

CORECA

REGIONAL COUNCIL FOR
AGRICULTURAL COOPERATION



GISA

INTER-INSTITUTIONAL GROUP
OF THE AGRICULTURAL SECTOR

FIRST AGRICULTURAL SECTOR MEETING OF THE CENTRAL AMERICAN
GOVERNMENTS WITH COOPERATING GOVERNMENTS AND INSTITUTIONS

7

REGIONAL PROGRAM ON
AGROINDUSTRIAL
DEVELOPMENT

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PEC/AS/91/7
PROJECT CAM/90/002
SPECIAL PLAN OF ECONOMIC COOPERATION
FOR CENTRAL AMERICA

The technical information for the First Agricultural Sector Meeting is presented in ten documents to facilitate reading by cooperating governments and institutions. The documents are:

Executive Summary

Importance of the Agricultural Sector.
Technical and Financial Assistance.
Summary of Project Profiles.

Documents 1 to 10 describe the eight regional programs on topics selected as being of priority by the Central American governments. The Programs are:

- PEC/AS/91/3: Regional Agro-alimentary Program.
- PEC/AS/91/4: Program on Irrigation, Drainage and Land Leveling.
- PEC/AS/91/5: Program on the Development of Biotechnology.
- PEC/AS/91/6: Program on Intra-regional Trade and Exports to Third Countries.
- PEC/AS/91/7: Program on Agroindustrial Development.
- PEC/AS/91/8: Program to Strengthen Plant and Animal Health Services.
- PEC/AS/91/9: Program on the Development of Border Areas.
- PEC/AS/91/10: Program to Strengthen Rural Enterprises.

Each Program consists of two components: one of regional scope and the other of national scope. The regional component involves cooperative projects and actions among the countries of the Isthmus, while the national component is made up of the investment projects to be carried out in individual countries.

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REGIONAL PROGRAM ON AGROINDUSTRIAL DEVELOPMENT

1991

PROJECT CAM-90-002 UNDP/PAHO/PEC

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INTRODUCTION

Agroindustrial development is one of the most viable options open to the Central American nations for strengthening their production base and diversifying their exports. With this in mind, the presidents of the region, through the Plan of Economic Action for Central America (PAECA), instructed the ministers responsible for regional integration and development to promote "a gradual and selective policy of industrial conversion in order to bring about an improvement in the countries' efficiency, conquer new markets, and replace imports with competitive products in those areas where it is considered advisable."

The presidents of the nations of the isthmus have agreed to promote a gradual and selective industrial conversion policy.

The Regional Program, of which a profile is presented herein, contains two components: one is regional in scope, with technical cooperation and preinvestment activities; the other consists of national investment projects presented by the countries. Among other things, the Regional Program calls for the creation of a Regional Fund for Agroindustrial Development, which will mainly target the rural area.

The national projects will have access to an Agroindustrial Information, Dissemination and Coordination System, which will be part of a broader Information Network for Central American Trade and Export. The harmonization of subsectoral policies, the creation of the regional fund, and the information network are some of the main activities which will lend support to agroindustrial development in the isthmus.

Agroindustrial development will help the countries enter new markets and contribute to substituting imports.

There is ample support for the Regional Program from regional organizations (Inter-American Institute for Cooperation on Agriculture (IICA) and the Central American Bank for Economic Integration (CABEI)), as well as from official organizations of the countries and of the private sector. A Regional Advisory Committee will be responsible for coordination at the regional level. It will be composed of the ministers of agriculture and of the economy, which gives it considerable decision-making authority for bringing about a coordination of regional policies.

I. FRAME OF REFERENCE

1. Macroeconomic Setting and Its Impact on the Regional Program

Since it was initiated in 1960, the Central American economic integration process has been oriented, for the most part, toward devel-

oping industry. Integration actions of the agricultural sector were limited to a single operational instrument: the Special Protocol on Staple Grains which gave regional status to the Coordinating Commission of Marketing and Price Stabilization.

Within this context, agroindustrial development fell behind in relation to the rest of the production process in the isthmus. Nevertheless, some progress was made, especially in the food industry, which was classified as a "new industry."

Under the new framework, the food industry received tariff, tax and fiscal incentives, as well as permanent general subsidies. These incentives notwithstanding, the food industry continued to use imported raw materials while the majority of the sector's enterprises were involved in mixing, diluting or simply packaging. The agricultural sector did not benefit; rather, its production activities were subject to disincentives.

The combination of exemptions and subsidies for the production process, made the food companies highly competitive during the early stages of the Integration process. However, with the virtual paralyzation of the Common Market in the eighties, the firms went into crisis; some went bankrupt and others began to operate below plant capacity levels.

The use of generalized subsidies and of obsolete technology led to a decline in productivity and quality of end products; at the same time, production costs increased so much that levels of competitiveness fell.

Various factors limit the development of Central America's agroindustrial subsector:

- There is a lack of quantitative information on prices, markets, credit availability and technological innovations.
- There is no detailed diagnosis of the subsector; this makes growth difficult.
- There is no development policy for the subsector at the regional level.
- There is a shortage of skilled, mid-level technical personnel in the light-metal industry; such industry is essential for agroindustrial modernization.
- The subsector's production potential has been limited by problems related to certification, quality and standards.
- At the world level, important technological changes have taken place which have had a negative impact on international prices of Central America's principal exports, such as coffee, cotton and sugar.
- Due to the scarcity of financial resources, new investments are not forthcoming.

Although the region's food industry was provided with incentives and subsidies, it continued to use imported raw materials

The present challenge involves making maximum use of regional agricultural output by processing it for export.

In spite of the above, agroindustry still constitutes one of the most important production sectors of the economies of the isthmus. Upgrading its activity through modernization and/or by converting its operating capacity will contribute to strengthening the sector.

2. Options for Agroindustrial Development

Taking into account the importance of food products to agricultural productive activity, and to the Central American diet, the aforementioned factors limiting production, and the multiplier effect of food-preparation activities, it is considered that support to agroindustrial development will contribute greatly to improving the rural sector's situation, both directly and indirectly.

There are several options for promoting significant agroindustrial development in the short and medium term:

Option 1. Promoting the processing of nontraditional agricultural products

This option would involve agroindustrial activities utilizing as raw materials nontraditional agricultural, forestry, ornamental plant and fisheries products. The main disadvantage with this option is that, despite efforts to boost the export of nontraditional products in Central America, production volumes are still low and industrial processes still relatively undeveloped.

Option 2. Promoting the processing of traditional agricultural products

This option entails converting and modernizing agroindustrial activities used to process traditional products such as coffee, sugar and bananas, with a view to improving the quality and preparation of intermediate and end products and increasing the value added. This course of action has the advantage of being backed up by a wealth of acquired experience in the area, agriculturally as well as industrially, and it will equip Isthmus economies to recover their place on the international market, lost because of obsolete plant capacity.

Note: These two options are not mutually exclusive. The Regional Program on Agroindustrial Development deals with the second option; however, it includes fruits and vegetables, generally considered to be nontraditional export goods in the region, because modernization can be achieved in the short term.

The multiplier effect provided by agroindustry will help renew the rural sector.

The Regional Program places emphasis on the processing of traditional agricultural products.

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Regional organizations (SIECA, CABEL, ICAITI, IICA, INCAP, ECLAC, CADESCA) provide support to agroindustrial research

The Regional Program's various components call for financial contributions which will contribute to a veritable agroindustrial "take off."

3. Institutional Conditions

The institutions dealing with agroindustry include regional organizations and national institutions which, in one way or another, participate in defining and executing related policies.

At the national level, there is no institutional setting which provides orientation for a specific agroindustrial policy. However, offices have been set up in the ministries of agriculture and of industry which deal with agroindustrial matters, even though they play no role in policy-making. Some regional organizations dealing with agroindustry-related issues are: the Permanent Secretariat of the General Treaty on Central American Integration (SIEGA); the Central American Bank for Economic Integration (CABEL); the Central American Institute of Industrial Research and Technology (ICAITI); the Inter-American Institute for Cooperation on Agriculture (IICA); the Nutritional Institute of Central America and Panama (INCAP); the United Nations Economic Commission for Latin America and the Caribbean (CEPALC); and the Action Committee in Support of Economic and Social Development in Central America and Panama (CADESCA).

The above notwithstanding, it is necessary to deal with the institutional problem, to facilitate coordination of actions and prevent duplication of efforts. The presidential mandate calling for the institutionalization of a Regional Advisory Committee points in that direction and aims to provide specific and coordinated attention for this subsector.

4. Legal Framework

It is necessary to redefine the legal framework of the agroindustrial process, in the individual countries as well as throughout Central America. New legal proposals must lay the groundwork for coordinating and harmonizing joint actions among Isthmus countries.

5. The Program in the Context of Regional Integration

Central America requires a vigorous agroindustrial subsector to complement the development of its agricultural sector. During the last decade, the region lost opportunities on the international market and a good part of its traditional exports fell in value.

The Regional Program's different components of technical cooperation, preinvestment, and investment will furnish the funds necessary to improve the quality and increase the supply of agroindustrial exports.

II. REGIONAL PROGRAM DESCRIPTION

1. Justification

The Regional Program for Agroindustrial Development is justified for the following reasons:

- The modernization and conversion of the subsector occupy a position of high priority within the strategy to reactivate agriculture.
- Central American agroindustrial exports have lost their competitive edge due to low quality and high prices.
- Increased value added will help counteract the present trend towards a deterioration in the terms of trade.
- The national investment projects, by increasing agricultural production, will increase the supply of raw materials for the region's principal agroindustries.
- Execution of the national projects will represent an important source of employment, contribute to import substitution, and generate foreign exchange.

2. Objectives

General

Main objective: To enter the international market with competitive commodities

- To support the efforts of the Central American countries to reactivate and develop an efficient agroindustrial sector, so that it can provide the international market with competitive commodities and expand regional trade
- To establish harmonized guidelines for the countries of the isthmus in relation to private-sector investment in agroindustry, with a view to contributing to efficient development in the sector

Specific

- To establish an Agroindustrial Information, Dissemination and Coordination System, to be incorporated into the Trade and Export Information Network
- To analyze technical, financial and institutional factors affecting the subsector's development
- To design and implement a regional policy for agroindustrial development

The strengthening of the region's light-metal industry is of particular importance since it will be called upon to provide agroindustry's machinery and equipment.

- To establish a regional training program for light-metal industry technicians
- To identify immediate needs for laboratory and quality-control services
- To prepare additional agroindustrial investment project profiles, in addition to those already prepared, for inclusion in this Regional Program's portfolio of national investment projects
- To institutionalize the Regional Advisory Committee for Agroindustry (ministerial representation) and the Agroindustrial Advisory Council (technical representation)
- To provide funds for agroindustrial investment in rural areas

3. Regional Program Beneficiaries

Beneficiaries of national investment projects are as follows:

| | |
|-----------------|---|
| <i>Direct</i> | 16 473 farmers |
| <i>Indirect</i> | 73 000 farm laborers and agroindustrial workers |

Beneficiaries of the technical cooperation and preinvestment component of the Regional Program are:

Direct

- Producers of agricultural products suitable for processing
- Producers of necessary secondary goods, such as special containers and packaging materials
- Workers, professionals and technicians working in agroindustry and in agroindustry-related services
- The preparation of investment profiles for agroindustrial projects will benefit the following: 15 edible oil-producing plants, 10 sugar mills, 10 coffee processing and 10 coffee roasting plants, 10 cocoa processing plants, and five fruit and vegetable processing plants.

Indirect

The Regional Program will benefit not only farmers, but also technicians, industrial workers and entrepreneurs.

- Professionals serving technical areas such as marketing, information, metal industry, administration, etc.
- Central American entrepreneurs who will receive technical and financial incentives for agroindustrial development activities

More than 16,000 farmers will directly benefit from national investment projects.

Not only farmers but technicians, industrial workers and businessmen will also participate in Regional Program benefits

4. Strategy*

The strategy will be developed as follows:

Stage I. Institutional organization and support to agricultural reactivation

- Institutionalization of the Regional Advisory Committee, the Technical Secretariat and the national committees. The latter will directly involve each country's private sector.
- Formulation of diagnoses for each country and of the region as a whole
- Launching of national investment projects to promote production of agricultural raw materials for agroindustry

Stage II. Technical cooperation in regional activities to support agroindustrial production

- An agroindustrial information system will be designed and set up. This system will be incorporated into a broader regional network of trade and export information, under SIECA's control.
- A light-metal industry training program will be prepared and carried out.
- A detailed survey will be made to determine the capacity and requirements for laboratory services, standards and certification, in order to ensure product quality for export purposes.
- Each country's institutional situation will be analyzed in relation to the subsector's development. A proposal will be made for harmonization of regional policy.

Stage III. Support to agroindustrial conversion and modernization

- Preinvestment studies will be carried out on selected topics in order to have a portfolio of profiles of projects which will expedite, over the short and medium terms, the conversion and modernization of the agroindustrial subsector. The profiles will be based on existing documentation, and will deal

The Information System to be set up will be integrated into the Trade and Export Information Network

A portfolio of project profiles will contribute, in the short and medium term, to agroindustrial conversion and modernization

In addition to the matters covered in this section, the strategy includes the proposals set forth in the following documents: i) Regional Program for Production of Edible Vegetable Oils and Fats, prepared by the CABEL, with additional preinvestment requirements of US\$1 million; ii) Information Network for Micro-, Small-, and Medium-scale Firms and Agroindustry in Central America, prepared by CADESCA, with preinvestment requirements of US\$2,216,200; iii) Central American Program for Kenaf Bleaching and Pulping, prepared by ECLAC, with preinvestment requirements of US\$325,000. The documents have been submitted through the Inter-institutional Group of the Agricultural Sector (GISA).

National policies will be harmonized and flexible mechanisms set up at the regional level.

with production specialization and the possibility of achieving economies of scale at the regional level.

- A regional fund will be created to promote investment in rural development.

Stage IV. Reinforcement

- Policies will be harmonized and the necessary mechanisms established to ensure viability at the regional level.
- Investment projects on agroindustrial conversion and modernization will be presented and negotiated.

5. Projects and Components

The Regional Program for Agroindustrial Development has two components:

- a. Regional technical cooperation and preinvestment component
- b. National investment projects

a. THE REGIONAL TECHNICAL COOPERATION AND PREINVESTMENT COMPONENT

Technical Cooperation

Agroindustrial Information, Dissemination and Coordination System.
The most important actions are listed below:

- Determination of minimum information needs
- Formulation of the annual technical training program for public and private institutions

The Information System should include up-to-date base information on production, technology, legal provisions, financing and markets.

The inputs for the Information System will consider the following:

- Area, production and yields of selected agricultural commodities
- Level of technology incorporated in firms
- Governmental agreements, norms, regulations, laws and provisions
- Funding needs and opportunities
- Prices and trade of agroindustrial commodities

The Information System will be a part of the Central American Trade and Export Information Network, for which SIECA is responsible. The executing unit of the Regional Program will be in charge of integrating this system into the regional network.

Inventory and analysis of Central American agroindustry for export
A complete diagnosis (inventory and analysis) of the region's agroindustry will be drawn up. This will consist of preparing a proposal for regional and national assessments. The inventory and analysis will cover economic, political, institutional and legal topics, and will facilitate identification of institutional and technical factors that will encourage the adoption of general and specific policies on regional agroindustrial development.

Proposal on regional coordination of agroindustrial development policies

This will involve drawing up a proposal for region-wide policy harmonization which analyzes the following: current agroindustrial policies; region-wide harmonization of existing legislation; national and regional bodies involving the private sector in regulation and decision-making related to coordinating agroindustrial production.

Training program.

Training programs will be scheduled consisting of courses, workshops, and seminars for mid-level technicians of the region's light metal industry. The objective is to equip them to contribute to tasks related to the transformation and modernization of agroindustry.

Training activities are included, especially for mid-level technicians of the light-metal industry.

Laboratory services for quality control

A proposal will be formulated for analyzing the region's requirements for quality-control laboratories for agroindustrial exports. The study will evaluate the current status of such institutions. The usefulness of current methods will be analyzed and methods will be proposed that boost modernization and efficiency.

Preinvestment

Preparation of an Investment Profile Portfolio

Studies on agroindustrial conversion and modernization will be analyzed and brought up to date for selected agricultural products. On this basis, investment project profiles will be prepared and then submitted to the Central American Bank for Economic Integration (CABEI).

The fields of agroindustrial activity covered by this component are as follows:

Vegetable oils and fats

- Oilseeds with long growing cycle: African palm, coconut and jojoba
- Oilseeds with short growing cycle: cotton, peanut, sunflower, soy and sesame
- Production of margarine and other solid edible fats

- Production of chemically-modified vegetable oils for industrial use

Milk and dairy products

- Production and packaging of "long shelf-life" milk by UHT or similar processes
- Production of enriched milk for infants
- Other byproducts (cheese, butter, ice cream, etc.)

Coffee

- Preparation of decaffeinated coffee
- Production of coffee liqueurs
- Production of coffee-derived "aromas"
- Preparation of instant coffee
- Preparation of coffee substitutes

Nonexportable banana production

- Banana meal for baby foods
- Production of industrial syrups
- Production of dehydrated bananas
- Production of honey substitutes
- Production of raw materials for manufacture of animal feed supplements

Production of sugar and sugar byproducts

- Fuel alcohol
- Industrial alcohol
- Manufacture of alcoholic beverages
- Preparation of products for confectionery industry
- Improvement in processes for sugarloaf preparation
- Preparation of caramel for use as a coloring
- Utilization of bagasse for paper manufacture
- Utilization of bagasse as raw material source for manufacture of animal feed concentrates

The initial goal is to support production and processing of vegetable oils and fats, milk, coffee, bananas, sugar, cocoa, fruit and vegetables.

The identification of sugar-related projects will focus on alcohol and sugar processing chemistry, in line with CORECA's strategy for converting the sugar industry.

Cocoa processing

- Manufacture of highly-soluble chocolate powder
- Manufacture of fragrances and essences
- Production of liqueurs
- Inputs for chocolate and chocolate-coated confectionery
- Cocoa paste
- Cocoa butter (fat and oil)

Processing of fruit and vegetables

- Production of dried fruit and vegetables
- Production of juices, pulp, concentrates, marmalades and preserves
- Production of homogenized baby food
- Use of vegetable coloring for the food industry
- Pectin production from citrus and apple peels
- Study of the possibility of using industrial waste as raw material for animal feed supplements

Agroindustrial processing creates jobs and promotes foreign-exchange savings through import substitution.

Definition of the Regional Program's executing unit

The Regional Program will provide support to the resolutions of the June and July 1990 meetings of the vice presidents and ministers of agriculture, which call for the establishment of a Regional Advisory Committee for Agroindustrial Development.

This committee's decision-making authority will lie at the ministerial level. Its Technical Secretariat will operate out of IICA and will be directly responsible for the execution of the Regional Program for Agroindustrial Development.

A Regional Advisory Committee for agroindustrial development will be set up. The Technical Secretariat will operate out of IICA.

Regional Fund for rural agroindustrial development

The Central American Bank for Economic Integration (CABEI) has carried out studies with estimates of the funding needed to support agroindustrial development in the region. Based upon CABEI's estimates, this Regional Program aims to create a regional fund for financing preinvestment and investment studies on the agroindustrial sector, with emphasis on rural development.

The Fund will finance the following areas of production activity, in order of importance: 1) oils, fats, milk and dairy products; 2) coffee and sugar cane; 3) bananas, meat, cocoa, etc. The disbursement period will be four years, to begin as soon the surveys on investment and working-capital needs provide concrete information.

The Regional Agroindustrial Development Fund will finance priority production activities.

The Fund will be implemented in three phases:

- Determination of the effective demand for funding of the private and public sectors in the countries of the area
- Formulation of studies and proposal of institutional mechanisms for the Fund's operation
- Preparation of a Special Regional Agreement for implementation of the Fund. This will include norms for facilitating and ensuring the intra-regional trade of agroindustrial products.

b. NATIONAL INVESTMENT PROJECTS

The Regional Program includes the development of the following investment projects. Each one is described in more detail in the attached project profiles.

Costa Rica-Agroindustrial Development of Oil Palm in the Central Pacific and Brunca Regions

| | |
|--------------------|--|
| <i>Costa Rica</i> | -Agroindustrial Development of Coconut Palm in the Atlantic Huetar Region -Fomento Agroindustrial de la Nuez del Cocotero en la Región Huetar Atlántica |
| <i>El Salvador</i> | -Promoting the Cultivation and Processing of Cassava -Promoting the Cultivation and Processing of Soybeans |
| <i>Guatemala</i> | -Producing and Processing Oilseeds |
| <i>Honduras</i> | -Promoting Soybean Cultivation |
| <i>Nicaragua</i> | -Nicaragua-Promoting Sesame Cultivation -Promoting Cotton Cultivation |
| <i>Panama</i> | -Center for Research and Technology Transfer for Agroindustrial Development (design, construction and equipping) |

III. ORGANIZATIONAL STRUCTURE

1. Executing Unit

Regional Program's executing unit: Technical Secretariat of the Regional Advisory Committee, in close collaboration with the private sector

The executing unit of the Regional Program for Agroindustrial Development will be the Technical Secretariat of the Regional Advisory Committee, with headquarters at the Inter-American Institute for Cooperation on Agriculture (IICA).

IICA will designate a general coordinator to direct the Secretariat according to administrative provisions of the Regional Advisory Committee. This coordinator will be responsible for informing the Advisory Committee periodically on the progress of the Regional Program.

The executing unit's functions are:

- To negotiate the terms of reference for the hiring of consultants
- To establish mechanisms for monitoring and evaluating the Regional Program
- To make periodic reports on the Regional Program's progress
- To provide orientation for the actions of the Regional Program's various components
- To establish national advisory committees in each of the countries. The committees will be made up of representatives from the private sector and the institutions concerned with agroindustrial development.
- To coordinate the channeling of credits for new investments with the Central American Bank for Economic Integration, ensuring that the policies adopted by the Advisory Committee are followed.

National advisory committees will also be established.

2. Plan of Action

The Regional Program will have a four-year duration. The most important activities will be scheduled as follows:

Duration of Regional Program
four years

| Activity | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| -Strengthening of Advisory Committee | x | | | |
| -Establishment of executing unit | x | | | |
| -Design and Implementation of information system | x | x | | |
| -Terms of reference for consultants | x | | | |
| -Inventory | x | | | |
| -Proposed policy harmonization | x | | | |
| -Courses for light-metal industry | x | x | | |
| -Laboratory services proposal | x | | | |
| Investment profiles portfolio | | | | |
| -Edible oils and fats | x | | | |
| -Milk and dairy products | x | | | |
| -Coffee processing | x | x | x | |
| -Products of nonexportable bananas | x | x | x | |
| -Sugar cane and byproducts | x | | | |
| -Cocoa processing | x | x | x | |
| -Fruit and vegetable processing | x | x | x | |
| -Negotiation of portfolio of agroindustrial projects | | x | x | x |
| -Creation and operation of regional fund for rural agroindustrial development | x | x | x | x |

3. Participating Institutions

Institutions participating in the Regional Program for Agroindustrial Development are:

The Regional Program will receive support from specialized regional organizations, the countries' ministries of agriculture and of the economy, and private enterprise.

Interamerican Institute for Cooperation on Agriculture (IICA), which will be the headquarters for the executing unit; the Central American Bank for Economic Integration (CABEI), which will administer and channel loans to the agroindustrial sector. SIECA and CADESCA will provide advisory services to the technical secretariat of the Advisory Committee through specific agreements.

The ministries of agriculture and of the economy of each country will participate through their agroindustry-related divisions. Finally, private enterprise will participate through the national advisory committees.

IV. COSTS AND FINANCING

1. Costs

The total cost of the Program is US\$269,427,100; this includes the cost of national investment projects.

Regional Program's total cost: US\$269,427,100, which includes the cost of the national investment projects.

The breakdown by regional and national component is as follows:

| Components | US\$ X 000 |
|--|------------------|
| 1. Regional Technical Cooperation and Preinvestment Component (A+B+C+D) | 69 755.2 |
| <i>A. Technical cooperation</i> | 1 141.9 |
| Agroindustrial information system | 730.0 |
| Agroindustrial inventory and analysis | 44.4 |
| Policy harmonization proposal | 172.5 |
| Training program | 95.0 |
| Quality-control laboratory services | 100.0 |
| <i>B. Formulation of investment profiles for portfolio</i> | 4 922.5 |
| -Vegetable oils and fats | 921.0 |
| -Dairy agroindustry | 443.5 |
| -Coffee agroindustry | 809.5 |
| -Sugar agroindustry | 953.0 |
| -Products of nonexportable bananas | 692.0 |
| -Cocoa agroindustry | 472.5 |
| -Fruit and vegetable agroindustry | 631.0 |
| <i>C. Executing unit</i> | 450.8 |
| <i>D. Rural Agroindustrial Development Fund</i> | 63 240.0 |
| 2. National Investment Projects | 199 671.9 |
| <i>Costa Rica</i> | |
| -Oil palm | 12 710.7 |
| -Coconut palm | 24 353.8 |
| <i>El Salvador</i> | |
| -Cassava | 2 269.3 |
| -Soybeans | 25 916.0 |
| <i>Guatemala</i> | |
| -Oilseeds | 21 745.2 |
| <i>Honduras</i> | |
| -Soybeans | 8 531.1 |
| <i>Nicaragua</i> | |
| -Sesame | 6 903.2 |
| -Cotton | 94 167.0 |
| <i>Panama: Agroindustrial Research Center</i> | 3 075.4 |
| TOTAL REGIONAL PROGRAM (1+2) | 269 427.1 |

The regional preinvestment and technical cooperation component represents approximately US\$70 million of the Regional Program's total cost.

The total cost of the national investment projects is more than US\$150 million.

2. Financing

The financing needs of the national investment projects is described in the corresponding profiles. The following table shows the financing of the regional technical cooperation and preinvestment component. A more detailed breakdown of funds appears in the Annex.

The local contribution in technical cooperation will amount to US\$235,300, and in preinvestment, US\$1,462 million.

The Regional Rural Agroindustrial Development Fund consists of a local contribution of US\$12.54 million and an external contribution of US\$50.7 million.

| Category | US\$ X 000 | |
|--|-----------------------|--------------------------|
| | A) Local contribution | B) External contribution |
| 1. Technical Cooperation | 235.3 | 906.6 |
| -Agroindustrial Information System | 127.0 | 603.0 |
| -Agroindustrial analysis and inventory | 12.4 | 32.0 |
| -Policy harmonization | 46.0 | 126.5 |
| -Training program | 29.4 | 65.6 |
| -Quality-control laboratory services | 20.5 | 79.5 |
| 2. Preinvestment | 1 462.0 | 3 460.5 |
| -Oils and fats | 248.2 | 672.8 |
| -Milk and dairy products | 170.6 | 272.9 |
| -Coffee | 338.9 | 470.6 |
| -Products of nonexportable bananas | 210.2 | 481.8 |
| -Sugar and byproducts | 229.3 | 723.7 |
| -Cocoa production | 114.5 | 358.0 |
| -Fruits and vegetables | 150.3 | 480.7 |
| 3. Executing unit | 125.4 | 325.4 |
| 4. Regional Rural Agroindustrial Development Fund | 12 540.0 * | 50 700.0 |
| Total (1+2+3+4) | 14 362.7 | 55 392.5 |
| Grand total (A+B) | | 69 755.2 |

*This includes US\$80,000 in contributions from regional organizations.

V. ANALYSIS

1. Technical Analysis

Modern technology-transfer and agroindustrial conversion are feasible activities for countries of the isthmus. Existing infrastructure as well as the present and potential volume of the region's agricultural output, justifies the purchase of equipment and the adoption of modern technology for agroindustrial purposes.

The increased efficiency resulting from the industrial processes and the higher-quality products will facilitate entry into the international market on a sound competitive basis.

A significant number of technical personnel already employed in existing agroindustry will actively participate (after receiving the

necessary additional training) in the process to convert and adopt modern technology.

2. Institutional Analysis

The institutional feasibility of the Regional Program is ensured by the experience of participating institutions. The Inter-American Institute for Cooperation on Agriculture (IICA), through its support to CORECA's Technical Secretariat, has promoted the harmonization of agricultural policies in Central America. In addition, it executes important technical cooperation projects in support of agricultural development.

The Central American Bank for Economic Integration (CABEI) is the natural financing agency of the integration process. Its prestige and solvency are internationally renowned.

The Regional Advisory Committee, which will be the Regional Program's highest decision-making body, will ensure active involvement on the part of agricultural-sector institutions. It will work in close cooperation with the private sector, which will be represented by a voting member on the national advisory committee in each country.

3. Legal Analysis

In the initial phase, the Regional Program does not face any obstacles to its implementation in relation to existing legal frameworks and institutional structure. However, independent development processes have given rise to legislation which will need to be harmonized if the Regional Program is to truly contribute to Central American economic integration.

The harmonization of agroindustrial legislation will not be difficult to achieve, given the clear and unequivocal political readiness of the Central American governments to foster agroindustrial development.

4. Regional Program Impact

New products will enter international markets and significant progress will be made to integrate Central American agroindustry. By modernizing processing procedures, efficiency will increase and Central American products will enter the international market on a sound competitive basis. Policy harmonization related to agroindustry will contribute to Central American integration.

New investments will be supported through the Regional Agroindustrial Development Fund, which is designed to benefit the rural area in particular.

National investment projects will contribute to replacing imported foodstuffs and to promoting foreign-exchange savings and generation. In addition, they represent an important source of jobs.

ANNEX
REGIONAL TECHNICAL COOPERATION AND
PREINVESTMENT COMPONENT
COSTS BY PROPOSAL AND DESTINATION

Proposal 1
Regional Agroindustrial Information Network

| CONTRIBUTIONS | | | | | |
|---------------------------------|------------|---------------------|----------------|--------------|--------------------------|
| DESCRIPTION | NUMBER | EMPLOYEE /MONTHS | COUN- TRIES | EXTERNAL | TOTAL (US\$ X 000) |
| TOTAL | | (1260) | 127.0 | 603.0 | 730.0 |
| a) PERSONNEL | | (504) | 72.0 | 364.0 | 436.0 |
| External consultant | 1 | 24 | - | 72.0 | 72.0 |
| Regional counterpart | 1 | 24 | 36.0 | | 36.0 |
| Assistants | 2 | 48 | | 48.0 | 48.0 |
| Secretaries | 7 | 168 | | 100.0 | 100.0 |
| National representatives | 5 | 120 | | 144.0 | 144.0 |
| National collaborators | 5 | 120 | 36.0 | | 36.0 |
| b) MEETINGS AND MISSIONS | | | | 23.0 | 23.0 |
| Coordination missions | (50 días) | | | 5.0 | 5.0 |
| Coordination missions 8 | 8 | | | 4.0 | 4.0 |
| Supervision (PD) | (60 días) | | | 6.0 | 6.0 |
| Supervision (F) | (16) | | | 8.0 | 8.0 |
| c) TRAINING | | | | 18.0 | 18.0 |
| Per diems (PD) | (120 días) | | | 10.0 | 10.0 |
| Fares (F) | (16) | | | 8.0 | 8.0 |
| d) EQUIPMENT | | | | 83.4 | 83.4 |
| Computers | (8) | | | 24.0 | 24.0 |
| Communications (fax) | (5) | | | 13.0 | 13.0 |
| Furniture | (8) | | | 16.0 | 16.0 |
| Secretarial equipment | (7) | | | 15.0 | 15.0 |
| Other equipment | (7) | | | 15.0 | 15.0 |
| e) MATERIALS AND OTHERS | | | 55.0 | 30.0 | 85.0 |
| General supplies | | | | 25.0 | 25.0 |
| Electronic communications | | | 15.0 | | 15.0 |
| Rents and services | | | 40.0 | | 40.0 |
| Repairs | | | | 5.0 | 5.0 |
| f) MISCELLANEOUS | | | | 10.0 | 10.0 |
| g) CONTINGENCIES | | | | 75.0 | 75.0 |

(PD)= Per diems (F)= Fares

Note: Figures in parentheses are not totaled.

Proposal 2 Inventory and Analysis of Agroindustry

| CONTRIBUTIONS | | | | | |
|-------------------------------------|--------|--------------------------------------|----------------|-------------|--------------------------|
| DESCRIPTION | NUMBER | CATE- GORY | COUN- TRIES | EXTERNAL | TOTAL (US\$ X 000) |
| TOTAL | | | 12.4 | 32.0 | 44.40 |
| a) PERSONNEL | 9 | | 12.4 | 15.0 | 27.40 |
| External consultant | 3 | months | | 15.0 | 15.00 |
| CABEI counterpart | 1 | month | 3.0 | | 3.00 |
| ECLAC counterpart | 1 | month | 4.0 | | 4.00 |
| SIECA counterpart | 1 | month | 3.0 | | 3.00 |
| Secretary | 3 | months | 2.4 | | 2.40 |
| b) MISSIONS | | | 8.00 | 8.0 | |
| Per diems ¹ | 44 | days | | 5.5 | 5.50 |
| Fares ² | 5 | fares | | 2.5 | 2.50 |
| c) MATERIALS AND OTHERS | | | | 5.0 | 5.00 |
| General supplies | | office supplies ³ | | 2.0 | 2.00 |
| Communications | | calls and docu- menta- tion | | 2.0 | 2.00 |
| Fax ⁴ | | | | | |
| Others | | | | 1.0 | 1.00 |
| d) CONTINGENCIES⁵ | | | | 4.0 | 4.00 |

¹Trips for counterpart and consultant (two) = five trips

²32 days for the first trips; 12 days for second trip = 44 days

³This includes final publication of document.

⁴Regional communications

⁵10 percent of total cost

Proposal 3 Harmonization of Regional Policies

| DESCRIPTION | NUMBER | CONTRIBUTIONS | | | TOTAL (US\$ X 000) |
|---|-----------|---------------------|-------------|--------------|-----------------------|
| | | EMPLOYEE/ MONTHS | COUNTRIES | EXTERNAL | |
| a) PERSONNEL | | | | | |
| <i>Stage 1</i> | 9 | 9 | 7.2 | 9.0 | 16.2 |
| Organization officials | 4 | 4 | 6.0 | | 6.0 |
| International consultants | 3 | 3 | | 9.0 | 9.0 |
| Secretaries | 2 | 2 | 1.2 | | 1.2 |
| <i>Stage 2</i> | 8 | 16 | 11.4 | 18.0 | 29.4 |
| Organization officials | 3 | 6 | 9.0 | | 9.0 |
| International consultants | 3 | 6 | | 18.0 | 18.0 |
| Secretaries | 2 | 4 | 2.4 | | 2.4 |
| <i>Stage 3</i> | 10 | 18 | 17.4 | 18.0 | 35.4 |
| Organization officials | 5 | 10 | 15.0 | | 15.0 |
| International consultants | 3 | 6 | | 18.0 | 18.0 |
| Secretaries | 2 | 4 | 2.4 | | 2.4 |
| b) FARES AND PER DIEMS | | | | 28.0 | 28.0 |
| Fares | 32 | | | 16.0 | 16.0 |
| Per diems | 96 (días) | | | 12.0 | 12.0 |
| c) EQUIPMENT AND MATERIALS | | | | 45.0 | 45.0 |
| Equipment | | | | 5.0 | 5.0 |
| Materials | | | | 20.0 | 20.0 |
| Communications | | | | 20.0 | 20.0 |
| d) OTHER CONTRIBUTIONS (Governments and organizations) | | | 10.0 | | 10.0 |
| e) CONTINGENCIES (5%) | | | | 8.5 | 8.5 |
| TOTALS | - | - | 46.0 | 126.5 | 172.5 |

Proposal 4 Light-Metal Industry Training Program

| Category | A) Country contributions | B) External contributions |
|--------------------------|--------------------------|---------------------------|
| 5.4 employee/months | | 27 000 |
| 20 employee/months E.C.* | 24 000 | |
| Training | | 21 000 |
| Missions | 5 000 | |
| Equipment and materials | 2 400 | 9 600 |
| Others | 3 000 | 3 000 |
| Subtotal | 29 400 | 65 600 |
| Total (A+B) | | US\$ 95 000 |

*E.C. = External consultant

*N.C. = National consultant

Proposal 5
Quality-Control Laboratory Services

| Category | A) Country contributions | B) External contributions |
|-------------------------|--------------------------|---------------------------|
| 6 employee/months E.C.* | | 18 000 |
| 6 employee/months N.C.* | 12 000 | |
| Meetings | | 5 000 |
| Training | | 20 000 |
| Missions | | 10 000 |
| Equipment and materials | 6 000 | 24 000 |
| Others | 2 500 | 2 500 |
| Subtotal | 20 500 | 79 500 |
| Total (A+B) | | US\$ 100 000 |

*E.C. = External consultant
*N.C. = National consultant

Proposal 6
Conversion and Modernization of AgroIndustry Producing Vegetable Oils and Fat

| Category | A) Country contributions | B) External contributions |
|----------------------------|--------------------------|---------------------------|
| 64.5 employee/months E.C.* | | 460 000 |
| 63.0 employee/months N.C.* | 200 000 | |
| Meetings | | 17 000 |
| Training | | 61 000 |
| Missions | | 53 000 |
| Equipment and materials | 11 200 | 44 800 |
| Other | 37 000 | 37 000 |
| Subtotal | 248 200 | 672 800 |
| Total (A+B) | | US\$ 921 000 |

*E.C. = External consultant
*N.C. = National consultant

Proposal 7
Development and Modernization of Dairy AgroIndustry

| Category | A) Country contributions | B) External contributions |
|--------------------------|--------------------------|---------------------------|
| 34 employee/months E.C.* | | 165 000 |
| 60 employee/months N.C.* | 158 000 | |
| Meetings | | 32 500 |
| Training | | 17 000 |
| Missions | | 35 000 |
| Equipment and materials | 3 600 | 14 400 |
| Other | 9 000 | 9 000 |
| Subtotal | 170 600 | 272 900 |
| Total (A+B) | | US\$ 443 500 |

*E.C. = External consultant
*N.C. = National consultant

Proposal 8
Conversion of Coffee Agroindustry

| Category | A) Country contributions | B) External contributions |
|---------------------------|--------------------------|---------------------------|
| 56 employee/months E.C.* | | 250 000 |
| 110 employee/months N.C.* | 316 000 | |
| Meetings | | 53 000 |
| Training | | 60 000 |
| Missions | | 65 500 |
| Equipment and materials | 6 400 | 25 600 |
| Other | 16 500 | 16 500 |
| Subtotal | 338 900 | 470 600 |
| Total (A+B) | | US\$ 809 500 |

*E.C. = External consultant

*N.C. = National consultant

Proposal 9
Processing of Nonexportable Bananas

| Category | A) Country contributions | B) External contributions |
|--------------------------|--------------------------|---------------------------|
| 63 employee/months E.C.* | | 309 000 |
| 91 employee/months N.C.* | 185 000 | |
| Meetings | | 35 500 |
| Training | | 43 000 |
| Missions | | 50 500 |
| Equipment and materials | 6 200 | 24 800 |
| Other | 19 000 | 19 000 |
| Subtotal | 210 200 | 481 800 |
| Total (A+B) | | US\$ 692 000 |

*E.C. = External consultant

*N.C. = National consultant

Proposal 10
Conversion of Sugar Agroindustry

| Category | A) Country contributions | B) External contributions |
|--------------------------|--------------------------|---------------------------|
| 71 employee/months E.C.* | | 350 000 |
| 65 employee/months N.C.* | 190 000 | |
| Meetings | | 59 000 |
| Training | | 133 000 |
| Missions | | 119 000 |
| Equipment and materials | 7 800 | 31 200 |
| Other | 31 500 | 31 500 |
| Subtotal | 229 300 | 723 700 |
| Total (A+B) | | US\$ 953 000 |

*E.C. = External consultant

*N.C. = National consultant

Proposal 11
Conversion of Cocoa Agroindustry

| Category | A) Country contributions | B) External contributions |
|--------------------------|--------------------------|---------------------------|
| 44 employee/months E.C.* | | 220 000 |
| 38 employee/months N.C.* | 97 000 | |
| Meetings | | 23 500 |
| Training | | 45 000 |
| Missions | | 37 000 |
| Equipment and materials | 5 000 | 20 000 |
| Other | 12 500 | 12 500 |
| Subtotal | 114 500 | 358 000 |
| Total (A+B) | | US\$ 472 500 |

*E.C. = External consultant
*N.C. = National consultant

Proposal 12
Development and Modernization of Fruit and Vegetable Agroindustry

| Category | A) Country contributions | B) External contributions |
|--------------------------|--------------------------|---------------------------|
| 42 employee/months E.C.* | | 215 000 |
| 54 employee/months N.C.* | 120 000 | |
| Meetings | | 60 500 |
| Training | | 68 000 |
| Missions | | 80 500 |
| Equipment and materials | 8 800 | 35 200 |
| Other | 21 500 | 21 500 |
| Subtotal | 150 300 | 480 700 |
| Total (A+B) | | US\$ 631 000 |

*E.C. = External consultant
*N.C. = National consultant

Proposal 13
Coordination of Regional Agroindustrial Development Program

| Category | A) Country contributions | B) External contributions |
|--------------------------|--------------------------|---------------------------|
| 36 employee/months E.C.* | | 180 000 |
| 36 employee/months N.C.* | 90 000 | |
| Meetings | | 23 200 |
| Training | | 24 000 |
| Missions | | 34 800 |
| Equipment and materials | 1 300 | 5 300 |
| Other | 46 100 | 46 100 |
| Subtotal | 137 400 | 312 400 |
| Total (A+B) | | US\$ 450 800 |

*E.C. = External consultant
*N.A. = National consultant

Proposal 14
Regional Rural Agroindustrial Development Fund

Cost summary for formulating, establishing and implementing the Fund

| ITEM | COSTS AND FUNDING SOURCE | | | TOTAL | PER-CENTAGE (%) |
|----------------------|----------------------------|-----------------------------------|--------------------------|----------------|-----------------|
| | Regional organizations (1) | Central American institutions (2) | Cooperating institutions | | |
| Stage 1 ¹ | 40.0 | 60.0 | 110.0 | 210.0 | 0.3 |
| Phase 1 | 20.0 | 20.0 | 60.0 | 100.0 | - |
| Phase 2 | - | 10.0 | 40.0 | 50.0 | - |
| Phase 3 | 20.0 | 30.0 | 10.0 | 60.0 | - |
| Stage 2 ² | 40.0 | 12400.0 | 50590.0 | 63030.0 | 99.7 |
| Assessments | - | 200.0 | 290.0 | 490.0 | - |
| Feasibility | 40.0 | 200.0 | 300.0 | 540.0 | - |
| Execution Fund | - | 12000.0 | 50000.0 | 62000.0 | - |
| TOTAL | 80.0 | 12460.0 | 50700.0 | 63240.0 | (100.0) |
| Percentages (%) | 0.1 | 19.7 | 80.2 | 100.0 | |

(1) Countries and meetings of Central American technical personnel, technical councils, ministers, and work at the national level

(2) Central American institutions (CABEI, SECA, ICATI, CORECA, etc.)

(3) Technical cooperation institutions, organizations and agencies

¹ Only technical cooperation and institutional advisory support

² To be executed during the period (four years)

COSTA RICA

AGROINDUSTRIAL DEVELOPMENT OF COCONUT PALM IN THE HUETAR ATLANTIC REGION

(Project)

1991

PROJECT CAM-90-002 UNDP/PAHO/PEC

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INTRODUCTION

For several years, Costa Rica has made efforts to promote coconut palm cultivation at the commercial level. In 1978, a specialized commission was created for this purpose, and it attracted the interest of some producers. However, the initiative was hampered by the lack of capacity for industrializing this product.

In the 1980s, a program for research and the production of plant stock was carried out, in an attempt to solve the problems peculiar to the Atlantic zone. As a result, appropriate technology for this crop was developed. The country has a World Bank loan for US\$26 million to finance the Atlantic Zone Agricultural Development Project (PRODAZA). The Banco Nacional, the bank administering funds for agricultural credit, is ready to channel resources for rehabilitating and sowing coconut plantations, if available markets exist.

The Project reinforces the initiatives of the government and private sector. It supports efforts now under way to raise the levels of technology for growing the crop, and to industrialize and market it.

I. FRAME OF REFERENCE

1. Macroeconomic Setting and Its Impact on the Project

During the 1980s, the gross domestic product grew at an annual rate of 4.7 percent; the most dynamic sectors were agriculture, with a growth rate of 3.9 percent, and industry, at 5.5 percent. Exports grew by five percent. The agricultural sector has the highest share, comprising more than 66 percent of all exports. During the last years of the decade, nontraditional products also became more muscular. In 1980, they represented only 3.4 percent of all exports; by 1989, they had risen to 21 percent.

This is due to a series of policies designed to improve the efficiency of the different sectors and strengthen infrastructure, refitting the production environment to promote nontraditional exports. The following can be mentioned among the macroeconomic and sectoral measures that were taken:

- The exchange rate was subjected to a series of crawling-peg devaluations; this provided an incentive for exports and maintained the national currency at a realistic value against the dollar.

An increase in production and overseas shipments of nontraditional products, such as the Costa Rican economic policy environment, with which the activities proposed herein are in complete accord.

The Project will be under the responsibility of the Ministry of Agricultural Development (MIDA) during its initial phase. The National Directorate of Agroindustries of MIDA will be the executing unit. Subsequently, private-sector organizations will participate.

I. FRAME OF REFERENCE

1. Macroeconomic Setting and Its Impact on the Project

Panama's economic development is based on the growth of the tertiary sector, which, in fact, has grown more and become more efficient than the primary and secondary sectors of the economy. The difference is even greater when compared with the agricultural and agroindustrial sectors.

Rural and agroindustrial growth must go hand-in-hand in the agricultural reactivation process in order to strengthen the economies of Central America.

During the 1990s, the country's development model must be based on joint and complementary growth of the agricultural and agroindustrial sectors. In order to allow for more balanced development, new investments will have to be made in technological development; this will allow for the development of the potential of agriculture with a greater economy of production resources.

The absorption of investment resources under the prevailing economic development model has hindered the nation's efforts to establish a modern production structure. The failure to provide adequate support for the production sectors and, in particular, to diversify the production structure of agriculture by linking it to a parallel growth of certain branches of agroindustry, has led to a high degree of dependency on food imports.

A solution to the lack of research in agroindustrial technology in Panama is sought.

Institutional efforts to promote the agroindustrial sector have been inadequate and short-lived. The private sector has limited its investments because of the high cost of setting up agroindustrial enterprises. This is due especially to the lack of technological research on the country's potential resources for agroindustry and to the weak infrastructure of production services for facilitating the installation of agroindustries in the interior.

Following are some indicators which give an idea of the real dimensions of Panama's incipient agroindustrial development:

- Agroindustrial GDP is 116 million balboas at 1970 prices (1980-1989 average).
- There are about 500 agroindustrial companies, most of which are concentrated in the capital: two-thirds are located in Panama City.

- Agroindustrial companies with five or more employees generate about 20,000 jobs.

2. Analysis of Production Options and of the Technical Environment

Contrary to the case in other countries of the isthmus, agroindustry has grown very slowly in Panama. One of the main reasons for this is that Panama does not have an agency or center to promote technological development in the agroindustrial sector by adapting and generating processing technologies, testing industrial processes and equipment, and supporting the installation, erection and testing of equipment for new companies. Such a Center could offer low-cost services to local investors in connection with industrial research, the selection and purchase of equipment, and the negotiation of contracts with suppliers of technology.

Capabilities must be developed for the creation and adjustment of technologies, the testing of processes and equipment, and the setting up of equipment in new companies.

Furthermore, existing companies lack mechanisms for transferring industrial technology and, hence, are not able to rapidly adopt new equipment, carry out large-scale industrial reconversion or modernize their plants with new technologies.

In order to achieve agroindustrial development, Panama needs a specially-equipped Technology Center for conducting experimental tests of raw materials processed in pilot plants, of processing technologies using different kinds of industrial equipment and of different types of containers and methods for preserving processed goods. The Center will be able to certify quality control of finished goods. Its services will cover every aspect of agroindustrial technology, from the treatment of raw materials to the commercial packaging of the finished product, thus helping to establish the new structural bases of agroindustrial development.

The proposed Technology Center will serve the entire country. Specialized services for agroindustrial research and technology transfer will be aimed especially at helping farmers and promoting enterprises set up by them in the interior of the country.

The Project will be a joint effort on the part of the State and private enterprise.

The project proposes a joint effort on the part of the State and the private sector in setting up the Technology Center, in order to reduce the cost of initiating and sustaining agroindustrial research on new products for the market, generating technological processes for the development of domestic raw materials, or testing agroindustrial equipment manufactured by the Central American machine and engineering industry.

The need for an agroindustrial research center in Panama is clear, although it must be borne in mind that the creation of such an agency will not solve the country's socioeconomic problems. Rather, it will supplement the efforts begun by MIDA in the agroindustrial sector.

The Center will directly benefit 500 agroindustrial companies, and numerous employment opportunities will be created.

3. Socioeconomic Situation of the Potential Beneficiaries

The direct beneficiaries of the Project will be the 500 agroindustrial companies currently operating in Panama, as well as those potential investors interested in agroindustrial projects. It will also benefit rural producers who are not always able to market their fresh produce immediately, and whose efforts are often wasted because of the lack of integration of farming with agroindustry.

There is a marked disparity in the distribution of urban-industrial and rural-agricultural incomes, due to the concentration of services in the metropolitan areas.

With respect to employment, the situation is critical, with unemployment in the country estimated at 25 percent. The situation is more critical and complex in the rural areas because of the marked seasonal nature and subsistence level of economic activity. The installation of agroindustries promoted by the center will have a particularly strong impact on labor-intensive technologies.

4. Institutional Conditions

The National Directorate of Agroindustries of MIDA will play an especially important role in Project implementation, as it will be the leading agroindustrial development institution in the country. Its main tasks will include the following:

- Study, promote and set standards for the industrial processing of agricultural production
- Stimulate and boost agroindustrial production and productivity through training, transfer of technology and technical assistance to companies
- Disseminate new agroindustrial technologies
- Prepare and standardize agroindustrial investment projects for regional implementation, providing technical orientation, supervision and evaluation services
- Standardize and implement agroindustrial programs carried out by MIDA's regional executive departments and their service agencies
- Cooperate in the development of new lines of production, ensuring diversification of production and better utilization of manpower on agricultural production units
- Maintain communication and coordination with related national, regional and international institutions and agencies, in order to ensure updating and effectiveness of promotional actions

A mechanism will be set up for providing direct technical assistance to companies

The National Directorate of Agroindustries has five departments at the national level and nine regional coordination offices for agroindustries. With respect to human resources, it has a staff of 40 officials carrying out promotional activities throughout the country. Annual funds are appropriated by the central government.

Industrialization of crops will open up new opportunities for producers.

5. Legal Framework

The legal framework in effect for developing the agroindustrial sector must be supplemented by promotional legislation that will provide incentives for and attract new investments, especially in the interior of the country.

The National Directorate of Agroindustries was created by Act No. 12, of January 25, 1973 (Article 139), which establishes that it is to study and promote the agroindustrial processing of agricultural production.

6. The Project in the Context of Regional Integration

The Project envisages the participation of the Central American countries. Cooperation agreements must be set up with research agencies in each one of those countries, such as CITA in Costa Rica and Laboratorio de Alimentos (LABAL) in Nicaragua.

Links will be established with other centers, such as CITA in Costa Rica and LABAL in Nicaragua, as well as with regional organizations.

Relations will also be established with regional agencies such as CATIE, INCAP, IICA and CADESCA, in order to consolidate specialized technical cooperation.

II. PROJECT DESCRIPTION

1. Justification

The development of the agroindustrial sector is of vital importance to the country, not only for the sake of the agricultural sector itself, but also for the development of industrial technology and the reactivation of the overall economy. Agroindustrial development links the agricultural and industrial sectors and helps close the gap between geographical areas -- urban and rural -- while facilitating the establishment of new companies in the interior of the country.

The Project will have a direct impact on the main economic development variables (income, employment, nutrition) as a result of backward and forward linkages with the other sectors of the economy.

The strengthening of agroindustry will reduce poverty levels, generate employment and allow for greater independence with regard to food supply.

Sustained growth in the agroindustrial sector, on the national level, will contribute to the solution of socioeconomic problems derived from the prevailing development model which is based on the tertiary sector. Among other benefits, there will be a reduction in urban social marginality and in rural poverty, the creation of new jobs and a corresponding halt in the rural exodus and, in particular, a reduction in the country's dependency on imported foodstuffs.

Through its broad and intensive efforts to transfer industrial technology, the Center will facilitate more rapid industrial reconversion of noncompetitive agroindustries and enable them to re-enter the international market.

In addition, by offering a technological information system for companies, it will facilitate planning, orientation and support of production activities, thus allowing for ready updating of information on agroindustrial technology. Users will be able to file, process and retrieve data almost immediately.

2. Objectives

General

To establish a Center for Research and Technology Transfer for Agroindustrial Development in Panama

Specific

The main objective of the Project is the establishment of the Center for Research and Technology Transfer for Agroindustrial Development in Panama.

- To design the Technology Center's infrastructure and equipment in detail, in order to provide technology research and testing services through pilot plants and specialized laboratories
- To select processing equipment and install pilot plants for the food industry (flour and flour products, edible vegetable oils and fats, milk and dairy products, meats and meat byproducts, fruits and fruit products, vegetables and vegetable products)
- To select processing equipment and install pilot plants for agroindustry, for the purpose of processing the country's animal and vegetable potential (natural dyes, gums and resins, leathers and furs)
- To strengthen the transfer of agroindustrial technologies in order to support industrial reconversion projects
- To install technology data-processing equipment to allow for consultations by companies and facilitate immediate updating of technological processes and new industrial equipment

The Project will support the industrial reconversion of private enterprises

3. Strategy

The strategy designed to implement the Project will be carried out in two phases. The first one includes the preinvestment study and the supplementary research studies. The second phase covers the investment per se, and has been divided into four stages:

Phase I. Preinvestment studies and design of the Technology Center

This stage begins with the hiring of consulting firms to conduct the feasibility study for the center. It is important to point out that two supplementary research studies will be required. The first one refers to lines of research for certain food industries. The results will determine the types of pilot plants to be offered to potential investors or existing companies. (Flour and flour products, edible vegetable oils and fats, milk and dairy products, meats and meat byproducts, fruits and fruit products, vegetables and vegetable products).

The second research study has to do with the selection of equipment for the pilot plants. It is important to make an inventory of existing equipment and examine the capacity of the Central American machine and engineering industry to manufacture it, with specialized technical assistance. It will be essential to determine the plant size that the Center would recommend for new agroindustrial enterprises. This phase would conclude with the preparation of funding requests for the center and their presentation to cooperating organizations.

The Central American machine and engineering industry will play a decisive role in the manufacture of agroindustrial equipment and machinery.

Phase II. Construction, equipment, training and transfer

Stage 1. Construction of buildings and civil works. This would comprise the hiring of a construction firm, the building of pilot plants, the setting up of services for the plants, and the construction of laboratories, cold-storage facilities, warehouses and offices.

Stage 2. Setting up of pilot plants, laboratory equipment and testing facilities. This would include the selection, purchase and installation of the industrial processes selected. Once the pilot plants are set up, the equipment would be calibrated and technological processes would be tested.

Chemistry, microbiology and sensory evaluation laboratory equipment would be mounted and calibrated for start-up.

Stage 3. Training of managerial and technical personnel, and organization of the Center. Technical staff of the pilot plants, laboratory technicians and other personnel would be trained, in accordance with the types of processing to be conducted in the Center. Support for training efforts would be provided by specialized technical cooperation programs of regional organizations and supplemented by suppliers to the pilot plant.

The new Center will adopt innovations and develop ideas already put into practice by similar organizations in other countries.

The Center's management personnel will have to receive training and visit similar technology centers abroad, in order to become thoroughly familiar with the technical, administrative and managerial aspects of such a center. It is important to take into account the type of contracts entered into between such Technology Centers and their private-sector clients.

Stage 4. Organization and start-up of the Center's research and technology-transfer services. The type of Technology Center proposed will offer agroindustrial research services for the private sector, the findings of which will be available only to the company or potential investors who commission the research.

Arrangements between the Technology Center and its private-sector clients will make it possible to reduce the cost of setting up new companies

The Center will also offer industrial technology-transfer services which will allow for selection of the most appropriate equipment, modernization of technologies used by existing companies and, above all, reduction of installation, assembly and start-up costs for new companies assisted by the Center.

4. Subprojects and Components

The Project is made up of four subprojects:

Subproject 1. Center for Research and Technology Transfer for Agroindustrial Development

This subproject provides for the setting up of the physical structure and equipment necessary for operation of the Center. It envisages construction of the building, the chemistry, microbiology and sensory evaluation laboratories, and the industrial equipment for the Center.

This subproject has three components:

- The pilot plants. The Center will begin with the installation of one pilot plant. Construction plans must make allowance for future expansion, in keeping with the needs of the new companies to be established in Panama. The plant will include the building and equipment necessary for research and testing of the agroindustrial technologies applied in the main processing lines selected in the feasibility study.
- Laboratories, i.e., the chemistry, microbiology, engineering and food-technology laboratories which will be the basis for research on and testing of agroindustrial technology
- Drawing up of proposals for agroindustrial enterprises (profile, prefeasibility and feasibility studies) and market profiles, which will permit planning and orientation of the companies' technological development

Chemistry, microbiology, engineering and food technology laboratories will contribute to future research in agroindustry

Subproject 2. Technology transfer and technical assistance to producers for the setting up of rural agroindustries

This subproject comprises the installation of mobile equipment for processing and product preservation, including all the necessary elements for offering practical training to entrepreneurs, rural producers, and housewives, at their own businesses, farms and schools. Such activities will be decided on according to the production patterns prevailing in the area concerned. Food production and preservation techniques will be applied, in order to facilitate the establishment of small home agroindustries to process local production.

The subproject will support the preparation of teaching materials, the training of personnel in agroindustries and the organization of seminar-workshops for producers and housewives. Equipment for demonstrating technologies to agricultural producers, including food-testing equipment, will be used.

Subproject 3. Documentation and Information Center

This subproject is divided into two components:

- Industrial Technology and Equipment Documentation Center. This consists of a documentation service specializing in food technology and providing orientation for producers and investors. It will have three basic tasks: data collection, storage and processing; dissemination of the information gathered, and training of individuals and personnel on its use.
- Agroindustrial Technology Computer Service. This will consist of an information network linking the main food-processing and other agroindustrial companies, in order to provide them with access to updated information on existing technological processes. It will also provide information on the progress of research on the performance of new equipment available on the international market, and on technological changes in leading companies.

The provision of documentation services in the area of agroindustrial technology and equipment is especially important.

Subproject 4. Quality Control Service for Food Preparation

This subproject includes the design and start-up of a service allowing for the preparation of quality standards for products manufactured by the country's food industries. Furthermore, it will guarantee quality products, compliance with strict health requirements and improved home food-preservation methods.

Quality standards will be established for the food industry.

5. Goals

The proposed schedule for implementation of Project goals is as follows:

The Center will offer research and technology-transfer services for companies and producers

| Description | Goals | |
|--|--------------|-------|
| 1. Feasibility study | Study | 1 |
| 2. Supplementary research studies | Study | 2 |
| Agroindustrial processing lines | | |
| Pilot plant equipment | | |
| 3. Technology Center | | |
| Pilot plants (main line) | Plant | 1 |
| Pilot plants (other processing) | Plants | 4 |
| Laboratories | Laboratories | 3 |
| 4. Rendering of services in: | | |
| Agroindustrial research | Companies | |
| Technology transfer | Companies | |
| | Producers | |
| 5. Technical training | Companies | 10 |
| | Technicians | 250 |
| | Producers | 1 000 |
| 6. Technical assistance to small agroindustries | Companies | 1 000 |
| 7. Documentation Unit | | |
| Library specializing in food technology | Library | 1 |

6. Project Beneficiaries

The direct beneficiaries of the Project are agroindustrial companies and farmers, government officials and institutions, and, in particular, organizations in the private sector.

Direct beneficiaries: 500 companies. New jobs: 20,000. Indirect beneficiaries: 5,000 (five for each producer trained)

Following is a list of types of beneficiaries:

| | |
|--------------------|------------------|
| -Companies | 500 companies |
| -Employees hired | 20,000 employees |
| -Producers trained | 1,000 producers |
| -Officials trained | 40 technicians |

The number of direct beneficiaries is estimated at 5,000. It is estimated that there will be five indirect beneficiaries for every producer trained by the Project.

7. Support Services for Production

Support services for the Technology Center will be coordinated by the following institutions:

- Ministry of Agricultural Development (MIDA), through the General Directorate of Industries

- Credit services for the establishment of companies would be coordinated by the Agricultural Development Bank.
- Improvements in product marketing and preservation will be promoted through advisory services from the Agricultural Marketing Institute.

III. ORGANIZATIONAL STRUCTURE

1. Executing Unit

The National Directorate of Agroindustries of the Ministry of Agricultural Development (MIDA) will serve as executing unit for the Project.

Executing unit: National Directorate of Industries

Subprojects will be implemented by specific departments in the center, i.e., those concerned with technology testing, technical assistance and training and documentation.

2. Plan of Action

The plan of action will be carried out according to the following schedule:

| Description | Years | | | | |
|------------------------------------|-------|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Phase I. Preinvestment | | | | | |
| Preparation of feasibility study | ■ | | | | |
| Research studies | ■ | | | | |
| Phase II. Investment | | | | | |
| Design, construction and equipment | ■ | ■ | ■ | | |
| Final design | | ■ | | | |
| Construction of building | | ■ | | | |
| Equipment for pilot plants | | ■ | | | |
| Equipment for laboratories | | ■ | | | |
| Testing and start-up | | ■ | ■ | | |
| Training and organization | ■ | ■ | ■ | ■ | ■ |
| Training of technicians | ■ | ■ | ■ | ■ | ■ |
| Research and technology transfer | | | ■ | ■ | ■ |
| Documentation center | | | ■ | ■ | ■ |

3. Resources

The resources required for Project execution are as follows:

Construction

- Pilot plant
- Chemistry laboratory
- Microbiology laboratory

Construction of the pilot plant, the laboratories and the administration building represents one fifth of the total cost of the Project.

- Sensory evaluation laboratory
- Building for offices and storage

Laboratory, office and transportation equipment

Laboratory equipment, office equipment and furniture, equipment for the Documentation and Information Center, transportation equipment (2 vehicles with cooking equipment, 4 double-cabin vehicles, 1 light truck)

Materials and inputs

Reagents and materials, maintenance and repairs, raw materials, materials and inputs.

Technical and administrative personnel

- Nine technicians (3 researchers, 2 process advisors, 2 instructors, 2 librarians)
- Nine assistants (8 chemical technologists, 1 food technologist)
- 10 administrative employees (2 directors, 1 coordinator, 1 administrator, 1 accountant, 4 secretaries, 1 driver)

Once it enters into operation, the Center will be a dynamic force in the Panamanian agro-industrial process, and its impact will be felt even at the regional level.

4. Participating Institutions

The institutions that would participate in the Project are the National Directorate of Agroindustries of MIDA, and private companies equipped with laboratories, in accordance with the need for research and mechanisms for testing agroindustrial processes.

Through the joint efforts of the public and private sectors, the Center's research and technology-transfer services will cover the whole spectrum of production in agroindustry.

V. COSTS AND FINANCING

1. Costs

The estimated cost of the Project is US\$3.075 million. Following are the main investment categories:

The total cost of the Project is estimated at US\$3 million.

| Category | Amount (US\$) |
|-----------------------|------------------|
| Preinvestment | |
| Study and research | 50 000 |
| Subtotal | 50 000 |
| Investment | |
| Construction | 661 300 |
| Equipment | 728 375 |
| Materials and inputs | 70 000 |
| Technical personnel | |
| Transfer service | 322 925 |
| Documentation service | 167 200 |
| Subtotal | 3 025 400 |
| Total | 3 075 400 |

Investments will be made according to the following schedule:

| Source | Years | | | | | Total |
|--------------|----------------|------------------|----------------|----------------|----------------|------------------|
| | 1 | 2 | 3 | 4 | 5 | |
| Local | 122 285 | 305 685 | 285 635 | 285 685 | 285 685 | 1 285 025 |
| External | 812 400 | 822 275 | 55 900 | 55 900 | 43 900 | 1 790 375 |
| Total | 934 685 | 1 127 960 | 341 535 | 341 585 | 329 585 | 3 075 400 |

The investment schedule includes funds for preinvestment. The feasibility study and the two supplementary research studies are included in the first year of the proposed schedule (US\$50,000), and would be funded with outside resources.

Investment for the construction category includes:

| Description | Amount (US\$) |
|------------------------------------|----------------|
| Building of pilot plant | 228 000 |
| Chemistry laboratory area | 76 000 |
| Microbiology laboratory area | 57 000 |
| Sensory evaluation laboratory area | 22 800 |
| Office and other areas | 227 500 |
| Total | 661 300 |

Investment in industrial equipment includes:

| Description | Amount (US\$) |
|-------------------------------|----------------|
| Pilot plant | 408 375 |
| Chemistry laboratory | 150 000 |
| Microbiology laboratory | 93 750 |
| Sensory evaluation laboratory | 21 250 |
| Office furniture | 35 000 |
| Transportation | 20 000 |
| Total | 728 375 |

Because of the nature of the work to be done by the Center and the dynamic effect it will have on the economy, local funding is sure to be forthcoming.

Investments in industrial equipment represent almost one fourth of the total cost.

2. Financing

The Project would have the following funding structure:

External and local sources will provide approximately 60 percent and 40 percent, respectively, of the funds requested.

| Source | Amount (US\$) |
|--------------|------------------|
| Local | 1 285 025 |
| External | 1 790 375 |
| Total | 3 075 000 |

Outside funding and specialized technical cooperation would be applied to the construction of buildings and purchase of equipment for the pilot plant and the laboratories.

V. ANALYSIS

1. Technical Analysis

The experience gained in the Central American area has shown that this type of Technology Center, which is designed to promote industrial development throughout the country, is technically feasible. This Project will assist national investors in selecting their industrial equipment, in order to enable them to take advantage of potential agricultural production while economizing production resources and using the agroindustrial technology that is best suited to the requirements of the country's food industry.

2. Institutional Analysis

The National Directorate of Agroindustries has the necessary staff to implement the Project. In addition, it carries out certain activities, such as the testing of agroindustrial technologies (e.g., home stoves) and the transfer of agroindustrial technology (there is a shortage of mobile units). It also offers the services of a documentation center, although it lacks resources, facilities and modern equipment.

National counterpart funds are included in the national budget in accordance with the Five-Year Plan for attracting investment resources, through the Ministry of Planning and Economic Policy.

3. Legal Analysis

It will be necessary to draw up a proposal for offering incentives to encourage existing companies to modernize their industrial equipment and foster decentralization of industries currently established in Panama City. In addition, it will be necessary to modernize the registry of agroindustrial patents and the legislation on payment of licenses and royalties for transferred technology.

The National Directorate of Agroindustries will be the agency in charge of preparing these proposals; it will receive support in the form of specialized technical cooperation in the areas most directly related to the promotion of agroindustrial development.

4. Financial and Economic Feasibility

Profitability analyses for this type of investment can be made from different standpoints. They may be conducted from the perspective of the government, with a view to accelerating technological development of existing agroindustrial companies over the short term, or from the point of view of business, for the purpose of effecting economies in the setting up of new companies.

The Technology Center should be able to finance itself through the services it offers to the private sector. The fees it charges should allow for improvements to be made in quality and timeliness of services. A possible source of financing to be considered might be a levy on industrial company profits, to be used exclusively for funding research on agroindustrial technology development for food production.

Profitability indicators must be established in the feasibility study on the proposed technology center.

5. Project Impact

The Project will have a nation-wide impact, as reflected in the following:

- Access to the means for modernizing industrial equipment, at lower fixed-asset replacement costs, for the 500 existing agroindustrial companies
- Higher levels of employment for skilled workers
- Installation of agroindustrial development poles in the interior of the country, as well as zoning and construction of a specialized infrastructure which would lower installation costs for agroindustrial companies
- Improvement of income levels of producers
- More successful marketing of perishable products through improved preservation techniques
- Improved levels of nutrition and health among consumers
- Decrease in the flight of foreign exchange for the purchase of foreign technology

Five hundred agroindustrial enterprises will be able to modernize their equipment, and the number of jobs for skilled workers will increase

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