized. Currently, isolated efforts to export fresh fruits and vegetables lack the necessary technology to reduce the costs of production and assure the quality, the volume and the continuity necessary to attract the interest of foreign importers.

Export Centers

Efforts to export fresh fruits and vegetables from Peru tend to be sporadic, typically involving small lots shipped to a broker on consignment. Brokers questioned said that the Peruvian products frequently had not conformed with the quality requirements, consistency and punctuality of delivery. The exporters, at the same time, said that they have received little orientation from the brokers, and the producers have never received technical assistance from the foreign buyers. In other words, export of fresh Peruvian products is disjointed.

To overcome these common problems, the working group recommended the promotion of Export Centers in the principal Peruvian coastal valleys.

The functions of the Export Center would be:

1. Storage - Through a contract system with the producers the Centers would receive considerable quantities of the products.
2. Processing - Depending upon the needs of each product, the Center will have the facilities to clean, classify, and pack.
3. Export - Under contracts with foreign importers, the Centers will export the products, providing warehousing services (generally refrigerated), phyto-sanitary treatment, transport to ports and airports based on contracts with transportation companies.
4. Transfer of Technology - The Centers will receive the cooperation of foreign importers and corresponding agencies of the government of Peru to acquire the most advanced technology for production and treatment, to compete in external markets with products of high quality, consistency and low cost. At the same time, the Centers will transfer this technology to the contract producer, recovering the cost in discounts on delivery.

The organization of the Centers, to be realistic, must be reflect the analysis of the problem at hand and integrate the complete chain of the participants in the external marketing process. From the beginning the establishment of the Centers must be an effort intimately shared by the producers, exporters and foreign buyers.

Each center must be adjusted to the characteristics of each zone in reference to the physical facilities (by product) as well as legal form (according to the preferences of the organizers). It is anticipated, however, that all the Centers will be private.

For financing, the group considered that there were possibilities to solicit intermediated loans such as FRAI, specific lines of credit from the Agrarian Bank, and from private banks; and, if the total amount needed by the Centers justifies it, the International Finance Corporation. Equity capital for the Centers would be raised among the producers, exporters and foreign buyers.

Finally, the Working Group emphasized that in the last instance there will not be products to export if the farmers do not receive support and the appropriate remuneration for their fundamental participation in this process.

1.3.3 Table Fish and Shell Fish

The fishing resources of the Peruvian sea are estimated at 18,000,000 MT of biomass permitting industrial fishing of approximately 5,000,000 MT/year of the following species: sardines, jack mackerel, mackerel, and others.

Conditions which are external to this system assure its conservation and ecological equilibrium. They are the Humboldt Current, El Niño Current, oceanic and underwater currents, trans-oceanic winds and others that support a substantial fishing potential with considerable comparative advantage, by volume, diversification, and accessibility, permitting fishing within 30 miles of the coasts.

The fishing industry has grown rapidly and cyclically due to aggressive business efforts, skewed, however, to the transformation of resources into fish flour and equally for the production and exportation of canned sardines, replacing the anchovy, producing in this manner the external financing for its own expansion and other sectors of the economy.

That expansion has been made possible by the constant support of the private national and international banks, and also the involvement of the industry in world trade and demand for proteins, developing the appropriate technology to transform the immense quantities of anchovies and sardines, establishing the market infrastructure and commercial intelligence, and assuring the quality of the production for the external market as required in the case of fish flour.

Likewise, the fishing sector should intensify and organize the development of an industry oriented toward direct human consumption, under conditions of processing, quality, and preservation to supply the local market at affordable prices and also ship a significant amount to the external market.

The participants of the working group heard the enlightening information, orientation and suggestions offered by the experts present, with the intention that the opportunities of the market and corresponding projects be realized in a short period. The potential of the U.S. market, and the role of FDA, the mechanisms and advantages of voluntary inspection for fish products, the necessity and economic benefits obtained by assuring the sanitation and quality of the export products, were precisely determined.

Also discussed were the possibilities to utilize training programs and transfer of technology, agriculture and commercial and technical information.

It was also emphasized that for trout, hake and frozen fish in blocks, oysters, scallops, surimi, prawn, shrimp, and other shellfish a stable market exists, and the export sector of Peru could make use of its comparative advantage.

Likewise, the representatives of the banks indicated their good disposition and support to consider projects and commercial export operations for table fish; and more, in brief form, have given their recommendations to the Peruvian companies represented at the Workshop - the identification of export opportunities for trout, processed fish, surimi, scallops and other shellfish. The companies that were represented indicated interest.

In sum, the Working Group recommended the following:

1. To consider the profile presented by the firm HYHM Actividades Pesqueras, S.A., for the production and export of surimi, as a pilot project for non-traditional export so as to provide financing until the sale of production destined for export and the internal market. This recommendation, it was suggested, should be presented to AID and the banking system to finance the feasibility study.

2. To call to the attention of the appropriate institutions the necessity to study the conservation and development of scallop and other shellfish resources allowing the planning of production and exportation at a permanent and sustained level.
3. To promote with the public and private markets, with credit institutions and with the institutions which administer fishing resources, the policies and complementary actions necessary for the business development and organization of production and non-traditional exportation, with an end to proportion the incentives and facilities to permit their competition and production quality for the internal market and for export.
4. Finally, to consider the possibility to convoke in the future a meeting of Agro-Marine business, to evaluate on that occasion the concrete results and experiences of the projects that have just been generated in Peru.

1.3.4 Industrial Raw Materials

The Working Group analyzed agribusiness projects in reference to industrial products: palm oil, cocoa, coffee, tea and others.

The basic components of agribusiness products are land, labor, management, technology, marketing, credit, and infrastructure. Production of the industrial raw materials requires a lot of land; that is available in Peru principally in the high jungle (PRIDI program). Also required is strong financing. Here the presence of a representative of the IFC gave a positive outlook to the debate. If the projects are presented with the appropriate information, including feasibility studies, and are within the norms of the IFC, financing of 25% might be available (if the total of the investment exceeds \$4 million). The representatives of Peruvian and foreign companies indicated also that management capability, technology transfer, and marketing with respect to oil palm and cocoa, is available. The minimum infrastructure has been established in certain zones (e.g.: Alto Huallaga).

In consequence, the Working Group arrived at the conclusion that there were opportunities in developing projects in oil palm and cocoa. The opportunity is good. In the international market, the price of palm oil was recently quoted at \$1,200/MT and the price of cocoa has easily passed the \$2,000/MT. Even though it appears that in the near future these prices will continue to be attractive, historically it is predictable that these prices will go lower.

The recommendation with respect to palm oil is justified fundamentally by the gap between domestic demand and national production of fats and vegetable oils and the importance of substituting imports that are onerous to the country. In the case of cocoa, the acquisition of currency by the non-traditional export was appreciated, especially since this product is in major part exported in semi-processed form (cocoa butter, liquor, powder). Also, it is known that foreign buyers are interested in diversifying their sources of supply of cocoa in view of the political disturbances affecting traditional exporters such as Ghana.

In respect to tea and coffee, the Group estimated that the perspectives in the international market were less clear, with frequent price fluctuations.

The plenary sessions of the Workshop emphasized the merits of the mother farm, as a model for production projects, processing and commercialization of industrial raw materials. A mother farm consists of a technologically advanced plantation which is directly managed by the company; a processing plant which enjoys stable supply of raw material from the plantation; and agile management that has the capacity to manage a system of contracts with the independent producers in the zone, providing technical assistance in reference to seeds, mechanized cultivation, fertilizers, harvesting and storage. The model has had good results because the company, once it has justified its local investments in terms of its own production, has the capacity to provide technical assistance to the producer under contract at a cost lower than other agricultural extension systems and a superior level of service delivery because of its presence in the locality. At the same time, the additional volume of production acquired from the independent producers lowers the unit costs of the processing plant without requiring investment in the production. Once the social merits of the model have been established, the total project will be considered qualified to receive government incentives.

2. BACKGROUND

In April, 1981 the Fund for Multinational Management Education of New York and the Aspen Institute for Humanistic Studies of Colorado held a conference to address the topic of the "The Multinationals: New Concepts in Agricultural Production and Rural Development". Held at the Mohonk Mountain House in New Paltz, New York, the Conference brought together 65 participants with affiliations to governments of developing countries, American and European companies, voluntary agencies, consulting firms, and financial agencies of the United States and of international organizations.

The Conference analyzed twelve cases of joint ventures between farmers of limited resources and agribusiness companies, and concluded that certain intermediating services were indispensable in order to ensure that the association produced benefits for both sides. Intermediation was defined as those services (frequently performed through a separate and autonomous entity) that are not usually needed in a business or a family-run farm, but which are necessary if the association between the two entities is to be economically productive, its cost less onerous, and its result socially positive.

The necessity to plan intermediation in the relationship between farmers of limited resources and businesses arose from the Seminar's other conclusion: it is necessary to have large-scale private enterprise participation in the process of rural development, which has suffered setbacks in precisely the areas which represent the strengths of the private sector: management, technology and marketing.

At the conclusion of the Mohonk Conference, several participants from the developing countries asked that a call to convene seminars at the national level in various parts of the Third World be included among the conclusions of the Workshop, with the aim of disseminating the concept of intermediation as a means of facilitating better relations between businesses and farmers of limited resources, through practical application.

Responding to this call and with the favorable reaction of several companies in mind, the Fund for Multinational Management Education undertook to organize a series of workshops on the structure of joint ventures between farmers of limited resources and agribusiness. The first workshop was held in Ocho Rios, Jamaica, from the 28th of February to the 3rd of March, 1982. The second workshop took place in Puerto Plata, the Dominican Republic, from the 17th to the 20th of June, 1982. The third one in San Jose, Costa Rica from the 7th to the 10th of April, 1983. The fourth one in Tocumen, Panama from the 23rd to the 25th of September, 1983, with the Agribusiness Workshop in Peru being the fifth event of the program.

3. OPPORTUNITY PROFILES

One of the most important objectives of the Agribusiness Executive Workshop was to identify, analyze, and initiate new agribusiness ventures. The task of formulating new projects fell to all participants, in line with their own respective interests. All types of projects were of interest, be they export of Peruvian agricultural and marine products, acquisition of foreign technologies, joint investment by Peruvian and foreign partners, or others.

So that Workshop participants should be a group that "speaks the same language" in terms of crops and products (in Spanish or English), the organizers of the Workshop had carried out preliminary investigations to define a limited number of products that appear to have potential. That definition served to select the persons to be invited, and it constituted the principal part of the agenda of the Workshop. The selection of the products which were to be considered had been made based on consultations with a number of experts on Peruvian agriculture, private and public, as well as a poll of American companies with regard to their interest. It was anticipated, however, that the participants in the Workshop would modify this preliminary selection, introducing other ideas and their justifications.

The choices that had been made are presented below in the form of Opportunity Profiles - data concerning related crops, accompanied by some brief outlines of projects under consideration by Peruvian private and public entities. The recommendations reflect special inquiries and the study of data obtained from a number of sources. It must be emphasized, however, that FOPEX was particularly helpful as regards documentation.

Before going into the discussion of opportunities by crop, and taking into account the wishes of foreign participants, a concise description of the environment which Peru currently offers to international agribusiness will be in order.

3.0 The Environment

Undoubtedly, Peru offers unusually interesting opportunities in the rubric of international agribusiness. That is very clear and prudently recommendable as regards commerce. Projects involving fixed investment in agriculture and agroindustry, however, are not viewed with the same unanimity.

Since 1980, the new democratic Government has been making an effort to re-invigorate the national economy which suffered tremendous dislocations during the military Government of 1968-1979. Among the reforms which the new Government has carried out, some are particularly worth mentioning: the General Law of Industry of 1982 which substantially increased incentives to investors; the Supreme Decree of the same year which facilitates the transfer of land to private projects of integral development; changes in labor laws which extended the waiting period necessary to attain tenure from three months to three years; and the modifications of Industrial Community Law which removed the voting power of the shares given to the Communities, and established a 33% ceiling. CONITE (the government agency which deals with foreign investors) was reorganized. Decision 24 of the Andean Pact was re-interpreted, as was currency control. All of these measures are part of the Government's policy which aims to substitute a free market economic model for the former statism, and emphasize private enterprise.

Initially, the new economic policies yielded positive results, including in terms of foreign investment:

DIRECT FOREIGN INVESTMENT
('000 \$)

| Country | 1977 | 1981 | % (1981) |
|----------------|---------|-----------|----------|
| United States | 355,032 | 559,602 | 50 |
| Switzerland | 122,783 | 152,480 | 14 |
| Panama | 79,323 | 96,384 | 9 |
| Italy | 35,092 | 44,952 | 4 |
| United Kingdom | 40,282 | 41,169 | 4 |
| Japan | 17,257 | 32,584 | 3 |
| Other | 219,489 | 199,395 | 18 |
| | 869,258 | 1,126,566 | 102* |

* More than 100 due to rounding

Source: CONITE

By sector, the largest foreign investments were, in 1981, in industry (\$432 million), followed by mining (\$387 million) and commerce (\$94 million). Agriculture registered \$18 million and fishing \$13 million.

In 1982 and particularly in 1983, the world recession affected the Peruvian economy gravely. The principal export product - copper - declined from \$752 million in 1980 to \$459 million in 1982. The traditional agricultural exports, sugar and cotton, were similarly affected. Total exports dropped from \$3,898 million to \$3,230 million during the two years.

In 1982, the United States bought 34% of Peru's exports, and sold it 30% of its imports. Total Peruvian exports declined only by less than 1% during 1982. In spite of the reduction in world demand, Peruvian products have maintained competitive prices thanks to the policy of daily minidevaluations of the Sol (which went down from 423 per dollar in 1981 to 699 in 1982, and 2,400 as of February 10, 1984, thus more than compensating for inflation which was a little over 100% in 1983).

In early 1983, the financial profile of Peru was the following:

| | <u>\$ (current prices)</u> | <u>% change vs. 1981</u> |
|-------------------------------------|----------------------------|--------------------------|
| gross domestic product | 20 billion | - 1.1 |
| GDP <u>per capita</u> | 1,089 | - 3.6 |
| industrial production (1973=100) | 121 | - 11.1 |
| consumer price index (1979=100) | 586 | 72.9 |
| external debt | 11 billion | 15.6 |
| balance of trade | - 557 million | - 1.6 |
| current accounts | - 1,647 million | - 8.9 |
| net foreign reserve | 904 million | 17.0 |

It is obvious that the modest foreign currency reserves were built up in 1982 by increasing the foreign debt (in the short term category). Following the financial crisis in Mexico, such a solution is now much less feasible. Austere measures had to be imposed in 1983, leading to the erosion of the Government's political support and its defeat in the municipal elections last November.

In consequence, given the impossibility of carrying out the reforms proposed by the IMF, such as reduction of the military budget and additional changes in the Labor Stability Law, early in 1984 the three-year agreement with the IMF was annulled and replaced by a new 18-month stand-by agreement for \$ 330 million.

Implications for Agribusiness

The agitated state of Peruvian public finances affect foreign agribusiness firms according to type of business.

Sellers cannot count with any assurance on the indefinite continuation of the free entry of their products. US exporters of machinery, inputs or technology to Peru should link their sales to Peruvian exporters who at least are likely to maintain their purchasing power with regard to the imports which are necessary for their export-oriented operations. Sellers of food for human and animal consumption should consider offset trading, marketing Peruvian products abroad so as to protect their Peruvian import licenses.

Buyers benefit from the devaluations of the Sol in excess of internal inflation. Given the fall of internal demand, they find eager sellers among Peruvian producers who are very desirous of contracting to export their products. In addition, any export buy-sell contracts will receive all sorts of government help.

Investors will find open doors, particularly as regards the acquisition of positions in the food processing industry and underdeveloped lands. Each investor will have to evaluate the political risk from his own perspective. Clearly, short or medium term investment which provides the working capital to under-utilized plants and contracts their production for export will be less at risk than investment in the fixed assets of a plant oriented toward the internal market.

Incentives

Non-traditional exports receive special incentives in the form of Tax Credit Certificates for Exports (CERTEX). The CERTEX are issued by the Bureau of Foreign Trade, and their value is 15 or 20% of the FOB value of the export shipment, depending on its classification. Decentralized enterprises (out-side of Lima and Callao) receive an additional CERTEX with 10% of the processed product. Generally, the total benefit to the exporter is 25% of the FOB value (10% of the CERTEX goes to the respective Provincial Council and 2% to FOPEX). The products which receive this boost and their export volumes have reached important levels.

The Private Project of Integral Development (PRIDI) was established in 1982 with the objective to expand the agricultural frontier by means of carrying out integral agricultural projects. Undeveloped lands have been set aside to be turned over to private initiative, national or foreign, giving it proprietary title.

The General Law of Industry of 1982 offers tax incentives to industrial investment. Companies receive tax credit against the income tax amounting to 45% of industrial re-investment in Lima and Callao, 60% in the rest of the Department of Lima, and 73% outside of the Department of Lima; reduction of the property valorization tax; and other benefits.

3.1 Opportunity Profile #1: Colorants, Essences and Spices

Peruvian agriculture spans many centuries. Owing to its long history, since the time of the pre-Incaic coastal cultures, the agricultural organization of the mountain kingdom of the Incas in the Middle Ages, up to the recent colonization of the Amazonian jungle, Peru produced a range of very special agricultural products such as natural colorants, spices, waxes, and essences. These ancient products are in demand in our time in the industrialized countries due to the preference for non-carcinogenic products. They are used in food processing, the pharmaceutical industry, paints, as lubricants and medicines.

At present Peru exports various spices and colorants such as annatto, turmeric, carmin, oregano, anise. Agribusinesses which know precisely how to place specialty food products will find many other sourcing opportunities in Peru.

In general, the opportunity to do agribusiness in food specialties will present itself as rationalization of the production which traditionally has been rustic, efficient organization of wholesaling, and the establishment of processing plants close to production zones. These three concepts would cut the CIF cost of the final export product, thus facilitating the supply of Peruvian products to world markets at competitive prices, as well as stimulating production in additional zones by means of offering economic incentives to the producers.

Colorants

- Annatto

Annatto is a natural carotenoid pigment obtained from the surface of the seed of the annatto tree (*Bixa orellana*). Annatto is not carcinogenic, and so enjoys preference over synthetic colorants. Its principal uses are in the coloring of butter, margarine, and other food products.

Currently the Hoechst Peruana and Sabores del Peru companies are producing and exporting annatto. In 1981 the FOB price of the colorant exported to the United States was \$15.60/gal in 30 gal. containers. Bixine, which is extracted from annatto, is unstable with regard to heat, acids, alkali and light, and consequently the principal manufacturers prefer to import the seed and process it using their own technologies.

Annatto grows everywhere in the Peruvian jungle as a wild plant. The principal collection zones are the Departments of Cuzco and Ayacucho. The yields have been 555 kg/ha on the average. However, local buyers expand their zones of influence when prices go up on the international market, and the collection zones grow. The months of August through January register the highest commercial volumes. In 1980, the production of the Department of Cuzco which is the principal producer, was about equal to the total exports of 1,778 metric tons valued at \$1.22 million (average price \$.69/kg). Of this total, 946 m. tons with a value of \$.63 million was exported to the United States.

Since the time when Amazonian Indians used annatto to adorn their bodies, and after it was employed in the local economy as a colorant of soups, rice, and meals, the colorant has found many uses in world markets. Annatto is used in the coloring of inks, soaps, waxes, varnishes, bitumens, and the textile industry. It also has medicinal uses and, in the form of bixine, in the food industry.

The Raul Amoros company is planning the installation of an annatto concentrate processing plant. It is looking for a foreign partner capable of selling the product abroad and participating as a co-investor on the level of \$.5 million in a total investment of \$2.6 million. The plant, which would process the production coming from the Departments of Pasco and Junin, has been dimensioned to process 1,600 kg of raw material per 8-hour shift.

- Turmeric

The crushed rhizomes of turmeric yield curcumine, a coloring substance which is used to color ice creams, yogurt, sweets, puddings, and other food products. Its ancient use is medicinal, for tinting, and as spice. It is rich in carbohydrates.

Turmeric, which is commonly called palillo in Peru, has spread all over the Peruvian jungle in its wild state. The current collection is concentrated in the Department of Ayacucho which in 1979 contributed 551 metric tons to the national production of 601 m. tones. As with annatto, commercial traffic is highest during the months of August through January, and its geographic zone expands during periods of price stimulus. Average yields have been 3.5 metric tons/ha.

Of the 226 metric tons exported in 1980, 101 m. tons went to Argentina, and about 30 m. tons each to Mexico, United Kingdom, and Venezuela. The value of exports amounted to \$.27 million that year (i.e. \$1.19/kg). In the same year the United States imported 1,419 metric tons of turmeric at an average price of \$.81/kg. The principal exporter, India, quoted turmeric CIF London at \$.56/kg (Madras type). In consequence, markets for Peruvian turmeric are probably limited to Latin America (Venezuela bought at \$2.39/kg in 1980).

The uses of turmeric and of curcumine which is extracted from it include their use as a spice in the form of aromatic, yellowish fine powder to flavor and color dishes based on meat and rice, and in the preparation of dressings, pickling sauces, and mustards. Turmeric is one of the principal ingredients of curry powder. Other uses are in the pharmaceutical industry (cosmetics), textiles, paints, as indicator in chemical analysis, and medicine.

What runs up the cost of Peruvian turmeric is the cost of overland freight over great distances and poor roads. The problem might be overcome by the installation of a curcumine extraction plant in the Apurimac Valley or some other production zone, given that the value of curcumine exceeds turmeric of equal weight 11:1.

- Carmin

Cochinilla is a parasitic insect of the prickly pear cactus (*Opuntia ficus indica*). In Peru the principal producers of cochinilla are the Departments of Ayacucho (130 metric tons/1980), Apurimac (43 m.t./1980), and Hauncavelica (13 m.t./1980). The production is spread out, and it is marketed through a chain of intermediaries. The collection goes on throughout the year. The peak months are April-May and October-November. The yield is 300 kg/ha (150,000 insects per kilogram). Sun drying is the method used to dehydrate cochinilla, and it is of vital importance.

Exports amount to an annual average of 145 metric tons, and they are destined for France, Japan, United Kingdom, and Belgium in the main. Export prices fluctuated between \$10 and \$11/kg in 1981. Between 1975 and 1980 the average price was \$19.49/kg.

Cochinilla is used mainly to obtain carmin and carminic acid, in artisan preparations for dyeing wool, and as indicator in volumetric analysis.

The Departmental Corporation for the Development of Tacna is promoting the installation of a processing plant to produce carminic acid in the industrial park in Tacna. The plant, dimensioned to treat 1,500 kg of dry cochinilla and can 25,000 kg of prickly pear (incl. jellies) p.a., would involve an investment of \$439,000 at November, 1982 prices. The Sabores Globe del Peru company is looking for a partner to expand its production of dehydrated cochinilla to 30,000 kg p.a. (\$50,000 of a total investment of \$100,000). Sabores Globe is an important exporter of carmin (which was exported at about \$100/kg in 1981). The partner would participate in marketing.

- Marigold Flour

The marigold (*Tajetes erecta* L.) is a source of natural carotenoids. Its flowers are industrialized as marigold flour. The flour is used as an additive in balanced feeds to pigment chicken fat and egg yolks with a brilliant orangeish coloration. Its concentrates in the form of extract have additional uses in the food industry, pharmaceuticals, and textiles. Its by-products also are used in the preparation of balanced feed.

Currently marigold is grown in the Peruvian coastal valleys, particularly in the Barranca valley (Chancay Province). The plant has a short vegetative period (three months), is resistant to insects and viruses, uses up little water, and is very demanding of labor. It is an excellent rotation crop. Small processing plants exist in Ica, Canete, Lima, and Piura. In 1980 the production of flour amounted to 1,878 metric tons of which 1,230 m. tons were exported. In January of 1981 the FOB price of marigold flour with 10 ppm xanthophile content fluctuated between \$1,870 and \$2,340 per metric ton. The exporters have been Industrial San Pedro, Exportadora Internacional, and EXPOAGRO, while the countries of destination were Spain, Mexico and - on a smaller scale - United States, Portugal, and Chile.

There is an opportunity to install a processing plant in the Barranca valley. A capacity of 2 metric tons/hour of green flowers would be in line with the availability of the raw material, processing 4,400 metric tons of green flowers the first year, and 7,000 m. tons the third year. The required investment has been estimated at \$350,000 at November, 1983 prices. It would involve mainly machinery of local origin (\$138,000) and operating capital (\$110,000). The Internal rate of return has been calculated (by AGROINPESA) at 98%.

Essences

The Peruvian coast, particularly the Department of Piura, produces an abundance of acid lemon. A number of Peruvian firms want to exploit this opportunity to produce and export essences and other industrialized products such as pectins and acids. To implement the projects, they need foreign participation as regards technology, access to external markets, and in some cases financing. COFIDE has registered the following proposals:

- production of lemon essence - 16 metric tons p.a.
CAT Carrasco Ltda. (Piura)
\$ 300,000 investment (by owner)
Location: Piura

- extraction of 150,000 lbs. p.a. of lemon essence
375 m. tons of citric acid
1,500 m. tons of pectin ingredients
Desarrollo Agroindustrial S.R.L (Lima)
\$5.6 million (external)
location: Piura

- extraction of lemon acid essence - 897 kg/hour of fruit 1st yr.
2,691 kg/hour of fruit 6th yr.

H. Villar & Cia. (Sullana)

\$ 100,000 incl. \$ 30,000 foreign participation

location: Piura

In the zone of Motupe, Olmos, Chulucana, and San Lorenzo in the Department of Piura which produces local varieties of lemon, the presence of important groves of this fruit tree has given rise to the installation of more and more plants to extract the essential oil, oriented mainly towards exports. With the exception of the plant proposed by Desarrollo Agroindustrial S.R.L., the planned plants as well as the existing ones are small, and solely extract the essential oil while the juice and solid residues are wasted. A technically more sophisticated plant could feed off the wastes of these factories to produce pectin, yeast, citric acid, alcohol, and cake for cattle feed.

Spices

Among the many spices which are produced in Peru, the two which are of particular interest to external markets are garlic and hot pepper.

- Garlic

The garlic which is grown and exported the most is a local variety called Purple Garlic (ajo morado), similar to the Spanish Murrey and the Argentine Red, but it is more resistant and keeps better than either; in addition, a local variety identified as "Napuri" which is white variegated with purple. The production zones are mainly Arequipa (port of exportation: Matarani) and the Department of Lima (Callao).

Garlic is a traditional export product of Peru, currently at the level of 3,000 metric tons p.a. The principal countries of destination are Puerto Rico, Colombia, Ecuador, Brazil, United States, and the Netherlands. Peruvian garlic is exported in wooden cases or cartons of 10 kilograms, classified according to the following grades:

| | |
|---|----------|
| jumbo - over 6.0 cm in diameter, approx. weight | 59 grams |
| giant - 5.5 to 5.9 | 56 |
| extra - 5.0 to 5.4 | 46 |
| flower - 4.5 to 4.9 | 33 |
| prime - 4.0 to 4.4 | 29 |

Garlic is exported year round, but the supply peak comes in February-March for Purple Garlic, and September-November for Napuri garlic.

- Hot Pepper

There are some 300 varieties of hot pepper in Peru, varying in size, shape, color, and degree of hotness, pertaining to the botanical species *Capsicum annum*, *C. frutesceus*, *C. pendulum*, and *C. pubescens*. Hot peppers are grown mainly in the coastal valleys of northern Peru - Supe, Barranca, Santa, Viru, Lambayeque, Motupe, Olmos, Piura, Chira. The fruit is exported principally in dry form packed in polypropylene sacks of 30-50 kg., destined to neighboring countries. The bulk of the production consists of a local variety which is harvested semi-dry and then sun-dried, called Aji Panca. This fruit is of medium or large size, dark in color, generally red or maroon, hot to semi-hot in flavor (pizza type). However, all kinds of varieties may be grown upon the client's request. The harvest spans the entire year (temperatures in the Departments of Piura and Lambayeque remain high and fairly consistent a good part of the year).

FOPEX is promoting the installation of a dehydrating plant. Sun-drying which is currently in use is inexpensive, but it contaminates the product with dirt and molds, and the precise final percentage of moisture is hard to control. The proposal is to dehydrate in a hot air tunnel whose cost is moderate. The plant might be located in Sullana, producing hot and sweet paprika. The idea presents an opportunity for a foreign firm which markets paprika.

PRODUCTION COSTS PER HECTARE

CROP : HOT PEPPER

Day Wage: US\$ 2.40

Machinery: US\$ 8.00/hour

| | |
|---|--------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | 12.00 |
| B. soil preparation | 112.80 |
| C. planting | 33.60 |
| D. cultivation | 38.40 |
| E. weed control | 28.80 |
| F. irrigation | 14.40 |
| G. phytosanitary treatment | 28.80 |
| H. harvesting | 72.00 |
| | <hr/> |
| TOTAL COST OF CULTIVATION | 340.80 |
| II. SPECIAL COSTS | |
| A. seed | 7.00 |
| B. fertilizer | 249.55 |
| C. herbicide | 2.85 |
| D. insecticides | 45.15 |
| E. fungicide | 6.21 |
| F. fixing agent | 5.62 |
| | <hr/> |
| TOTAL SPECIAL COSTS | 316.38 |
| III. GENERAL COSTS | |
| A. Social benefits at 46.2% of wages | 103.12 |
| B. Administrative costs at 10% of direct costs | 82.60 |
| C. Unforeseen at 10% of direct costs | <u>65.72</u> |
| TOTAL GENERAL COSTS | 251.44 |

| IV. SUMMARY | US\$ | % |
|----------------------|---------------|---------------|
| Costs of Cultivation | 340.80 | 37.51 |
| Special Costs | 316.38 | 34.82 |
| General Costs | 251.44 | 27.67 |
| TOTAL INVESTMENT | <u>908.62</u> | <u>100.00</u> |

V. ESTIMATED EARNINGS

| | |
|--------------------------------|---------------|
| Probable yield per hectare | 12,000 kg |
| Average unit price of sales | US\$ 0.20/kg |
| Gross earnings from production | US\$ 2,400.00 |

VI. ECONOMIC ANALYSIS

| | |
|--------------------------------|---------------|
| Gross earnings from production | US\$ 2,400.00 |
| Total cost of production | 908.62 |
| Gross profit on production | 1,491.38 |
| Average unit price of sales | .20 |
| Production cost per kilogram | .076 |
| Profit margin per kilogram | .124 |

VII. DISTRIBUTION OF PRODUCTION

| | | |
|---------------------------------------|-------------|------|
| Damages and losses @ 5% of production | | |
| 600 kg | US\$ 120.00 | |
| Product sales @ 95% of production | | |
| 11,400 | 2,280.00 | |
| Estimated net profit | 1,371.39 | |
| Indicator of profitability | | 151% |
| Value added to product | .714 | |

Source: FOPEX, 1983

PRODUCTION COST PER HECTARE

CROP : GARLIC

Day wage: US\$ 2.40
Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | - |
| B. soil preparation | 133.60 |
| C. planting | 91.20 |
| D. cultivation | 12.00 |
| E. weed control | 33.60 |
| F. irrigation | 19.20 |
| G. phytosanitary treatment | 4.80 |
| H. harvesting | 148.80 |
| TOTAL COST OF CULTIVATION | <u>443.20</u> |
| II. SPECIAL COSTS | |
| A. seed | 500.00 |
| B. fertilizer | 260.89 |
| C. herbicide | 40.51 |
| D. insecticides | 47.70 |
| E. fungicide | 13.69 |
| F. fixing agent | 5.62 |
| TOTAL SPECIAL COSTS | <u>862.41</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 153.01 |
| B. administrative cost @ 10% direct costs | 159.58 |
| C. unforeseen @ 10% of direct costs | 131.16 |
| TOTAL GENERAL COSTS | <u>443.75</u> |

| IV. SUMMARY | US\$ | % |
|-------------------------------------|-----------|--------|
| Costs of Cultivation | 443.20 | 25.25 |
| Special Costs | 868.41 | 49.47 |
| General Costs | 443.75 | 25.28 |
| <hr/> | | |
| TOTAL INVESTMENT | 1,755.36 | 100.00 |
| V. ESTIMATED EARNINGS | | |
| Probable yield per hectare | 12,000 kg | |
| Average unit price of sales US\$ | .30 | |
| Gross earnings from production | 3,600.00 | |
| VI. ECONOMIC ANALYSIS | | |
| Gross earnings from production US\$ | 3,600.00 | |
| Total cost of production | 1,755.36 | |
| Gross profit on production | 1,844.64 | |
| Average unit price of sales | .30 | |
| Cost of production per kilogram | .146 | |
| Profit margin per kilogram | .154 | |
| Estimated net profit | 1,844.64 | |
| Indicator of profitability | | 105% |
| Value added to product | .604 | |

Source: FOPEX, 1983

Note: Additional detail of the production costs of hot pepper and garlic is available through FMME from FOPEX.

3.2 Opportunity Profile #2: Fruits and Vegetables

The Peruvian coast is a narrow strip of land which runs parallel to the Pacific ocean from south to north. One of its most important characteristics is its benign climate which reigns there year round, without excessive heat in the summer and without colds in the winter, allowing the growing of many vegetable species in a commercially efficient manner. Even more important, the climate and the varying latitude make it possible to stagger the production and produce all year. Rainfall is practically nil (except in the zone along the Ecuadorean border which receives rain in some years). Consequently, the agriculture of the coast is based on irrigated fields (by gravity, and on a lesser scale by sprinkling) and is technically advanced.

In order to expand the irrigated acreage, the government has been constructing works to conserve the available flow. Among these the most important are the Poechos Dam (Piura - 100,000 hectares in the Chira and Piura valleys); Majes (Arequipa - 60,000 hectares and hydroelectric power); Olmos (Piura - 100,000 hectares); Chavimochic (La Libertad - 100,000 hectares).

Traditionally, the coastal farmers have been growing industrial crops for export - sugarcane and cotton - and the basic subsistence crops - rice, potatoes, corn and all kinds of legumes.

The present situation of the traditional export crops is not encouraging. Cane sugar has been experiencing a substantial decline in the world market price due to, on one hand, oversupply, and, on the other hand, to the competition presented by corn-based sweeteners. Similarly, the world price of cotton fell in 1982 below the Peruvian production cost. Rice and corn have been profitable, but only thanks to government subsidies which will be difficult to maintain.

The irrigated fields of the Peruvian coast offer excellent conditions for the production of vegetables and subtropical climate fruits. The Amazon region produces a number of tropical fruits. The present production meets the demand of the internal market and modest exports to the industrial countries (e.g., canned asparagus, various tropical fruit juices, canned fruit in syrup, and marmalades). The share of fresh vegetables and fruits in the total exports has been insignificant.

The opportunities which present themselves in the export of fruits and vegetables include, therefore, export of fresh (under refrigeration, in frozen form, or spray-dried) products which are in demand in the external markets of the United States, Canada, Europe, and Japan. Owing to its climate, countercyclical seasons, and low cost of labor, Peru enjoys some comparative advantages.

In the industrialized countries production of vegetables has become expensive due to the steep climb of the cost of energy for greenhouses and labor. During the recent recession the demand of these countries for tropical fruit fell. The consumption of tropical fruit is eminently discretionary and sales are concentrated in the gourmet sections of supermarkets. In view of the improvement in the economic indicators in the industrialized countries in late 1983, it is to be expected that beginning in 1984 this demand will surge again.

Peru produces commercially a range of vegetables and fruits which are of interest from the point of view of external markets. Among vegetables, asparagus, tomato, onion, garlic, hot pepper, cauliflower, broccoli, stringbean, artichoke, sweet pepper, and eggplant stand out. Among the fruits, mango, avocado, sour lemon, tangerine, passion fruit, and grapes.

In order to promote the export of non-traditional products in fresh form, FOPEX has been studying the possibility of establishing processing plants oriented towards external markets. The studies have resulted in several recommendations; among them are the following:

- Fruit Packing Plant in Lima

At present, the considerable production of fruits in the central zone of the country (from the coast through the mountain zone to the jungle) lacks packing service and refrigerated storage which would be adequate for export by air of fresh fruit (mango, avocado, grapes, tangerine, sour lemon, strawberries). If a participating buyer/technology provider could be found, it is possible that the present producers and exporters would get together the necessary capital.

- Fruit Packing Plant in Motupe-Olmos

The areas of Motupe and Olmos have experienced considerable growth of the production of sour lemon, mango, avocado, and passion fruit. However, lacking is an assembly center which would combine the small lots of dispersed producers to offer substantial volumes to the processing plants and the exporters. Operations would consist of assembly, washing, sorting, sealing, packing, storage, and refrigerated transport. The producers are interested in seeing this materialize, as is INDALSA, a Peruvian fruit exporting company which is seeking association with a foreign firm with regard to technology, marketing, services, and financial participation. A second phase might include an industrial processing plant.

- Fresh Asparagus Packing Plant in Viru

The Viru valley has a tradition of producing asparagus. Since in Viru asparagus is harvested year round, and in the countries of the European Economic Community the harvest does not exceed three months, there is an opportunity to export fresh asparagus during at least six months of the year (October to March) at prices which would absorb air shipment costs. The operations of the plant would include quality control with regard to assembly immediately after picking, cooling of the spears in cold water vats, sorting, trimming of the excess length, conditioning of the spears in bundles, stacking of the bundles in cases, and transport.

- Blast Freezing Plant in Chincha

The Valley of Chincha contains substantial areas of good quality soils. Their exploitation is limited by the amount of water available for irrigation. At present, the major part of the land is in traditional crops, mainly cotton, corn, and legumes, but there are also orchards and some vegetables.

An enterprise associated with a foreign firm well established in the external markets for frozen vegetables could promote the production of vegetables in the area. In addition to the Chincha valley, the nearby valleys of Canete and Pisco have climates which are adequate to grow cool weather vegetables such as cauliflower, broccoli, stringbeans, peas. External demand for these products in frozen form has been rising, particularly in the United States where there has been growing consumer preference for frozen vegetables instead of canned.

The plant would be sited in the town of Chincha, taking advantage of its services and labor pool, and would be equipped as necessary to do receiving, washing, sorting, trimming, and blast freezing of vegetables. It would be advisable also to install refrigerated storage rooms in the port of Pisco.

The expectation is that the producers of the area would be keenly interested in an opportunity to diversify their crops and get into economically intensive crops once they perceived a credible opportunity to market the product at a remunerative price. The enterprise should provide them with technical assistance in the required technologies so as to control the quality and efficiency of production, in accordance with the standards required by the external market.

Another opportunity lies in the reorganization of the fruit and vegetable processing plants. Due to the decline of internal demand, the factories are using less than 40 to 60% of their capacity, and a number of them have closed their gates (asparagus, tomato). Some of the plants have experienced shortage of operating capital, and their relations with their raw material suppliers have deteriorated due to delays in settling accounts payable. Above all, the plants are not oriented towards the external markets; product standards do not always meet the requirements of certain markets.

The products being exported by Peruvian agroindustries have included limited quantities of olives (to Brazil), figs, raisins and other dried fruits, pisco, tomato paste, and canned asparagus.

- Export Olive Curing Plant

On the south coast of Peru, the areas of Ilo and Tacna produce olives of excellent quality. In 1979, Peruvian exports of olives in brine exceeded \$ 1 million (\$1,002,000 to Brazil, \$ 33,477 to the United States, and some \$ 56,000 worth to various Latin American countries). However, both the production and the post-harvest handling are in the hands of a large number of persons, and in consequence sorting criteria are not always uniform. A plant which would assemble a substantial part of the regional supply would be in a good position to set uniform standards for it, shipping to the market a product which has been treated in a technically correct manner (the curing process), duly sorted and packed.

The Development Corporation of Tacna is promoting the establishment of a plant which would process 800 metric tons p.a. of the olive production of the Department. The need is for a partner who would supply the necessary technology, access to the external market, and capital at the level of \$ 100,000 out of a total investment of \$ 300,000.

- Tomato Paste

The AGROEX del Peru company is seeking a partner with management capability, access to external markets, and capital at the level of \$ 1 million to resuscitate the operations of its tomato paste processing plant (fixed investment of \$ 11.6 million). The plant has a capacity to process 600 metric tons/day of tomatoes, and produce 2,000 metric tons/month of paste, nourished by the tomato producing areas of Chancay.

- Fruit Processing Plant

In addition to INDALSA (see above), at least two other Peruvian companies are interested in installing a fruit processing plant in Piura, due to the abundance of raw material there. One is Frutos del Norte which is quite experienced in the processing of tropical fruit. Its plan is to dimension the factory to process 2,439 kg/hour of crude mango pulp (1,439 kg of pulp concentrate), 1,388 kg/hour (388 kg/hour) of passion fruit, and 2,205 kg/hour (250 kg/hour) of pineapple.

The other interested company is CAT Carrasco Ltd. of Piura. This company plans to produce 4,200 metric tons of fruit pulps annually.

The three companies invite foreign firms to become partners with regard to financing and access to external markets.

- Papaya Pulp Concentrate

In Peru the production of papaya is concentrated in the jungle:

Papaya Production (metric tons)

| <u>year</u> | <u>jungle</u> | <u>national total</u> |
|-------------|---------------|-----------------------|
| 1971 | 47,170 | 55,394 |
| 1976 | 59,170 | 65,164 |
| 1981 | 68,798 (est.) | |

Source: Estadística Agraria Perú

However, the fruit processing plants are located on the coast (except one in the mountain zone). All papaya produced in the jungle is transported fresh.

In order to realize efficiencies in transport and stimulate exports of papaya, the Banco Industrial has drawn up a project of a papaya pulp concentrate plant located in the Amazon region (e.g., the industrial park of Pucallpa). The plant would be dimensioned at 2,400 metric tons/year of raw material, i.e. 1,512 metric tons of pulp concentrate. The necessary investment (incl. working capital) has been estimated at \$ 331,000 at 1982 prices. The varieties which are grown in the country are Carica candicans, C. glandulosa, C. pubescens, C. papaya, C. condemarcensis, and C. moncica.

- Packing Centers

Late in 1983, the exporters of fruits and vegetables formed a Fruit and Vegetable Exporter's Committee, with the help of FOPEX. The principal service to be offered by this new association is to establish packing centers endowed with sufficient organization and capacity to coordinate the marketing of fresh and processed products nationally and internationally. The Committee encompasses companies in different parts of the country:

| | |
|-------------|--|
| Ica | - Jorge Checa |
| Chinca | - Sr. Borda * REPESA |
| Canete | - W. Espinoza A. Retondo * |
| Lima | - P. Vargas * El Sol * |
| Huaral | - Garibaldi and others F. Cerutti* |
| Huacho | - Agroindustria del Huaura * |
| Mantaro | - R. Rojas Castillo (BELARUS) |
| La Libertad | - V. Ganoza, J.J. Ganoza R. Rodriguez * |
| Chiclayo | - Envasadora Chiclayo * |
| Olmos | - Gibaja y Lang |
| Chimbote | - El Sol * Agroindustria Chicas * |

* denotes agroindustries

The planned Packing Centers would estimate the volume to be received from various individual producers in its sphere of influence, and determine at the appropriate time:

- volumes coming to the market by product;
- spices and varieties;
- marketing seasons;
- estimates of the percentage of production which is exportable, the percentage to be channelled to agroindustry and the internal market.

Production Costs

The information which follows in edited form has been prepared by the Vegetables Research Program of the National Agrarian University La Molina under contract with FOPEX in late 1982 (prices of September, 1982). Additional detail as well as methodological information are available from FMME archives.

PRODUCTION COST PER HECTARE

CROP : A R T I C H O K E

Day wage: US\$ 2.40
Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | - |
| B. soil preparation | 112.00 |
| C. planting | 43.20 |
| D. cultivation | 40.80 |
| E. weed control | 24.00 |
| F. irrigation | 48.00 |
| G. phytosanitary treatment | 14.40 |
| H. harvesting | 81.60 |
| TOTAL COST OF CULTIVATION | <u>364.00</u> |
| II. SPECIAL COSTS | |
| A. seed | 35.00 |
| B. fertilizer | 134.40 |
| C. herbicide | 39.03 |
| D. insecticides | 66.25 |
| E. fungicide | 12.41 |
| F. fixing agent | 5.62 |
| TOTAL SPECIAL COSTS | <u>292.71</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 116.42 |
| B. administrative cost @ 10% direct costs | 111.18 |
| C. unforeseen @ 10% of direct costs | 90.49 |
| TOTAL GENERAL COSTS | <u>318.09</u> |

| IV. SUMMARY | US\$ | % |
|----------------------|-----------------|---------------|
| Costs of Cultivation | 364.00 | 29.76 |
| Special Costs | 540.92 | 44.23 |
| General Costs | 318.10 | 26.01 |
| TOTAL INVESTMENT | <u>1,223.02</u> | <u>100.00</u> |

V. ESTIMATED EARNINGS

| | |
|--------------------------------|---------------|
| Probable yield per hectare | 12,000 kg |
| Average unit price of sales | US\$ 0.25/kg |
| Gross earnings from production | US\$ 3,000.00 |

VI. ECONOMIC ANALYSIS

| | |
|---------------------------------|---------------|
| Gross earnings from production | US\$ 3,000.00 |
| Total cost of production | 1,233.02 |
| Gross profit on production | 1,766.97 |
| Average unit price of sales | .25 |
| Cost of production per kilogram | .103 |
| Profit margin per kilogram | .147 |
| Estimated net profit | 1,776.97 |
| Indicator of profitability | 143% |
| Value added to product | .700 |

Source: FOPEX, 1983

PRODUCTION COST PER HECTARE

CROP : E G G P L A N T

Day wage: US\$ 2.80
Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | 14.00 |
| B. soil preparation | 110.80 |
| C. planting | 36.40 |
| D. cultivation | 46.40 |
| E. weed control | 39.20 |
| F. irrigation | 36.40 |
| G. phytosanitary treatment | 5.60 |
| H. harvesting | 28.00 |
| TOTAL COST OF CULTIVATION | <u>316.80</u> |
| II. SPECIAL COSTS | |
| A. seed | 8.80 |
| B. fertilizer | 222.44 |
| C. herbicide | 5.70 |
| D. insecticides | 46.71 |
| E. fixing agent | 5.62 |
| TOTAL SPECIAL COSTS | <u>289.28</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 98.31 |
| B. administrative cost @ 10% direct costs | 76.50 |
| C. unforeseen @ 10% of direct costs | 60.60 |
| TOTAL GENERAL COSTS | <u>235.42</u> |

| IV. SUMMARY | US\$ | % |
|---------------------------------|-----------------|--------------------|
| Costs of Cultivation | 316.80 | 37.65 |
| Special Costs | 289.28 | 34.82 |
| General Costs | 235.42 | 27.97 |
| TOTAL INVESTMENT | 841.50 | 100.00 |
| V. ESTIMATED EARNINGS | <u>Domestic</u> | <u>Exportation</u> |
| Probable yield per hectare | 24,000 | 15,000 kg |
| Average unit price of sales | US\$ 0.05 | 0.08/kg |
| Gross earnings from production | US\$ 1,200.00 | 1,200.00 |
| VI. ECONOMIC ANALYSIS | | |
| Gross earnings from production | US\$ 1,200.00 | 1,200.00 |
| Total cost of production | 841.50 | 841.50 |
| Gross profit on production | 358.49 | 358.49 |
| Average unit price of sales | .05 | 0.08 |
| Cost of production per kilogram | .035 | 0.056 |
| Profit margin per kilogram | .015 | 0.024 |
| Estimated net profit | 358.49 | |
| Indicator of profitability | 42.6% | |
| Value added to product | .476 | |

Source: FOPEX, 1983

PRODUCTION COST PER HECTARE

CROP : B R O C C O L I

Day wage: US\$ 2.40
Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | 14.00 |
| B. soil preparation | 118.00 |
| C. planting | 24.00 |
| D. cultivation | 38.40 |
| E. weed control | 38.40 |
| F. irrigation | 19.20 |
| G. phytosanitary treatment | 9.60 |
| H. harvesting | 74.40 |
| TOTAL COST OF CULTIVATION | <u>336.00</u> |
| II. SPECIAL COSTS | |
| A. seed | 5.40 |
| B. fertilizer | 216.72 |
| C. herbicide | 50.00 |
| D. insecticides | 101.50 |
| E. fungicide | 11.40 |
| F. fixing agent | 5.62 |
| TOTAL SPECIAL COSTS | <u>390.65</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 99.79 |
| B. administrative cost @ 10% direct costs | 89.95 |
| C. unforeseen @ 10% of direct costs | 72.70 |
| TOTAL GENERAL COSTS | <u>262.45</u> |

| IV. SUMMARY | US\$ | % |
|----------------------|--------------|--------|
| Costs of Cultivation | 336.40 | 34.00 |
| Special Costs | 390.65 | 39.48 |
| General Costs | 262.45 | 26.52 |
| TOTAL INVESTMENT | <hr/> 989.50 | 100.00 |

V. ESTIMATED EARNINGS

| | |
|--------------------------------|---------------|
| Probable yield per hectare | 4,000 kg |
| Average unit price of sales | US\$ 0.500/kg |
| Gross earnings from production | US\$ 2,000.00 |

VI. ECONOMIC ANALYSIS

| | |
|---------------------------------|---------------|
| Gross earnings from production | US\$ 2,000.00 |
| Total cost of production | 989.50 |
| Gross profit on production | 1,010.49 |
| Average unit price of sales | .50 |
| Cost of production per kilogram | .247 |
| Profit margin per kilogram | .253 |

VII. DISTRIBUTION OF PRODUCTION

| | | |
|--|--------|----------|
| Damages and losses @ 10% of production | 400 kg | 200.00 |
| Product sales @ 90 % of production | 3,600 | 1,800.00 |
| Estimated net profit | 810.49 | |
| Indicator of profitability | 82% | |
| Value added to product | .513 | |

Source: FOPEX, 1983

PRODUCTION COST PER HECTARE

CROP : O N I O N

Day wage: US\$ 2.40
Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | 14.40 |
| B. soil preparation | 117.60 |
| C. planting | 48.00 |
| D. cultivation | 21.60 |
| E. weed control | 33.60 |
| F. irrigation | 19.20 |
| G. phytosanitary treatment | 4.80 |
| H. harvesting | 100.80 |
| TOTAL COST OF CULTIVATION | <u>360.00</u> |
| II. SPECIAL COSTS | |
| A. seed | 264.00 |
| B. fertilizer | 247.79 |
| C. herbicide | 48.12 |
| D. insecticides | 43.86 |
| E. fungicide | 22.81 |
| F. fixing agent | 5.62 |
| TOTAL SPECIAL COSTS | <u>632.21</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 121.96 |
| B. administrative cost @ 10% direct costs | 121.34 |
| C. unforeseen @ 10% of direct costs | 99.22 |
| TOTAL GENERAL COSTS | <u>342.52</u> |

| IV. SUMMARY | US\$ | % |
|----------------------|-----------------|---------------|
| Costs of Cultivation | 360.00 | 26.97 |
| Special Costs | 632.21 | 47.37 |
| General Costs | 342.52 | 25.66 |
| TOTAL INVESTMENT | <u>1.334.74</u> | <u>100.00</u> |

V. ESTIMATED EARNINGS

| | |
|--------------------------------|---------------|
| Probable yield per hectare | 30,000 kg |
| Average unit price of sales | US\$ 0.08/kg |
| Gross earnings from production | US\$ 2,400.00 |

VI. ECONOMIC ANALYSIS

| | |
|---------------------------------|---------------|
| Gross earnings from production | US\$ 2,400.00 |
| Total cost of production | 1,334.74 |
| Gross profit on production | 1,065.26 |
| Average unit price of sales | .08 |
| Cost of production per kilogram | .045 |
| Profit margin per kilogram | .035 |
| Estimated net profit | 1,065.26 |
| Indicator of profitability | 80% |
| Value added to product | .554 |

Source: FOPEX, 1983

PRODUCTION COST PER HECTARE

CROP : CAULIFLOWER

Day wage: US\$ 2.80

Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | 14.00 |
| B. soil preparation | 137.60 |
| C. planting | 70.00 |
| D. cultivation | 46.40 |
| E. weed control | 39.20 |
| F. irrigation | 22.60 |
| G. phytosanitary treatment | 33.60 |
| H. harvesting | 42.00 |
| TOTAL COST OF CULTIVATION | <u>405.40</u> |
| II. SPECIAL COSTS | |
| A. seed | 7.50 |
| B. fertilizer | 203.44 |
| C. herbicide | 54.00 |
| D. insecticides | 98.67 |
| E. fungicide | 15.60 |
| F. fixing agent | 5.62 |
| TOTAL SPECIAL COSTS | <u>384.84</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 128.06 |
| B. administrative cost @ 10% direct costs | 99.71 |
| C. unforeseen @ 10% of direct costs | 79.00 |
| TOTAL GENERAL COSTS | <u>306.78</u> |

| IV. SUMMARY | US\$ | % |
|---------------------------------|----------------------|---------------|
| Costs of Cultivation | 405.40 | 36.95 |
| Special Costs | 384.84 | 35.08 |
| General Costs | 306.78 | 27.97 |
| TOTAL INVESTMENT | 1,097.02 | 100.00 |
| V. ESTIMATED EARNINGS | Domestic Consumption | Exportation |
| Probable yield per hectare | 36,000 kg | 20,000 |
| Average unit price of sales | US\$ 0.06/kg | 0.11/kg |
| Gross earnings from production | US\$ 2,250.00 | 2,250.00 |
| VI. ECONOMIC ANALYSIS | | |
| Gross earnings from production | US\$ 2,250.00 | 2,250.00 |
| Total cost of production | 1,097.02 | 1,097.02 |
| Gross profit on production | 1,153.97 | 1,153.97 |
| Average unit price of sales | .06 | 0.11 |
| Cost of production per kilogram | .030 | 0.05 |
| Profit margin per kilogram | .032 | 0.05 |
| Estimated net profit | 1,153.97 | |
| Indicator of profitability | 105% | |
| Value added to product | .636 | |

Source: FOPEX, 1983

PRODUCTION COST PER HECTARE

CROP : A S P A R A G U S Day wage: US\$ 2.80
 (1 ha., 8 months) Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| soil preparation | 184.80 |
| planting | 8.40 |
| cultivation | 14.00 |
| weed control | 42.00 |
| irrigation | 84.00 |
| extraction of "coronas" | 84.00 |
| TOTAL COST OF CULTIVATION | <u>417.20</u> |
| II. SPECIAL COSTS | |
| A. seed | 171.60 |
| B. fertilizer | 320.96 |
| TOTAL SPECIAL COSTS | <u>492.56</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 141.00 |
| B. administrative cost @ 10% direct costs | 114.17 |
| C. unforeseen @ 10% of direct costs | 90.97 |
| TOTAL GENERAL COSTS | <u>346.15</u> |

| IV. SUMMARY | US\$ |
|--|-----------------|
| Costs of Cultivation | 417.20 |
| Special Costs | 492.56 |
| General Costs | 346.15 |
| TOTAL INVESTMENT | <u>1,255.91</u> |
| V. COST OF PRODUCTION BY "Crown" | 0.0058 |
| VI. NUMBER OF FIT "Crowns" | 214,500/ha |
| Unit price of sales | US\$ 0.006 |
| VII. Number of crowns needed for 1 ha. | 15,000 |

Source: FOPEX, 1983

PRODUCTION COST PER HECTARE

CROP : M E L O N

Day wage: US\$ 2.80
Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | - |
| B. soil preparation | 135.20 |
| C. planting | 11.20 |
| D. cultivation | 112.00 |
| E. weed control | 22.40 |
| F. irrigation | 11.20 |
| G. phytosanitary treatment | 42.00 |
| H. harvesting | 56.00 |
| TOTAL COST OF CULTIVATION | <u>390.00</u> |
| II. SPECIAL COSTS | |
| A. seed | 38.60 |
| B. fertilizer | 296.61 |
| C. insecticides | 144.47 |
| D. fungicide | 161.66 |
| E. fixing agent | 5.62 |
| SUB-TOTAL SPECIAL COSTS | <u>646.96</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 109.95 |
| B. administrative cost @ 10% direct costs | 125.06 |
| C. unforeseen @ 10% of direct costs | 103.69 |
| TOTAL GENERAL COSTS | <u>338.71</u> |

| IV. SUMMARY | US\$ | % |
|-------------------------|-----------------|---------------|
| Costs of Cultivation | 390.00 | 28.35 |
| Special Costs | 646.96 | 47.03 |
| General Costs | 338.71 | 24.62 |
| TOTAL INVESTMENT | 1,375.68 | 100.00 |

V. ESTIMATED EARNINGS

| | |
|--------------------------------|---------------|
| Probable yield per hectare | 15,000 kg |
| Average unit price of sales | US\$ 0.20/kg |
| Gross earnings from production | US\$ 3,000.00 |

VI. ECONOMIC ANALYSIS

| | |
|---------------------------------|---------------|
| Gross earnings from production | US\$ 3,000.00 |
| Total cost of production | 1,375.68 |
| Gross profit on production | 1,624.31 |
| Average unit price of sales | .20 |
| Cost of production per kilogram | .092 |
| Profit margin per kilogram | .108 |
| | |
| Estimated net profit | 1,624.31 |
| Indicator of profitability | 118% |
| Value added to product | .621 |

Source: FOPEX, 1983

PRODUCTION COST PER HECTARE

CROP : FRESH TOMATO (TABLE) Day wage: US\$ 2.80
Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | - |
| B. soil preparation | 129.60 |
| C. planting | 11.20 |
| D. cultivation | 86.80 |
| E. weed control | 11.20 |
| F. irrigation | 33.60 |
| G. phytosanitary treatment | 33.60 |
| H. harvesting | 140.00 |
| TOTAL COST OF CULTIVATION | <u>446.00</u> |
| II. SPECIAL COSTS | |
| A. seed | 60.00 |
| B. fertilizer | 265.04 |
| C. herbicide | 5.70 |
| D. nematicides | 76.50 |
| E. insecticides | 160.16 |
| F. fungicide | 15.60 |
| G. fixing agent | 5.62 |
| TOTAL SPECIAL COSTS | <u>588.62</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 135.82 |
| B. administrative cost @ 10% direct costs | 128.49 |
| C. unforeseen @ 10% of direct costs | 104.46 |
| TOTAL GENERAL COSTS | <u>368.78</u> |

| IV. SUMMARY | US\$ | % |
|----------------------|----------|--------|
| Costs of Cultivation | 446.00 | 31.78 |
| Special Costs | 588.62 | 41.94 |
| General Costs | 368.78 | 26.28 |
| TOTAL INVESTMENT | 1,403.41 | 100.00 |

V. ESTIMATED EARNINGS

| | |
|--------------------------------|---------------|
| Probable yield per hectare | 20,000 kg |
| Average unit price of sales | US\$ 0.125/kg |
| Gross earnings from production | US\$ 2,500.00 |

VI. ECONOMIC ANALYSIS

| | |
|---------------------------------|---------------|
| Gross earnings from production | US\$ 2,500.00 |
| Total cost of production | 1,403.41 |
| Gross profit on production | 1,096.58 |
| Average unit price of sales | .125 |
| Cost of production per kilogram | .070 |
| Profit margin per kilogram | .055 |
| Estimated net profit | 1,096.58 |
| Indicator of profitability | 78% |
| Value added to product | .552 |

Source: FOPEX, 1983

PRODUCTION COST PER HECTARE

CROP : INDUSTRIAL TOMATO Day wage: US\$ 2.80
Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | - |
| B. soil preparation | 129.60 |
| C. planting | 11.20 |
| D. cultivation | 86.80 |
| E. weed control | 11.20 |
| F. irrigation | 25.20 |
| G. phytosanitary treatment | 22.40 |
| H. harvesting | 196.00 |
| TOTAL COST OF CULTIVATION | <u>482.40</u> |
| II. SPECIAL COSTS | |
| A. seed | 60.00 |
| B. fertilizer | 265.04 |
| C. herbicide | 5.70 |
| D. insecticides | 246.66 |
| E. fungicide | 15.60 |
| F. fixing agent | 5.62 |
| TOTAL SPECIAL COSTS | <u>598.62</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 152.64 |
| B. administrative cost @ 10% direct costs | 134.17 |
| C. unforeseen @ 10% of direct costs | 108.10 |
| TOTAL GENERAL COSTS | <u>394.92</u> |

| IV. SUMMARY | US\$ | % |
|----------------------|-----------------|---------------|
| Costs of Cultivation | 482.40 | 32.68 |
| Special Costs | 598.62 | 40.56 |
| General Costs | 394.92 | 26.76 |
| TOTAL INVESTMENT | <u>1,475.95</u> | <u>100.00</u> |

V. ESTIMATED EARNINGS

| | |
|--------------------------------|---------------|
| Probable yield per hectare | 40,000 kg |
| Average unit price of sales | US\$ 0.050/kg |
| Gross earnings from production | US\$ 2,000.00 |

VI. ECONOMIC ANALYSIS

| | |
|---------------------------------|---------------|
| Gross earnings from production | US\$ 2,000.00 |
| Total cost of production | 1,475.95 |
| Gross profit on production | 524.04 |
| Average unit price of sales | .05 |
| Cost of production per kilogram | .037 |
| Profit margin per kilogram | .013 |
| Estimated net profit | 524.04 |
| Indicator of profitability | 35.5% |
| Value added to product | .427 |

Source: FOPEX, 1983

PRODUCTION COST PER HECTARE

CROP : S T R I N G B E A N S Day wage: US\$ 2.40
Machinery: US\$ 8.00/hour

| | |
|---|---------------|
| I. COSTS OF CULTIVATION | US\$ |
| A. seedlings | - |
| B. soil preparation | 141.60 |
| C. planting | 19.20 |
| D. cultivation | 4.80 |
| E. weed control | 16.80 |
| F. irrigation | 16.80 |
| G. phytosanitary treatment | 24.00 |
| H. harvesting | 48.00 |
| TOTAL COST OF CULTIVATION | <u>271.20</u> |
| II. SPECIAL COSTS | |
| A. seed | 140.00 |
| B. fertilizer | 105.52 |
| C. herbicide | 13.01 |
| D. insecticides | 46.16 |
| E. fungicide | 15.26 |
| F. fixing agent | 5.62 |
| TOTAL SPECIAL COSTS | <u>325.57</u> |
| III. GENERAL COSTS | |
| A. social benefits at 46.2% of wages | 69.85 |
| B. administrative cost @ 10% direct costs | 72.63 |
| C. unforeseen @ 10% of direct costs | 59.67 |
| TOTAL GENERAL COSTS | <u>202.16</u> |

| IV. SUMMARY | US\$ | % |
|-------------------------|---------------|---------------|
| Costs of Cultivation | 271.20 | 33.95 |
| Special Costs | 325.57 | 40.75 |
| General Costs | 202.16 | 25.30 |
| TOTAL INVESTMENT | 798.94 | 100.00 |

V. ESTIMATED EARNINGS

| | |
|--------------------------------|---------------|
| Probable yield per hectare | 9,000 kg |
| Average unit price of sales | US\$ 0.100/kg |
| Gross earnings from production | US\$ 900.00 |

VI. ECONOMIC ANALYSIS

| | |
|---------------------------------|-------------|
| Gross earnings from production | US\$ 900.00 |
| Total cost of production | 798.94 |
| Gross profit on production | 101.05 |
| Average unit price of sales | .0100/kg |
| Cost of production per kilogram | .089 |
| Profit margin per kilogram | .011 |
| Estimated net profit | 101.05 |
| Indicator of profitability | 13% |
| Value added to product | .280 |

Source: FOPEX, 1983

3.3 Opportunity Profile #3: Table Fish

Along the coast of Peru, the cold Humboldt Current encounters the warm Ecuadorean Current. The resulting turbulence brings nutrients to the surface which in turn nourish an abundance of marine microorganisms and many kinds of fish which feed upon them. The area is rated No. 4 in the hierarchy of world marine fisheries. Until early in the 1970s, the most important commercial fish was the anchovy. Annual captures well above 10 million tons were reported, yielding over 2 million tons of fishmeal p.a. Due to changes in the currents (the El Niño Current overlaid the Humboldt Current) and the ensuing rise of seawater temperatures as well as mistakes regarding the capture which was permitted, the presence of the anchovy in Peruvian waters declined precipitously. In consequence, the Peruvian fishmeal industry declined as well, producing only 250,000 metric tons in 1980.

In an interview in November 1983, the Minister of Fishing stated that Peruvian territorial waters continue to abound in table fish. (In March - May, 1983 the Marine Institute of Peru estimated the biomass of oceanic species (jack mackerel, mackerel, pilcher) at 14.9 million metric tons. In 1980, world imports of fish for human consumption amounted to 6.44 million metric tons.) According to the Minister, the annual permissible catch in Peruvian waters is the following:

| | | |
|----------------------------|---------------------------|------------------|
| jack mackerel | 2.7 million tons | 31 cm legal size |
| mackerel | .8 | 32 |
| pilcher | 1.3 | 26 |
| other fish and crustaceans | .2 | |
| | <hr/> 5.0 million m. tons | |

Source: Ministry of Fishing, 1983

At present, Peru exports to the United States and other countries, pre-cooked canned sardines in tomato sauce; frozen shrimp and scallops; and canned fish (grated, chunks, fillets in water, brine and oil). However, the Peruvian fishing fleet always has been oriented towards the anchovy and has little capability to capture table fish. The artesan operations are inefficient (short voyages) due to lack of shipboard refrigeration. Similarly, the Peruvian fish processing industry employs low technologies, without adequate quality controls, and as a result, the capacity utilization rate is low.

Nevertheless, the volume of Peruvian production of canned sardines is considerable in comparison with other Third World countries:

Production of Canned Sardines in the Developing Countries

| country | 1968 | 1973 | 1978 | 1980 |
|-------------|------|------|------|-------|
| Brazil | 27.9 | 58.8 | 34.0 | 74.6 |
| Chile | 11.0 | 8.9 | 21.2 | 34.6 |
| Ecuador | 5.7 | 11.2 | 28.3 | 38.0 |
| Ivory Coast | 1.7 | 4.8 | 13.2 | 17.7 |
| Morocco | 48.4 | 65.7 | 34.8 | 43.2 |
| Mexico | 18.5 | 26.6 | 38.6 | 64.9 |
| Peru | 13.1 | 27.8 | 63.9 | 141.3 |
| Senegal | 7.3 | 9.3 | 12.1 | 12.9 |

Source: Pesca (Lima), Vol. XLII, No. 3-4, Oct. 1983.

However, it is estimated that in 1982 Peruvian production dropped by 40% due to low internal and external demand since 1981. In 1983 the sardines went far and deep in the face of an intrusion of the El Niño Current, beyond the reach of fishing vessels without deep sea nets.

The opportunities lie, first, in the operation of modern fishing vessels in Peruvian waters under an agreement with the Peruvian Ministry of Fishing. At present, one such agreement between the Soviet Union and Peru divides the catch 80:20. A group of Peruvian fish processing companies headed by the Del Mar company is seeking association with a fishing fleet operating company with a versatile capability to supply raw material to the associated factories. The desire of the fish processors is to produce 18,000 metric tons of frozen fish, 500,000 cases of cans, and 20,000 metric tons of fishmeal. Fishing in Peruvian territorial waters would be based on the port of Paita (Dept. of Piura).

Second, the existing processing industry would respond to proposals of joint ventures. The objective would be to upgrade the processing technology, with an eye on penetrating high margin (gourmet) external markets with prepared products (e.g., combinations of sardines and shellfish, fish prepared with vegetables). Specifically, two companies in Callao (Industrial San Jose and Industrial Pesquera Apolo), and two others in Chimbote (Envasadora del Mar and Inversiones Industriales de Carolina) want to expand their fish canning capacity (and of fishmeal as a by-product).

All four are well established in the export of fish. What they need from a foreign partner is capital (varying from \$ 1.8 to \$3.5 million), and better access to foreign markets. The total investments would amount to \$2.8 to \$17.0 million each. Third, except for the coastal cities, the internal market has not been exploited in an aggressive manner. Once the processing plants have acquired improved technologies based on external sales, it is believed that a well planned campaign could expand the internal market for processed table fish (thus sidestepping the real and imagined problems of fresh fish preservation in the interior of the country).

Fourth, the Peruvian fish processing industry has a number of plants with considerable installed capacity. However, fishing extends generally over 5 to 6 months of the year only. The idle period could be used to process agricultural products (frozen or canned). Envasadora Humboldt which is a leading company in the production and export of canned fish, fruit, and vegetables wishes to add a freezing plant in partnership with a foreign company established in external markets and capable of investing \$3 million in a venture amounting to \$19 million.

SCALLOPS

In 1983, Peru accounted for a surprisingly large share of the production of fresh frozen scallops for the U.S. market. Approximately 12.1 million lbs. worth \$31.5 million FOB were exported.

This performance is due primarily to the favorable environmental conditions created by the phenomenon of the El Niño Current between early September, 1982 and December, 1983, but also the initiative of Peruvian businessmen who protected the juveniles by installing marine nurseries on the south-Peruvian coast, and made use of the refrigeration and freezing installations of the Puntilla Fishing Complex located two hours south of Lima.

It appears that even discounting the conditions created by the El Niño Current, foundations have been laid for a harmonious and sustained development of the production and export of scallops in the future. This assumes the implementation of the protection and conservation policies regarding renewable natural resources announced by the new Administration of the Public Fisheries Sector, as well as improvement of marketing channels, prices, and product quality.

Volume (m.tons; unofficial estimates)

| | <u>1982</u> | <u>1983</u> | <u>1984</u> |
|-------------------------------|-------------|-------------|-------------|
| production plus opening stock | 1,600 | 10,000 | 6,000 |
| domestic sales | 1,500 | 2,500 | 1,500 |
| export | 50 | 5,500 | 3,500 |
| final stock and losses (20%) | 0 | 2,000 | 1,000 |

Size and Typical Distribution

| <u>size (mm)</u> | <u>%</u> |
|------------------|----------|
| 20/40 | 40 |
| 40/60 | 20 |
| 60/80 | 20 |
| 80/over | 20 |

Source: Fundacion para el Desarrollo Nacional (Lima), 1984

The species which is harvested is the "concha de abanico" (*Argopecten purpuratus*). Peruvian scallops are packed in waxed cartons of 5 lbs. (net cleaned weight) and boxed in 50-lbs. cartons.

Following the production and marketing boom of 1983, there are six large companies that account for some 70% of the production and eight medium-size firms which handle the remaining 30%. Quality control is carried out by CERPER, a governmental entity of the fishing sector which guarantees health standards at the point of exportation. Importers may also appoint their inspectors, at their expense.

The weighted average price in 1983 was below \$3.50 CIF Miami. It is expected that in 1984 better marketing organization will secure more stable and competitive prices. AVEPACK, S.A. is seeking a stable market for 1 million lbs. of scallops p.a.

SHRIMP

In 1983 Peru continued to maintain its level of commercial exports of white shrimp (*Penaeus vanamei*, *P. occidentalis*, and other species) based on north-coast production (Tumbes). The country increased the volume of its exports of brown shrimp (*Xiphopenaeus riveti*) which became surprisingly more abundant due to the effects of the El Niño Current. As a result, unofficial estimates put the exports at 4.8 million lbs. of white shrimp worth \$24 million FOB; and approximately 10 million lbs. of brown shrimp worth \$20 million FOB.

In 1984, the brown shrimp ceased to be generally present in significant quantity in the waters between Caleta Cruz on the north-Peruvian coast and Ilo in the south. The production of white shrimp rose as regards marine capture, compensating for the reduction in cultivated harvests due to the destruction of ponds in the north of the country which was brought on by the floods of January-April, 1983.

| <u>White Shrimp</u> | | | |
|-------------------------------|--|-------------|-------------|
| | <u>Volume (m.tons; unofficial estimates)</u> | | |
| | <u>1982</u> | <u>1983</u> | <u>1984</u> |
| production plus initial stock | 2,270 | 3,080 | 4,000 |
| domestic sales | 150 | 200 | 250 |
| export | 1,600 | 2,180 | 3,000 |
| final stock and losses (20%) | 520 | 700 | 750 |

Size and Typical Distribution

| <u>size</u> | <u>%</u> |
|-------------|----------|
| U7 to U15 | 50 |
| 20/25 ovg | 50 |

Source: Fundacion para el Desarrollo Nacional (Lima), 1984.

Shrimp tails are packed in waxed cartons of 5 lbs. net cleaned weight and boxed in 50 lbs. cartons.

At present there are 12 companies engaged in marine capture and processing. There are others which are reconstructing their farms.

There have been reports of poor classification in some cases. According to the Green Sheet, prices have been fairly stable.

OTHER SEAFOOD AND FISH PRODUCTS

Peru offers some opportunities for the commercial production of seasnails, and prepared fish such as fish pulp, fish hamburgers, specialty products, squid, octopus, etc., but processing standards are needed.

The entire line of food products of marine origin needs further development with regard to intermediation, research, capture, processing, and marketing.

3.4 Opportunity Profile #4: Oil Palm, Cacao, and Jojoba

Of the 7.4 million hectares of Peruvian land which is suitable for agriculture, only 2.5 million are in production. On the coast, the expansion of the agricultural frontier depends totally on new irrigation works and, in consequence, is exceedingly expensive (costs of the great irrigation programs carried out by the government have reached \$5,000 to 15,000/hectare). In the mountain zone, the highland climate, eroded soils, difficult transport, and high population density do not permit much commercially profitable agriculture. So, opportunities to establish sizeable new plantations are to be found mainly in the Amazon region. The part which is best suited for agriculture are the foothills, areas which have some elevation but are relatively level, at the foot of the eastern slopes of the Andes ranges.

The climate, soils, and availability of land in the foothills allow the programming of industrial crops on a large scale. Already there are some substantial plantations of oil palm, cacao, coffee, and tobacco, mainly in the Alto Huallaga valley. In the Departments of San Martin and Loreto, PRIDI (see above) disposes of 174,000 hectares which have been reserved for private business and individual farmers. The Peruvian government offers all kinds of assistance to agribusiness and farmers who might wish to establish high yield crops in this agricultural frontier. The undeveloped terrain has been used in some areas by the peasants to grow coca which, in addition to being a mild stimulant traditionally used by the Indians, is the raw material for cocaine traffic which the government wants to eradicate.

Oil Palm

Annually, Peru imports some \$60 million worth of crude edible oils (i.e. 100,000 metric tons) or in grain, to supply the demand for vegetable oils. The Sub-Regional Andean Group has a deficit of edible oils on the order of magnitude of 500,000 metric tons. Even though it cannot be assumed that the entire deficit could be eliminated by palm oil (in view of consumer preferences and non-tariff barriers to commerce) there is no doubt that there is a market for palm production from a significant part of the 120,000 hectares that would be theoretically required (assuming a yield of 4 metric tons/ha of crude oil which is relatively low but empirically realistic).

There are two commercial plantations of oil palm in Peru, and at least another two are in the planning phase. The acreage involved obviously does not exhaust the opportunity which presents itself to produce and process the oil palm seed for the Peruvian and Andean markets.

The EMDEPALMA Plantation

In 1968 the Peruvian government, through the Ministry of Agriculture, initiated an oil palm plantation in the area of Tocache (Department of San Martin). In 1973 this plantation became EMDEPALMA S.A., a government corporation constituted as a public enterprise under private law.

At present EMDEPALMA has 5,277 hectares of oil palm, and since 1976, also a processing plant to obtain crude palm oil. The area which is being harvested amounts to approximately 65% - another 35% being a nursery of *Elaeis Melanococa* (800 ha), and the rest nurseries of *Elaeis Guineensis* in various stages of development. The agronomic success of this plantation is beyond doubt. Unfortunately, the same cannot be said with regard to profitability and management, and in consequence the planting of the 5,277 ha has been drawn out. What should have been concluded within four years recently has been completed after 13 years; this has resulted in tremendous financial charges which will be difficult to overcome; however, the price of palm oil has experienced a notable increase in the international market, and in consequence on the internal market as well, and as a result the profitability of the enterprise has improved.

Production yields are pretty good, exceeding the forecast of IRHO, the well-known French Institute with expertise in the cultivation of oil palm. In spite of failure to comply with the requirements for normal cultivation practices, the yields which have been obtained are on the order of 20 tons of clusters per annum which assures a yield of 4,000 kg of oil per ha/year.

The EMDEPALMA processing plant has a capacity of 10 metric tons/hour of fresh fruit at present. The company has made plans to expand the plant to process 20 metric tons/hour (16,000 metric tons/year of crude oil and 2,900 metric tons of palmiste). EMDEPALMA invites foreign companies to participate in the financing of the project (at the level of \$ 2 million of the budgeted total of \$ 27.6 million) and in its management.

Palmas del Espino Plantation

Based on the experience gained by EMDEPALMA, Palmas del Espino, a private company led by the Romero Group, initiated in 1980 a new plantation next to EMDEPALMA. At present, it has 1,800 ha planted, of a projected total of 6,000 ha.

The establishment of the first 2,500 ha and of the corresponding processing plant has been financed by the Romero Group (Banco de Credito). The plantation will begin to produce in 1986. The construction of the plant will begin in 1985. The Romero Group contemplates an expansion of the plantation to 6,000 ha, together with a corresponding enlargement of the plant to process 40 metric tons/hour of clusters.

The plan is to finance \$ 20 million with an external loan, out of a total of \$ 74.4 million.

The Maniti Project

EMDEPALMA is providing advisor services to the Departmental Corporation for the Development of Loreto for the purpose of establishing an oil palm plantation in the Department of Loreto on the right bank of the Maniti river. A pilot plantation of 14 ha has been established with optimal results, in as much as the plants developed well and produced the first clusters in two-and-a-half years after planting. Feasibility studies have been prepared for the project. Foreign participation is sought with regard to technology and financing (\$54.8 million of a total of \$119.5 million).

The Palmaselva Project

In the area of the Alto Huallaga Special Project where EMDEPALMA and Palmas del Espino are situated, Mr. Eduardo Watson has been promoting the formation of an enterprise to grow oil palm but so far the necessary financing has not been pinned down to initiate operation.

The Alto Huallaga Special Project has taken great interest in the cultivation of oil palm in small and medium production units, so as to offer the area farmers an alternative to growing coca. The project is thought to be feasible, and because of its high profitability should constitute an attractive activity for the farmers.

The Pucallpa Project

Conditions appropriate for the growing of oil palm exist also in the area of Pucallpa, Department of Ucayali. The Development Corporation of Ucayali has planned a processing plant with a capacity of 30 metric tons/hour, and the corresponding plantation. Of the \$47 million budget, it is thought to invite the participation of a foreign firm to bring in \$18.89 million as well as technical assistance. There have been conversations in this regard with NATRON (Brazil) and United Brands (United States).

Cacao

In 1982, the exports of cocoa beans and derivatives amounted to about US\$ 18 million worth.

The national industry which processes cacao into derivatives has enjoyed vitality and aggressive development in recent years due to high external market demand. At present, local processors have a market which is ample and consistent with regard to price and the demand for the semi-processed cacao products in the form of cacao liqueur, paste, butter, cake, and powder.

STRUCTURE OF CACAO EXPORTS *

('000 US \$)

| Product | 1979 | 1980 |
|---------|-------|-------|
| beans | 4,891 | 1,961 |
| paste | 6,055 | 7,422 |
| butter | 3,341 | 6,910 |

Source: FOPEX, 1983

* excludes cocoa and chocolates

The U.S. market has been the major buyer in recent years, amounting to 75% of the exported volume of the product in 1982.

Due to the advantages deriving from the ALADI Treaty, exports to Argentina have increased in an appreciable manner during 1981 - 1982, reaching the level of 10% of exports in the later year.

In 1984 another plant processing cacao into derivatives will come on-stream with a grinding capacity of about 800 metric tons of cacao, located in the cacao-producing tropical zone of the country (Tingo Maria).

The traditional cacao-producing areas are Jaen-Bagua, Piura, Ayacucho, and Quillabamba. The production is mostly in the hands of small-scale producers. Often, they handle the beans in an improper manner, paying insufficient attention to fermentation or drying. In consequence, the quality of the basic product suffers.

The opportunity which presents itself is to establish assembly centers in the principal production zones to dry and ferment the beans received from independent producers in a technical and uniform manner. At the same time, the centers would serve as the channel for marketing field-processed beans to the processing plants. The centers would be in a good position to act as channels of technology transfer. Through nurseries producing cacao seedlings of select varieties, the centers could also offer the sale of inputs and extension services under contracts with the producers, thus increasing their productivity and strengthening the commercial relationship with them. Such a project would lend itself well to a partnership among the producers, the processing plants, and companies which could provide the necessary technology. The Ronald Corzo company (Cuzco) is seeking a foreign partner in order to establish a cacao processing plant, dimensioned at 3,500 metric tons of cacao derivatives per annum.

Foreign participation would consist of an investment of \$4.6 million (of a total budget of \$5.7 million), technology, and access to external markets. The plant would be supplied by the established production in the Department which is relatively abundant.

Jojoba

The jojoba (*Simmondsia chinensis* L.) is a bush of very deep roots (up to 30 ft) which grows in semi-desertic regions (rainfall of 250 mm). It tolerates soils of marginal fertility and high salinity (ph of 5 to 8). The fruit of the plant yields a liquid wax which is sought after by the cosmetics industry (in 1983 the international price was \$90/gal). In addition, jojoba oil is a substitute for sperm whale oil as lubricant of high compression and high temperature engines, such as automatic transmissions and steel bearings in turbines. The special lubricant market is much broader but would require a reduction in price. A declining price tendency is anticipated at any rate, in view of the expansion of jojoba production areas in the producing countries (mainly the south-west of the United States, and the States of Sonora and Baja California in Mexico, as well as on a smaller scale Israel and Costa Rica), but also in view of new plantings in the Sudan, Kuwait, India, Thailand, Australia, Venezuela, South Africa, Lybia, Egypt, and Paraguay.

On the Peruvian coast agriculture is severely limited by the shortage of water. Given the characteristics of the jojoba, it may be a very appropriate plant to exploit the undeveloped lands of the coast. Lands which are apparently suitable for the growing of jojoba are available in the Departments of Tumbes, Piura, Lambayeque, Arequipa, and Tacna on a large scale. However, since the crop has not been known in Peru, a jojoba program should be planned in stages.

One strategy would be to form a jojoba consortium consisting of a government finance agency, aided by international organizations; a consulting firm having the necessary technology, and a project management capacity; and organized groups of farmers of limited resources.

The consortium would carry out a phased program:

1. feasibility study which would analyze the agronomic and economic conditions in the possible producing areas in relationship to the market for the seed and the oil; design of a processing plant;
2. establishment of technically advanced nucleus estates in different areas on an experimental scale;

3. expansion of the nucleus estates, establishment of nurseries, organization of an extension system, and contracting the production of a large number of independent producers;
4. installation of the processing plant;
5. organization of a joint venture which would manage the plant and the nucleus plantations, and contract for additional production with independent producers.

4. APPENDICES

4.1 PROGRAM

EXECUTIVE AGRIBUSINESS WORKSHOP

El Pueblo Conference Center, Vitarte*, Peru

March 9 - 11, 1984

P R O G R A M

Thursday,
March 8

4:00 PM registration (lobby)
6:00 welcome cocktail (Upper Pool)

Friday,
March 9

8:00 AM registration (lobby)
9:00 Plenary Session (Real Audiencia)

Co-Chairmen: Luis J. Paz S., President,
National Development
Foundation
George A. Truitt, Director
Agribusiness Project,
FMME

Agribusiness Environment in Peru

9:15 Carlos Hurtado M., Minister of
Agriculture
9:45 Richard Webb, President, Central Reserve
Bank

10:15 Questions and Answers

10:30 coffee break

Role of the Private Sector

11:00 Juan Martinotti, Industry Society

11:30 Gonzalo Garland, President, Association
of Exporters

Agribusiness Project Analysis

12:00 George A. Truitt

* Vitarte is 30 minutes east of Lima.

- 12:30 lunch (Polvos Azules/Pilitricas)
- 2:00 PM Group Sessions (Tulipanes, Bouganvilla,
Palmeras, Geranios)
1,2: Credit for Agriculture and Fishing
3,4: Analysis of Case Histories involving
agribusiness and farmers of
limited resources relevant to
operating in Peru
- 3:30 coffee break
- 4:00 Credit and Farmer/Agribusiness
Relationship in Peru - practical
conclusions
- 5:30 drafting of group conclusions

Saturday,
March 10

- 9:00 AM Plenary Session (Real Audiencia)
group reports on farmer/business
relationship and credit
- 10:00 discussion
- 10:30 coffee break
- Rationalization of Production
- 11:00 Paul Peperzak, International Finance
Corporation
- 11:20 Gustavo Garcia M., President,
National Farm Organization
- 11:40 Spencer Manners, Food Pro International
- 12:00 Richard Andreski, Miramar Industries
- 12:30 lunch (Polvos Azules/ Pilitricas)
- 2:00 PM Group Sessions (Tulipanes, Bouganvilla,
Palmeras, Geranios)
- Presentations by Peruvian and American
crop experts, Questions and Answers

Sunday,
March 11

3:30 coffee break

4:00 analysis of Opportunity Profiles

5:30 drafting of group conclusions, by crop

9:00 AM Plenary Session (Real Audiencia)
group reports on opportunities by crop

10:00 discussion

10:30 coffee break

11:00 Summation

Round Table: George A. Truitt, Moderator
Nitty de Santamaría, Association of
Passion Fruit Producers
Werner Haeberle, Gloria S.A.
Emilio Zegarra, Credit Bank
Thomas Bennett, Food & Agricultural
Services International
David Bathrick, USAID

12:00 discussion

12:30 PM address: John Sanbrailo, Director
USAID/Peru

1:00 barbecue lunch

2:00 musical presentation: Folkloric group

3:00 adjournment

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4.3 SOURCES OF FINANCING

AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

Agricultural and Rural Development Program

Sector purpose statement: To overcome sectoral production and economic deficiencies in rural areas through the provision of cost effective improved technologies and institutions.

1. Agricultural Intensification Promotion

Project Purpose

To improve water and land use in the Cajamarca and Mantaro valleys through the construction of irrigation and drainage work for up to 27 sub-projects, protective afforestation, strengthening of regional irrigation offices, establishment of a special fund in the Agrarian Bank for sub-lending to participating farmers for investments in on-farm land development, technical assistance, on-farm demonstration programs, and watershed planning studies.

To develop and consolidate within the General Directorate of Water, Soil and Irrigation the institutional infrastructure for a national soil and water conservation system. The national system will develop conservation technology for dissemination to the small farmer of Peru.

To create an Agricultural Research, Extension and Education System (REE) that will enable the institutions involved in REE to increase agricultural production by structuring the basis for enhancing and reinforcing the human resources required for REE, and to provide for continual flow of varying levels of technology which meets the needs of small and medium-sized enterprises.

To assist the Government of Peru (GOP) in improving their capacity to develop a more rational agricultural policy and strengthen the human resources and institutional structure necessary to implement these policies.

| PROJECTS | | | FISCAL YEAR | IMPLEMENTING AGENT |
|---|------------------------|------------|-------------|--------------------|
| A. Improved Water and Land use in the Sierra | | | | |
| <u>Amount:</u> | <u>AID</u> | <u>GOP</u> | | |
| US \$ million | 11 (Loan) | 10 | 76 | MinAg |
| B. Soils Conservation | | | | |
| <u>Amount:</u> | <u>AID</u> | <u>GOP</u> | | |
| US \$ million | 1 | 0.3 | 80 | MinAg |
| C. Agricultural Research, Extension and Education | | | | |
| <u>Amount:</u> | <u>AID</u> | <u>GOP</u> | | |
| US \$ million | 9 (loan) 2 (grant) | 4 | 80 | MinAg |
| D. Agricultural Planning & Institutional Development | | | | |
| <u>Amount:</u> | <u>AID</u> | <u>GOP</u> | | |
| US \$ million | 11 (loan) 6 (grant) | 8.5 | 83 | MinAg |
| | — | — | | |
| SUB TOTAL | 50 | 22.8 | | |

2. Rural Development Support:

To develop, primarily, in the sierra, better economic support services and decentralized planning and implementing capability to improve well being of rural population.

Project Purpose

To strengthen a decentralized regional planning capability and establish a process for financing and executing priority sub-projects that integrate key market towns with the rural areas they serve.

To assist the GOP in maximizing the efficient use of Peru's resources through the creation of natural resource inventories and improved natural resource planning and allocation.

| PROJECTS | FISCAL YEAR | IMPLEMENTING AGENT |
|----------|-------------|--------------------|
|----------|-------------|--------------------|

A. Integrated Regional Development

| | | | | |
|----------------|------------------------|------------|----|----------|
| <u>Amount:</u> | <u>AID</u> | <u>GOP</u> | | |
| US \$ million | 15 (loan) 1 (grant) | 6.5 | 79 | PRODERIN |

B. Land Use Inventory & Environmental Planning

| | | | | |
|----------------|------------|------------|--|--|
| <u>Amount:</u> | <u>AID</u> | <u>GOP</u> | | |
| US \$ million | 1 (grant) | 1 | | |
| SUB TOTAL | 17 | 7.5 | | |

3. High Jungle Expansion:

To develop ecologically and economically appropriate cropping, livestock and forestry technologies for diverse high jungle conditions.

Project Purpose

The project will provide basic infrastructure and institutional support aimed at testing a low cost development model for possible replication in other areas in Peru. The basic project components are: roads, road maintenance, agriculture credit, land clearing, farm machinery equipment and services, marketing facilities and services, land surveying and titling activities, extension services, resource studies, and technical assistance.

The project will strengthen public sector agricultural support services and develop and test agricultural production packages in the Upper Huallaga region of the Peruvian high jungle.

Also, the project will assist and guide the GOP in the elaboration and institutionalization of appropriate policies for the development of Peru's vast jungle and high jungle areas through the execution of a resource management project based on appropriate land use and sustained yields, and through high level TA explicitly focused on incorporating project specific and worldwide experience into GOP policies guiding the rational exploitation of these resources.

| PROJECTS | | | FISCAL YEAR | IMPLEMENTING AGENT |
|---|------------------------|------------|-------------|--|
| A. Sub-tropical Lands Development | | | | |
| <u>Amount:</u> | <u>AID</u> | <u>GOP</u> | | |
| US \$ million | 19 (loan) | 27 | 78 | Special Projects Of/ Prime Minister's Office |
| B. Upper Huallaga Area Development | | | | |
| <u>Amount:</u> | <u>AID</u> | <u>GOP</u> | | |
| US \$ million | 15 (loan) 3 (grant) | 8.5 | 82 | idem |
| C. Central Selva Resource Management | | | | |
| <u>Amount:</u> | <u>AID.</u> | <u>GOP</u> | | |
| US \$ million | 18 (loan) 4 (grant) | 8 | 82 | idem |
| SUB TOTAL | 59 | 43.5 | | |
| T O T A L | 126 | 73.8 | | |

Geographical Distribution of U.S. Support:

\$39.2 million Sierra
60.0 million Selva
25.5 million National level

Contact: Implementing Agents.

BUREAU FOR PRIVATE ENTERPRISE (PRE)

A.I.D.'s Bureau for Private Enterprise was established to develop new approaches to private sector development and to support and supplement, where appropriate, private sector programs undertaken by other parts of the Agency. The Bureau intends to make four types of investment: co-financing of projects with a strong development impact; capitalization of private intermediate financial institutions; direct lending to selected business ventures; the granting or lending of money to an enterprise and taking convertible debentures for the start up period. All projects must have significant local equity participation.

Technical Advice and Assistance

The Bureau will take an active role in identifying and developing projects including taking the lead in making technical studies, finding technical and financial partners, and putting together a financial plan. In addition, the Bureau will help organize and finance companies that promote investments in a specific sector or area, or participate in financing companies organized to develop specific projects and help applicants satisfy requirements for preliminary information.

Priorities Initially the focus will be on the following sectoral priorities:

Agribusiness, with a high priority on the transfer of U.S. agricultural expertise;

Intermediate institutions, with a focus on mechanisms for developing and transferring capital;

Leasing of capital equipment and machinery;

Manufacturing keyed to raw materials, labor, and market potential aimed at generating jobs and technical improvements.

Project Criteria To be selected, projects and enterprises must be in the priority sectors described above; must have substantial indigenous ownership; must be consistent with the existing A.I.D. programs and strategies within the country; must fall into one of three categories of new types of investment, i.e., co-financing, capitalization of intermediate financial institutions, direct investment in replicable projects; must demonstrate effective management and profit-making potential; must be privately owned or operated, at least in part or be willing to operate within private sector criteria; must have development benefits that rank high on the list of host government priorities - job creation, foreign exchange earnings, and transfer of technical and managerial skills are particularly important; must show that funds are not available elsewhere on reasonable terms.

Application Requirements The following outlines preliminary project information required by PRE to form an initial judgement concerning interest in providing financing:

- Project Description, including background of project, present status, background of firm, legal arrangements;
- Financing Requirements, including total costs, proposed financial structure, source of funds and anticipated terms, critical factors affecting investment opportunity;
- Technical Plan, including technology(ies) to be used, appropriateness, feasibility, source(s), ease of incorporation, advisory assistance and training requirements, source of raw materials, equipment and labor, location;
- Marketing Plan, including market and customer profile, transportation and distribution, pricing, competition;
- Financial Plan, including projected five year statement and balance sheet, cash flow analysis, and rate of return;
- Legal requirements, including potential impediments, import/export duties, tax legislation, foreign exchange restrictions/regulations, ownership/management requirements;
- Management and implementation plan, including structure, skills (existing and needed), training requirements.

AID/PRE has flexibility in negotiating terms and conditions depending upon the nature , risk level, and developmental impact of any project. General guidelines however are that PRE will finance up to \$2.5 million with the emphasis in the range of \$1.0 million to \$2.5 million but not more than 25% of the total project cost with a 15 year maximum term and a negotiable grace period for principal, fixed interest rates which emphasize free market competitive profitability, with loans to be used to capitalize a new enterprise and/or expand an existing one.

The Bureau for Private Enterprise will never invest alone. Rather, its role is to mobilize and supplement private capital.

The enterprise's capital requirements should be such that A.I.D. can take the longer maturities and commercial banks and others can take the shorter maturities. Interest rates for loans and other forms of debt will, in most cases, be higher than under normal A.I.D. terms.

IN BRIEF: PERU LEASING

| | |
|----------------------------|---|
| AID CONTRIBUTION | \$2,500,000 Loan |
| PURPOSE | To help capitalize Sogewiese Leasing to provide equipment to small and medium size businesses; defined as those with fixed assets no greater than \$1.5 million |
| TERMS | AID Loan is 12 years at near-market interest rates |
| HOW AID MONEY IS LEVERAGED | Our loan combines with those of four other lenders to provide total \$13 million for lease financing so private enterprise can acquire needed machinery and equipment |
| WHO BENEFITS? | Small and medium-sized entrepreneurs in agribusiness and manufacturing |
| HOW? | Lease financing offers intermediate term financing at fixed rates, not available to smaller entrepreneurs |
| BENEFIT TO PERU | Makes capital equipment available to a wider cross-section of the private sector, broadening Peru's financial system and stimulating economic growth |
| DEVELOPMENT IMPACT | Enterprises that are leasing equipment must have impact in one or more of the following: <ul style="list-style-type: none">- Job creation- Foreign exchange for Peru- Management/technical skills development- Technology transfer- Increased income and economic activity in outlying areas- Easing of poverty in rural areas |

WHAT IS DIFFERENT?

Uses Peru's first leasing company to fill gap in capital market structure...
AID deals directly with that company...
AID loan at near-market rates

OWNERSHIP

70% private (50% Peruvian; 20% foreign) 30% government (15% Peruvian, 15% IFC)
Other lenders: Banco Wiese Peruvian Bank); Societe General Group de Paris (diversified financial company), COFIDE (GOP industrial finance company); IFC.

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OVERSEAS PRIVATE INVESTMENT CORPORATION (OPIC)

The Overseas Private Investment Corporation (OPIC) will enter into a cost-sharing arrangement with a U.S. firm to study the feasibility of an investment the firm has identified through its own reconnaissance in a country. Small businesses are eligible for feasibility study assistance in all countries in which OPIC operates: Feasibility study funds are available to larger firms only if the per capita income of the host country is less than \$680 (in 1979 dollars).

- Terms

The maximum OPIC participation in such a study is \$ 100,000, which represents up to 50 percent of the total cost (60 percent if the project is sponsored by a small business).

For small businesses, funding for feasibility studies is provided through an interest-free, reimbursable grant. Repayment (over two years) is required only if the investor moves forward with the study-related project; repayment can be reduced if the investor insures or finances the project through OPIC.

For larger firms, feasibility financing assistance is provided through a two-year loan at a rate generally equivalent to two-thirds of the prime rate. Repayment may be reduced if the investment moves forward and if the investor elects to obtain OPIC insurance or financing.

- Eligibility

A U.S. company must have an appropriate operating and technical background in the industry for which the investment will be undertaken. It must also demonstrate the financial capability and intention to undertake a long-term investment should the project prove feasible. A senior executive from the investing company must be a member of the feasibility study team. Investments relating to oil or gas extraction are not eligible for this program.

- Application Procedure

Firms interested in obtaining feasibility study financing must provide the following preliminary information:

1. Location and business of the proposed project.
2. Identity, background, and financial statements of the principals sufficient to establish their financial and managerial ability.

3. Nature and results of preliminary or reconnaissance studies.
4. Scope of the survey, outlining in detail the factors to be studied.
5. Preliminary budget for the survey, indicating the members of the study team.
6. Tentative estimate of total project costs and the applicant's expected equity investment in the project.
7. Brief statement of the contribution the project will make to local economic and social development
8. Resumes of the study participants.
9. Two bank references and two business references for the investing company.

OPIC will discuss the proposed survey and project with the sponsor and assist in preparation of a final workplan and budget, including the amount of OPIC participation and terms.

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Capital Investment

- Project Financing

The Overseas Private Investment Corporation (OPIC) provides medium to long-term financing for U.S. business ventures in some 100 developing countries. Two types of loan programs are available.

- Direct Loans

These loans from OPIC funds generally range in amount from \$100,000 to \$ 4,000,000 and are reserved exclusively for projects sponsored by or significantly involving U.S. "small businesses" or cooperatives. A "small business" is defined as a firm having revenues or net worth less than that of the smallest firm listed on the "Fortune 1000".

- Guaranteed Loans

OPIC also issues loan guarantees, under which funding can be obtained through U.S. financial institutions. These loan guarantees, which cover both commercial and political risks, are available for projects having significant U.S. involvement. Typical OPIC loan guarantees range from \$ 1 to \$25 million, but they can be as large as \$ 50 million. This program is available for projects sponsored by any U.S. company, regardless of size.

- Eligibility

OPIC's criteria are the same whether it makes a direct loan in dollars or issues a loan guarantee. The project must be commercially and financially sound, and it must be sponsored by an investor having a proven record of success in a closely related business. Eligible enterprises include, but are not limited to, manufacturing, agricultural production, fishing, forestry, mining, energy development, processing, storage, and certain service industries involving significant capital investment.

OPIC financing is available for new ventures or expansion of existing enterprises in those developing countries where the agency operates. The project must contribute to the economic and social development of the host country, be consistent with the economic interests of the United States, and not have a significant adverse effect on the U.S. economy or employment.

- Terms

Repayment of both direct loans and loan guarantees is usually made in equal, semi-annual principal payments following a suitable grace period, with a final maturity of five to twelve years. The length of the grace period is usually based on the time needed by the project to generate a positive cash flow. Direct loan interest rates generally parallel the commercial equivalent. Interest rates on guaranteed loans are comparable to those of other U.S. government-guaranteed issues of similar maturity. In addition, OPIC charges the borrower a guarantee fee ranging from 1.5 to 3 percent. OPIC's financing commitment to a new venture may range up to 50 percent of total project costs. Greater OPIC participation may be considered in the case of an expansion of a successful existing enterprise.

- Application Procedure

The sponsor of a potential project should provide OPIC with the following preliminary information:

1. Name, location, and business of the proposed project.
2. Identity, background, and financial statements of the principal sponsors.
3. Planned sources of supply, anticipated output and markets, distribution channels, and the basis for projecting market share.
4. Summary of costs and sources of procurement of capital goods and services.
5. Proposed financing plan, including the amount of OPIC participation anticipated, and financial projections.
6. Brief statement of the contribution the business is expected to make to local economic and social development.

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INTERNATIONAL FINANCE CORPORATION (IFC)

The International Finance Corporation (IFC), an affiliate of the World Bank, was established in 1956 to promote private investment in developing countries by encouraging the flow of domestic and foreign capital into productive private enterprise.

- Capital Resources

IFC's capital, subscribed by 119 member countries, was approximately \$392.1 million as of June 30, 1981. The resources available to IFC are supported by accumulated earnings of \$159.2 million, by repayments and by sales to others of IFC investments. The Corporation can also borrow for use in its lending operations up to four times the amount of its unimpaired subscribed capital and accumulated earnings - that is, about \$ 2,205 million.

- Other Resources

In addition to its funds, IFC has other resources available to local and foreign entrepreneurs, sponsors, technical partners, and other investors associated with a project. The Corporation's international staff - in which 66 countries are represented - has accumulated much financial, legal and technical expertise relevant to investment opportunities and to the anticipation and solution of investment problems in the developing world. IFC can also draw on the World Bank's wide experience, as well as on its own contacts with financial institutions and development agencies.

- CONDITIONS AND FORMS OF INVESTMENT

Eligible Areas: All developing member countries.

Type of Business:

Most types of productive private enterprise. IFC is prepared to support "mixed" enterprises, i.e., joint ventures between private enterprise and government. Each case is examined in the light of such factors as the extent of Government ownership and control, the nature of the enterprise, efficiency of management and the possibility of increasing the extent of private ownership in the future.

- Investment Criteria

Venture must benefit economy of host country. Venture must hold prospect of profit. Sufficient private capital cannot be obtained on reasonable terms. Host government does not object to proposed investment. Local investors should be able to participate in the venture, at the outset or later.

Forms of IFC Financing: IFC investments for its own account generally are no more than 25 percent of the project cost and it normally provides between \$ 1 million and \$ 30 million. However, it can also raise substantial funds in addition to its own investment for larger projects. It may invest less than its normal \$ 1 million lower limit, especially in ventures in the smaller and least developed countries, pilot operations and promotional companies.

IFC financing may be in the form of a long-term loan or a share subscription, or a combination of both.

The type of IFC investment, the investment mix and the investment terms will vary from case to case depending upon the circumstances involved, the risk entailed and the prospective return. IFC follows a flexible policy, being prepared within the limits of its investment criteria to do whatever needs to be done to get a sound enterprise moving.

The loan portions of IFC investments normally run for a term of 7 to 12 years and are usually amortized by semi-annual or quarterly payments after a suitable period of grace. Loans are normally denominated in US dollars, but they may be expressed in other currencies: A commitment fee at the rate of one per cent per year is payable on the undisbursed portion of a loan. Interest rates on loans vary according to the circumstances of particular transactions.

Investment in share capital are normally denominated in local currency.

IFC considers important the extent of the sponsor's participation in the share capital of an enterprise. Where its investment takes the form of equity, IFC will not normally provide more than 25 per cent of the share capital of the venture, preferring it to be well under that figure. Only rarely is IFC willing to be the largest single shareholder in an enterprise.

IFC can provide financing through standby or underwriting arrangements in support of public offerings or private placements of shares, debentures and other corporate securities. It is prepared to act as sole underwriter or as a member of an underwriting group, but does not itself engage in the direct sale of securities to the general public.

IFC will make no investment unless appropriate arrangements exist for the repatriation of its investment and the earning thereon.

IFC neither requires nor accepts government guarantees of repayment on its investments.

- Use of IFC Funds

May be used for expenditures in any of the 139 countries belonging to the World Bank or in Switzerland. May be used for foreign or local expenditures to acquire assets or for working capital.

- Management

IFC expects its investment partners to provide management, and does not itself assume management responsibilities. IFC does not generally accept representation on the board of directors of a business enterprise in which it invests, although it may do so if a particular purpose is to be served thereby. Only in exceptional circumstances will IFC exercise its voting rights as a shareholder.

- Project Supervision

IFC expects to consult periodically with management, to send field missions to visit the enterprise and to receive regular quarterly progress reports together with information on factors materially affecting or likely to affect an enterprise in which it has invested. It also requires annual financial statements audited by independent public accountants. IFC has a Portfolio Supervision Unit to control and review this work.

- Sale of Investments

IFC seeks to revolve its funds - and to encourage the growth of a market for the types of securities in which it invests - by selling its investments to private investors, wherever located, when it can appropriately do so on satisfactory terms.

Investors are invited to participate in IFC investments either at the time of IFC's original commitment or later. In the former case, their participation is on the same terms as IFC's. In the latter case, the terms are agreed upon in the light of developments subsequent to the original commitment date. In a privately negotiated sale, IFC will not sell its shares to investors to whom its investment partners object for valid reasons.

- Contact

Faustino Garza, Investment Officer
INTERNATIONAL FINANCE CORPORATION (IFC)
1818 H Street, N.W.
Washington, D.C. 20433

AGRARIAN BANK OF PERU (ABP)

The Agrarian Bank of Peru has begun the implementation of an Agricultural Credit Program intended to promote the development of the country's agrarian sector by means of the investment of \$ 234,835,000. Of this amount, \$ 130 million comes from a loan made to the Peruvian government by the World Bank, and the rest from contributions of the central government and the Agrarian Bank itself.

- Eligibility

IBRD Loan No. 2302 will benefit individual farmers, agrarian societies and production cooperatives (today agrarian workers' cooperatives) and agrarian service cooperatives (today agrarian users' cooperatives) whose financial resources are inadequate for the realization of their agricultural potential and who are "credit worthy" in the opinion of the Agrarian Bank.

- Types of Loans

Capital Investment Loans

Capital investment loans using the funds of IBRD-2302 will serve to finance investment projects targeted particularly to improve irrigation infrastructure, intensify the plantings, increase livestock production, and develop agricultural and livestock industries. Toward that end, loans will be made totaling up to \$ 73,323,000 to facilitate the following activities:

- execution of civil works;
- irrigation infrastructure;
- land improvement;
- land leveling;
- buildings;
- planting of pastures and permanent plantations;
- acquisition and maintenance of livestock;
- acquisition of machinery, automotive vehicles, and agricultural equipment.

Maintenance Loans

For this type of credit, the Program has earmarked \$ 91,786,000 which will serve to finance the beneficiaries' needs for working capital by means of short term loans for the development of both agricultural (annual and permanent crops) and animal husbandry activities.

- Terms

Short-term loans to finance working capital may not exceed 24 months.

As regards capital investment loans, maturities and grace periods will be determined based on the projected cash flows of the beneficiaries within the following limits: Repayment periods shall not be less than three (3) years nor more than fifteen (15) years.

The beneficiaries must participate in the project which is to be financed by the Program by contributing a part of its cost in proportion to the size of the operation which is to be financed, between 5 and 20%.

Loan Applications

In addition to meeting the usual requirements of the Norms and Procedures of the Bank established in accordance with its basic Law and Statute, the credits which may be provided under this Program must fulfill the following conditions:

1. investment loan application to the Bank shall be based on an Investment Plan;
2. the Investment Plan shall be prepared with the participation of the Bank's staff which will assist the beneficiaries in its preparation;
3. the above-mentioned Investment Plan shall be based on a detailed development plan which must include a Construction Budget, Statement of Income and Operating Costs, and a Financial Cash Flow, determining the Internal Rate of Return.
4. When small-scale investments are involved which would not warrant the preparation of an Investment Plan, they will be financed on the basis of representative models accompanied by a Financial Cash Flow.

The processing, approval, and implementation of the loans will be carried out in the same way as with any ordinary loan of the Bank, except for the following:

- The applications shall be accompanied by the appropriate legal documentation, as well as the following documents: Financial Statement and appendices, no older than 67 months in the case of cooperatives, societies, and individual farmers with land in excess of 10 hectares of for loan amounts exceeding 14 million Soles; pro-forma invoices for purchases, an analytical budget for construction work, plans and descriptive reports, when indicated.

TRADE AND DEVELOPMENT PROGRAM

Trade and Development Program, which is a component of the International Development Cooperation Agency, located in Washington, D.C., has feasibility study funds available for projects which meet the following criteria:

They must

- be of high priority in the country's development program;
- lead to exports from the United States (equipment, agricultural inputs, etc.);
- have a well developed financing plan;

The average amount provided per feasibility study to date is in the range of \$100,000 - \$300,000. The funds are provided to U.S. investors on a cost shared basis with agreement by the investor to reimburse TDP for its share of the studies if the investment goes forward.

Contact: International Development Cooperation Agency
Trade and Development Program
SA-16, Room 301
Washington, D.C. 20523
(703) 235-3657/8/9

EXPORT-IMPORT BANK OF THE UNITED STATES (EXIM)

The Export-Import Bank of the United States is a United States Government Agency whose purpose is to aid in financing and facilitating exports of United States goods and services. EXIM implements its legislative mandate by providing loans, guarantees, and insurance cover for U.S. export transactions.

Direct Loans and Financial Guarantees

By providing direct loans to foreign buyers, EXIM makes available the longer-term, fixed-rate financing required for major U.S. export sales of capital equipment, requiring repayment terms over five years. EXIM, however, only provides a portion of the required financing, commercial banks generally provide the remainder. In some instances, the Private Export Funding Corporation (PEFCO), owned by U.S. commercial banks and major U.S. exporters, will also participate. PEFCO was organized as a supplemental lending source and makes loans only when the necessary funds are not available from traditional private sector sources on normal credit terms at competitive rates of interest. It makes fixed interest rate loans; its minimum loan size is \$1 million.

Commercial Bank Guarantees

EXIM guarantees the repayment of medium-term (181 days to 5 years) export credit extended by U.S. banks to foreign buyers, without recourse to the U.S. exporters. The commercial bank retains a share of the commercial risk for its own account and is protected by the EXIM guarantee against the remaining commercial and political risks.

Discount Loans

EXIM provides stand-by assurance to U.S. commercial banks which purchase fixed-rate export obligations. This program is intended to overcome limitations in the private market's willingness to provide medium-term (366 days to 5 years) fixed rate for export sales.

FCIA Export Credit Insurance

The Foreign Credit Insurance Association, in conjunction with EXIM, insures short-term (up to 180 days) and medium-term (181 days to 5 years) export credit provided by the private sector. FCIA provides insurance coverage against defined commercial risks, while EXIM provides political risk coverage and reinsures FCIA against excessive commercial losses.

Small Business Support

EXIM has established a small business advisory service to assist companies in various aspects of export financing including guidance on the use of EXIM programs as well as the use of commercial bank facilities. For Small Business Advisory Service the toll-free hotline is (800) 424-5201.

Contact

William J. Morris, Economist
Export-Import Bank of the United States
811 Vermont Avenue N.W.
Washington, D.C. 20571
(202) 566-8724

SMALL BUSINESS ADMINISTRATION

Firms that wish to establish or expand their export organizations may have up to \$500,000 of commercial financing guaranteed by the Small Business Administration (SBA). A concern (including its affiliates) that is independently owned and operated, not dominant in its field, and which falls within employment or sales standards developed by the agency, is defined as a "small business" by the SBA.

More information: Nearest SBA District Office

Licensed and regulated by the SBA, Small Business Investment Companies (SBIC) are limited partnerships or corporations certified under state law. An SBIC's primary purpose is providing equity capital and long-term financing to small business concerns for growth, expansion and modernization. Although usually an SBIC finances small businesses located in the United States, some funds may be loaned to small businesses for use outside the United States. Firms are eligible for these funds if the funds will 1. be used to acquire materials abroad for an SBIC's domestic operations 2. be used for its foreign branch operations and foreign joint ventures 3. be used for transfer to a foreign subsidiary it controls.

More information: Director
Office of SBIC Operations
Investment Division
U.S. Small Business Administration
Washington, D.C. 29416
(202) 653-6584

4.4 USDA MARKET INFORMATION

The USDA publishes voluminous amounts of information on the U.S. market for fruits, vegetables, ornamentals, specialty crops, grains and livestock. The basic types of market news reports on fruits, vegetables and ornamentals of interest to the Caribbean and Central America are reviewed below.

Identifying the Market

Information is provided on a daily, weekly and annual basis in printed form and by telephone 24 hours a day at selected sites.

- price and amount shipped from areas of origin
- amount and sale price at terminal markets

By using the Annual Reports (for an appropriate historical period) one can determine the periods of opportunity, those points at which particular products are traditionally in short supply and/or highly priced in the U.S. market. One can also trace the growth of competition for those markets by area of product origin.

Annual Reports: Fresh Fruit and Vegetable Arrival Totals for 23 cities published by the USDA, Agricultural Marketing Service, Fruit and Vegetable Division, Washington D.C. 20250 (published on a calendar year basis) FUAS-3

Fresh Fruit and Vegetable Shipments By Commodities, States and Months, published by the USDA, Agricultural Marketing Service, Fruit and Vegetable Division (calendar year basis) Washington D.C. 20250 FUAS-4

New York City (by calendar year)
Fresh Fruit and Vegetable Wholesale Market Prices published by USDA Agricultural Marketing Service, 4-A Hunts Point Market, Hunts Point and East Bay Avenue, Bronx, N.Y. 10474

| | |
|------------------------|--|
| Weekly Reports | Fresh Fruit and Vegetable, Ornamental Crops, Weekly Summary - Shipments and Arrivals, USDA, Agricultural Marketing Service, Fruit and Vegetable Division Washington D.C. 20250 (available on Wednesday) |
| Daily Reports | Available from terminal markets, for example Fresh Vegetable and Market News New York City Wholesale Fruit and Vegetable Report Fruit and Vegetable Market News 4-A Hunts Point Market Hunts Point and East Bay Avenues Bronx, New York, 10474 |
| Market News by Phone | Continuous information on fruits and vegetables year round New York (212) 542-3564 Miami (305) 666-7106 Miami (ornamentals) (305) 661-7106 |
| Reports on Ornamentals | USDA Market News Service Office 50th Floor, Rm. 5086 2 World Trade Center |

LIST OF ADMISSIBLE FRUITS AND VEGETABLES FROM PERU

- A. The following items are admissible from all countries including Peru into the entire United States (includes Continental United States, Guam, Alaska, Hawaii, Puerto Rico, and the Virgin Islands) without a USDA import permit.

Cannonball fruit
Coconut (without husk or without "milk")
Cyperus corn
Lily bulb, edible
Maguey
Mushroom (fresh)
Peanut (raw)
St. Johnsbread
Tamarind bean pod
Truffle (fresh)
Waterchestnut
Waternut

In addition to the above items, other food materials including such items as dried beans and peas (except Vicia faba, Lens spp. and Lathyrus spp.), dried seeds, dried bamboo leaves, dried Herbs, and similar commodities are admissible for food purposes and may be imported without permit from all sources into any port subject to inspection on arrival. Dried nuts without fleshy or leathery husk (except acorns, chestnuts, coconuts and macadamia nuts) are enterable for food purposes without permit at all ports, subject to inspection on arrival. Dried nuts without fleshy or leathery husk (except acorns, chestnuts, coconuts and macadamia nuts) are enterable for food purposes without permit at all ports, subject to inspection.

- B The following items are admissible from Peru with a USDA import permit issued in advance of shipment. Permits are only issued to importers and brokers residing in the United States.

1. Admissible into the entire United States (includes Continental United States, Guam, Alaska, Hawaii, Puerto Rico, and the Virgin Islands):

Items listed in paragraph A and:

| | |
|--|---|
| Allium | Culantro |
| Asparagus | Durian |
| Banana (no permit required) | Ginger root |
| Cassava | Palm heart |
| Chestnut (treatment required see 319.56-2b) | Pineapple (except Hawaii) |
| Corn, green | Strawberry |
| | Watercress |
| | Yam (treatment required see 319.56-2m) |

2. Admissible into North Atlantic ports - (Atlantic ports north of and including Baltimore; ports on the Great Lakes and the St. Lawrence Seaway, Canadian border ports east of and including North Dakota; Washington, DC (including Dulles) for air shipments):

Items listed in paragraph A & B-1 and:

Artichoke (Globe and Jerusalem)

Bean, Pod or shelled

Brassica oleracea

Cacao bean pod

Celery

Chickpea

Cucumber

Grape (Treatment required see 319.56-2d)

Okra

Lettuce

Mango (Treatment required see 319.56-2i)

Melon

Papaya (Fumigation required on arrival)

Pea

Watermelon

3. Admissible into South Atlantic Gulf ports - (Atlantic ports south of Baltimore; Gulf ports; Puerto Rico, and the Virgin Islands)

Items listed in paragraph A & B-1 and:

Okra [treatment required see 319.56-2 (t)].

Frozen fruits and vegetables: Freezing is an acceptable treatment for most fruits and vegetables. The treatment involves an initial quick-freezing at subzero temperatures with subsequent storage and handling at not higher than 20° F. at time of arrival.

4.5 SERVICES FOR THE EXPORTER

4.5.1 FOPEX

The Fund for Non-Traditional Exports (FOPEX) is an organism created to offer services and execute activities for the increase and promotion of non-traditional export products.

FOPEX was born as a result of an agreement between the State and the private sector, created as a public corporation organized as a Sociedad Anonima, with sufficient financial, administrative and technical skills.

The autonomy conferred on FOPEX guarantees quick negotiations and no bureaucracy, for the promotion and increase of non-traditional exportation. FOPEX has its own financial resources.

SERVICES PROVIDED BY FOPEX

1) Services of Orientation

General Information

Incentives to non-traditional exportation;

Steps for exporting;

Basic conditions for exporting;

Regulations of external trade;

Market Information

International bidding and solicitation;

International markets and functioning of products of interest;

Tariffs and taxes for products of interest in international markets;

Statistics of external trade;

Export prices;

Market requirements, standards and technical specifications for products;

2) Bidding Services

Situation of bidding by product of interest in international markets;

Presentation of bids in selected international markets;

Bidding formulation according to international practices.

3) Training

Seminars and special courses in international trade.

4) Special Technical Assistance Services

Packing and Bottling

Recommendations on bottling and packing according to product, type of transport, and market;

Design proposals for bottling and packing.

International Transport and Freight

Information on the appropriate means of transport for each product on airlines, and international land and sea operations.

Costs and Prices

Special information about prices in the international market for products of interest;

Advice on export costs.

Sales and Insurance Contracts

Information on international buy and sell terms;

Advice in the formulation of transport insurance contracts;

Advice in the solution of buy-sell contract controversies.

5) Services of support towards commercialization:

Attendance at International Fairs

Organization and participation in General and Specific International Fairs for the exporters;

Commercial missions;

Organization and participation in Commercial Missions to selected international markets for the exporter.

4.5.2 THE ROLE OF INDDA

The National Institute of Agro-Industrial Development (INDDA) started on July 22, 1969, as a mechanism to service the principal agrarian regions of the country, with the intention of facilitating the identification, elaboration and viability of projects which could contribute to the industrialization of the land.

To date, INDDA has already many agro-industrial projects that are working due to its investigations, technologies, and feasibility studies, such as Frutos del Norte in Piura.

Producers who plan rural processing should contact INDDA, located at Ave. Universidad 595, La Molina.