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**BELIZE COMMERCIALIZATION OF ALTERNATIVE CROPS PROJECT**

**CONTRACT NO. 505-0008-C-00-6063-00  
PROJECT NO. 505-0008**

**FIRST QUARTERLY PROGRESS REPORT**

**(JUNE 1986-SEPTEMBER 1986)**

**SUBMITTED TO:**

**UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT  
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# CHEMONICS FIRST QUARTERLY PROGRESS REPORT

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## I INTRODUCTION

This quarterly report covers the contractors progress from contract signature through September 30, 1986. This is the first in a series of quarterly and semi-annual progress reports which will be submitted over the life of the contract. Please note that although the project started in June of 1986, we have received USAID approval to use September 30, 1986 as the quarter cutoff dates so that future reports will correspond to each calendar year quarter. Each report will discuss progress during that quarter, as submitted in annual contract workplans.

This report is divided into five sections. Section II, Project Management, discusses contractual, administrative and general management issues, progress, and problems. Progress in crop commercialization activities is discussed in Sections III and IV, Export Crops and Import Substitution Crops respectively, and Section V deals with support activities related to this project.

It is our intent in these reports to comment on and characterize the following:

- 1) Technical Assistance (TA) team activities.
- 2) Participant agencies involvement.
- 3) Project status and progress.
- 4) Project constraints.

These reports will also offer suggestions and recommendations for continued successful Project development for the life of the Project.

## II PROJECT MANAGEMENT

### A. Start Up and Logistics

The initial contract agreement was signed by the United States Agency for International Development (USAID) and Chemonics International Consulting Division (Chemonics) on May 8, 1986. On June 2, 1986, the TA team, comprised of the Chief of Party, the Agricultural Economist and the Agronomist arrived in the D.C. home office of Chemonics for orientation and briefing regarding the CAC project, USAID procedures and Chemonics policies. During the orientation week, a preliminary meeting of the Advisory Panel was also held. In attendance were representatives from each of the subcontractors, USAID/Belize and Chemonics staff responsible for home office support and backstopping of the project. Crop selection, production problems, transportation constraints, and marketing infrastructure were investigated and discussed.

The Chemonics three-man long-term team arrived in Belize in mid-June and following a brief orientation with the USAID project officers immediately started working on the project. As is normal with any project start up several minor problems arose and constraints were experienced during the start up period.

Project vehicles were late in arriving causing difficulties in the advisors mobility between different project areas. Shipping dates were changed several times; vehicles had to be rented at project expense for several weeks. Though rented vehicles were readily available they were both expensive and unreliable.

Temporary offices were found to house the project as permanent offices were not yet ready. Office equipment air freighted from Washington D.C. was over a month in transit. Furnishings for the long-term TA team housing did not arrive until late July and to date no phone service has been provided for the project. Presently any telephone communication is done through the Agriculture office located about 1/4 mile from the BABCO temporary office, or from the advisors housing.

The contract for construction of the BABCO/CAC permanent office has been let out for bid and it is expected that a contractor will be chosen and the contract for construction will be signed in early October. Building should commence soon thereafter and should be completed during the next quarter. The Permanent Secretary has promised to expedite the acquisition of telephone service for the project or as an alternative has offered the use of Ministry of Agriculture phone lines until service is provided to the Project. Aside from the inconvenience of not being able to effectively communicate between the office to various BABCO personnel, USAID, and conduct project business, Chemonics is not able to set up telex facilities for the transmission of hard copy documentation and communication between home office and the in country team.

#### B. Subcontracts

Following the September meeting of the Advisory Panel work orders were drawn up and signed to carry out on-farm trials and marketing trials with six of the seven subcontractors. The remaining subcontractor will not be directly involved with on-farm production and marketing trials, however he will assume responsibility for transportation coordination from Belize to various U.S. markets and will also be available to lend assistance with regards to other post harvest and distribution matters.

### C. Staffing and Man-Month Utilization of the TA Team

The Chemonics TA team arrived in country in June. While there has been personnel changes within the team, two members of the TA team are in-country and the third is expected in mid-October.

Due to personal circumstances the Agricultural Economist departed from the field in early July subsequently resigning from his position. Thus, this position was vacant for a considerable portion of the quarter. Recruitment for replacement was conducted by Chemonics home office in Washington, and five candidates were presented to USAID and BABCO for selection. Three of these candidates were interviewed in Washington by the USAID/Belize ADO and Technical Representative for the CAC project, and subsequently in Belize by BABCO and USAID representatives. Mr. Jack Bachofer was selected by the review committee on September 15th, and as mentioned earlier is expected to begin his assignment within a months time.

The Chief of Party for the Project was in the field throughout the quarter, except for a brief leave period in September for emergency visitation travel. The Project Agronomist remained in the field throughout the quarter. Mr. Tony Teele, Director of Chemonics, has acted as Project Supervisor and Ellen Holguin has acted as Project Administrator while Chemonics has provided management and logistical support for the project and the resident TA Team through its offices in Washington D.C.

Short-term advisory services were provided in three areas, as follows:

- |                   |                    |
|-------------------|--------------------|
| ● Soils           | Arden Christiansen |
| ● Irrigation      | Giles Faget-Wilkes |
| ● Pest Management | James Mertely      |

Each of the above short-term advisors served for approximately one month in the field.

In addition, subcontractor representatives attended a meeting of the Advisory Panel in September, in order to gain first hand knowledge of field conditions, participate in crop selection meetings, and begin negotiating specific work orders their respective subcontracts.

A chart of man months expended during this quarter is shown on the following page. For this purpose, one man month is calculated as 21.6666 days worked.

**CHART A**  
**ALLOCATION OF MAN MONTHS**  
**CONTRACT LEVEL OF EFFORT**

	CONTRACT REQUIRED	EXPENDED TO DATE	REMAINDER
<b>LONG-TERM TEAM</b>			
Tokar	48.000	4.000	44.000
Neu	36.000	1.170	34.830
Chang	36.000	4.000	32.000
Subtotal Long-Term LOE	120.000	9.170	110.830
<b>SHORT-TERM TEAM</b>			
Christiansen		2.220	
Mertely		0.970	
Paget-Wilkes		1.530	
Walker A. Williams Co.		0.323	
Subtotal Short-term	33.000	5.043	27.957
<b>HOME OFFICE</b>			
Teale		0.507	
Holquin		0.185	
Dobson		0.116	
Lowry		0.253	
Boyd		0.196	
Milne		0.150	
Subtotal Home-Office	4.250	1.407	2.843
<b>SPECIALIZED FIELD TEAMS</b>			
CMMS		1.015	
SRD		2.192	
Steins Pass		0.392	
Garrison Seed Co.		0.323	
Griffin Brand		0.092	
Subtotal Specialized Field Teams	60.000	4.015	55.98
<b>TOTALS</b>	<b>217.250</b>	<b>19.635</b>	<b>197.61</b>
<b>CARDI</b>	<b>185.000</b>	<b>0.000</b>	<b>185.00</b>

#### D. Procurement

An order for agricultural equipment to be used in the on farm trials is being procured by Chemonics home office. The order will include: production equipment as seed bed covering, plastic mulch, stakes and twine seed, irrigation pipe, and pumps, pesticide application equipment, other related farm machinery as well as a hydro cooler and other materials needed for post harvest handling. Home office procurement has also acquired the necessary office equipment needed to support project activities.

#### E. Financial Status

The total cost of services billed to the technical assistance contract during this quarter was \$277,461.29, through September 30, 1986. Obligated funds for the contract were increased by the Contracting Officer in Letter Modification #1 dated August 22, 1986, increasing the total amount obligated to the contract to \$2,991,741. A line item summary of expenditures during this period is shown below:

	BUDGET	INVOICED THROUGH 9/30/86	REMAINDER
I. SALARIES			
Home office	16,958	6,187.68	10,770.32
Field	763,246	59,855.83	703,390.17
II. INDIRECT COSTS (Fringe and Overhead)			
Home Office	17,396	6,347.47	11,048.53
Field	600,720	51,334.54	549,385.46
III. TRAVEL AND TRANSPORTATION	107,008	30,843.67	76,164.33
IV. ALLOWANCES	399,422	20,485.57	378,936.43
V. OTHER DIRECT COSTS	81,088	16,419.07	64,668.93
VI. EQUIPMENT (NON EXPENDABLE)	40,400	22,961.84	17,438.16
VII. SUBCONTRACTS	721,361	19,793.00	701,568.00
VIII. G AND A	54,952	4,684.58	50,267.42
IX. FIXED FEE	135,135	11,520.04	123,614.96
X. AWARD FEE	54,055	27,028.00	27,027.00
GRAND TOTAL	2,991,741	277,461.29	2,714,279.71

### III. EXPORT CROPS

#### A. Basic Data Gathering

##### 1. Soils

The short-term soils specialist was contracted to provide information on soils in the project area and how the different soil characteristics will affect production of vegetable crops. During the course of his term the soils specialist worked closely with the soil scientist at Central Farm, with Sugar Industries agronomists, and agricultural extension officers in carrying out his in-depth investigation of soil fertility, soils and soil drainage conditions. Soil samples were gathered from several areas within each of the Corozal and Orange Walk districts as well as many of the sites for on-farm trials. Samples were sent to Central Farm for testing in their lab as well as commercial soils laboratories in the United States. Based on results from these laboratories, recommendations were made for on-farm trial site selection and fertilizer programs to be followed.

Based on soil samples taken during his time in the field, the Soils Specialist, Dr. Arden Christiansen, concurred with the findings of previous soil scientists that soils in the project area can be grouped into six broad categories;

- Black clay over crisp white marl.
- Red clay over achrous white marls with pink patches.
- Grayish clay over achrous limestone marls cemented by gypsum.
- Black sandy loams over white siliceous marl.
- Plastic gray clays of variable depths.
- Gray black soils over plastic gypsi ferrous gray clays.

He identified several problems which will be of importance to the project. Namely, the fixation of phosphorous by the clayey and limey soils and lime-induced iron chlorosis. Soil fertility was found to be generally good and with proper management all of the soils tested could be productive. Due to the low infiltration rate the soils specialist reported the major challenge of working with these soils to be drainage i.e. the removal of excess water.

##### 2. Irrigation

Based on his initial investigation into the problems and prospects of irrigation of fruits and vegetables for the CAC project, Giles Paget-Wilkes, short term Irrigation specialist recommended several types of irrigation systems to be used in the

on farm trials. Factors taken into consideration for his specific recommendations included: natural rainfall, local irrigation expertise, water sources, water quality and soil characteristics. Systems recommended for use on the CAC project included furrow, sprinkler, and low volume drip emitter or drip tape irrigation.

Paget-Wilkes also stressed the need for proper irrigation management, agronomic practices and training personnel in the proper use and maintenance of irrigation system.

Irrigation systems were designed for each of the participating farmers following the irrigation specialist site visits. These systems have been ordered as part of the production equipment needed for on-farm trials and will be installed for the growing season.

### 3. Pest Management

Mr. James Mertely, pest management specialist, carried out an assignment to investigate problems most likely to be encountered with crops selected. Based on his field inspections and prior research, he was able to present a comprehensive pest management assessment and recommendations report. Though Mr. Mertely was assigned as a short-term specialist in the field of pest management he brought to the project the in-depth knowledge he had gained from over four years experience working in the field of insect and related pathological problems in the country. Much of his work over the past few years was spent in the field of pest management in Belize and he was quickly able to assess the problems likely to be encountered with pests and related diseases. He was able to review and field inspect each of the crops selected for trials during the survey periods. Following his field survey, a crop-by-crop assessment of potential pest problems was developed for the project. Major insect pest as well as serious diseases of crops were reported.

Specific recommendations pointed out the importance of weed control and field sanitation for vegetable production. The use of nurseries as seed beds to produce seedlings for early planted crops was discussed and recommendations made to ensure disease free beds. Recommendations were also provided for the local procurement of pesticides and the need to use locally available products to insure that specific chemicals be available during and following the life of the project.

## B. Crop Selection

### 1. Farmer Survey and Selection

A farmers survey form was developed and used as an aid in determining individuals to be considered in the selection process for on-farm trials. The survey form explained the BABCO/CAC project and presented several questions to participants regarding the location of their land holdings, crops grown, equipment used, availability of water suitable for irrigation, soil characteristics and specific production problems encountered in the past.

Selection of prospective participants for the program was made in collaboration with the district agricultural officers, extension agricultural agents in the areas and others involved in training or extension services in the districts. Farmers from each of the zones within the Corozal and Orange Walk districts were interviewed. Particular emphasis was placed on attracting farmers from areas north of Corozal Town, those being the most likely to benefit from the program. Factors considered in choosing farmers to participate in the production trials included: the farmers' past background in agricultural production; his attitude towards farming practices, his willingness to work with the project, and his desire to follow the advice of project agronomists and field men. A target number of three farmers from each of the five zones within each of the two districts was set and at this writing. Thirty farmers have been selected to participate in the first years' on-farm trials.

### 2. Proposed Crops for Fall 1986

In considering crops to be proposed to the CAC Advisory Panel for trials in 1986 the following criteria were used:

- a. Marketing advantages: Do "windows" exist during expected harvest times in the U.S. or other markets? Would the crops selected compete favorably with those produced and marketed from other areas of Central America and the Caribbean?
- b. Local farmers experience: An attempt was made to consider crops for which participating farmers would be familiar with production techniques. Availability of pest control materials and other agricultural chemicals to produce those crops was also considered.
- c. Alternative uses. A great deal of emphasis was placed on the alternative uses for selected crops. Consideration was given to such alternatives as livestock feed, processing, and local market for non-export grade produce.

A list of fifteen crops were proposed for consideration. After investigating these crops and subjecting them to the considerations mentioned above, a panel including the Chemonics long-term team, BABCO personnel, district agricultural officers and other extension agents selected a shortened list of some ten crops for proposal to the Advisory Panel and Chemonics Subcontractors.

Following further discussion with the subcontractors the list of crops was reduced to eight and approved by the BABCO board. Crops selected for the first year farm trials include: eggplant, hot peppers, sweet peppers, sweet corn, snapbeans, melons, cucumbers and squash. Mangoes, papaya and pineapple were also selected as orchard crops to be supported by the project.

#### On-Farm Trials

Following the advisory panel meeting and approval of crops by BABCO, work orders were negotiated and signed with subcontractors. Subcontractors selected crops with which they would conduct on-farm trials, visited farm sites for farm selection and identified farmers from those selected to conduct their trials. A list of production equipment and machinery was prepared for procurement and post harvest handling equipment was identified and listed for procurement. Production equipment included such machinery as planters, cultivators, seed bed preparation equipment, pest control equipment, irrigation systems, seed, fertilizers and pesticides. Post harvest handling equipment and materials include: packing cartons, pallets, carton and pallet handling equipment, a hydro-cooler for sweet corn and melons, refrigerated trailers, tractor heads to be leased from Mexican truckers, and air freight containers.

Subcontractors are expected to have field men in place and to finalize actual farmer selection for each crop by mid-October. The following table illustrates: each crop selected for this years trials, acreage, suggested areas, and subcontractor responsible for trials.

CROPS	SUBCONTRACTOR	AREA	ACRES	TOTAL
Hot peppers	Steins Pass	OW	2.75	3.25
		CZL	0.5	
Melons	Steins Pass	OW	5.75	8.75
		CZL	3.0	
Squash	Caribbean Manag. & Mark. Services	OW	1.25	2.25
		CZL	1	
Snapbeans	Caribbean Manag. & Mark. Services	OW	1	3
		CZL	2	
Eggplant	Caribbean Manag. & Mark. Services	OW	2.25	4.75
		CZL	2.50	
Cucumber	Caribbean Manag. & Mark. Services	OW	5.5	7.5
		CZL	2.	
Sweet corn	SRD Devt. Group	OW	3	6.
		CZL	3	
Sweet peppers	SRD	OW	0	3
		CZL	3	
Papaya	SRD	OW	0	2
		CZL	2	
Mango	SRD	OW	0	2
		CZL	2	
Pineapple	SRD	OW	0	3
		CZL	3	
Corn (Seed)	Garrison Seed Co	OW	4	5.25
		CZL	1.25	
Sorghum (Seed)	Garrison Seed Co	OW	2.5	3.75
		CZL	1.25	
		TOTAL	54.5	54.5

Additionally, one of the subcontractors Walker Williams and Co., has proposed that they undertake farm trial activities on long-term tropical orchard crops. There is a large, diverse, and growing market in the U.S. for exotic fruits and Belize has the potential to compete. Belize has the soil and climate in areas of the project districts to support orchard crops. This potential will not be realized as quickly as with the vegetable crops due to the long term nature of orchard crops development.

However, with proper planning and a long-term commitment on the part of BABCO and the farmers, orchard operations will have a beneficial affect upon the future development of agro-industry in Belize.

#### D. Objectives for Next Quarter

During the next quarter emphasis will be placed on conducting on-farm trials with farmers and subcontractors. The protocol has been discussed with participating farmers, individual contracts are being drawn up between the farmers and subcontractors crops have been selected, and subcontractors have visited farm sites. They are in the process of selecting specific farmers and sites on which to conduct trials with specific crops. Activities in the next quarter will involve scheduling of planting to meet market dates, actual production and a coordination of efforts between fieldmen, farmers and long term BABCO/Chemonics staff. Final adjustments will be made regarding acreages. Equipment procurement will be finalized, received, and inventoried. Marketing arrangements will be made and transportation arrangements will be negotiated. Seminars in post harvest handling will be conducted late in the quarter with the objective of stressing to the farmer the importance of quality control and grades and standards when competing in the winter vegetable market. Market information will be disseminated to growers so they may better understand the realities of competing in foreign markets and have a closer link with the fruit and vegetable marketer.

### IV IMPORT SUBSTITUTION CROPS

#### A. Progress

Following the negotiated subcontract with CARDI, a preliminary work plan was submitted by the Director of CARDI/Belize in which he outlined activities to be undertaken by CARDI during the next few months. Emphasis will be placed on soybean production during this first year. Trial plots will be established in Cayo district, Orange Walk district and at least one site in Corozal. Following the hiring of fieldmen and an agronomist, selection of sites will begin. Efforts will be made with farmers having experience in soybean production and in fact will involve members of the soybean producers co-op in the northern districts.

A Ministry of Agriculture extension agent assigned to the CAC project will be stationed at CARDI and will be available to work with CARDI personnel under the direction of the agronomist in gathering information and setting out field trials.

#### B. Objectives for Next Quarter

Objectives for the next quarter include: finalization of the first year work plan, site selection, and start up of

field trials on selected plots. Short-term advisors have been proposed in the field of oil seed processing and soybean production.

Important yield data information can be collected from soybean crops produced during this time of year for comparison to yields of the crop, planted during early summer.

## V SUPPORT ACTIVITIES

During the quarter several support activities were undertaken and programs were initiated to strengthen and encourage cooperation with project related personnel and organizations.

### A. Training

#### 1. Training to Extension Service

Early in the quarter the BABCO/Chemonics team made use of the extension service and drew heavily on the assistance of personnel in the service. As a result, several extension agents had direct contact with the agronomist and short term advisors used during the quarter. The advantage to both parties was immediate in that short-term personnel and Chemonics long-term staff were able to quickly familiarize themselves with areas of production, farmers, and specific problem areas. Ag. extension agents were able to gain valuable knowledge regarding soils, soil testing, irrigation, and pest management.

Belize College of Agriculture interns were used during the summer and these students, working directly with project advisors, were also able to involve themselves directly with the day to day operation of soils testing, field work, and grower relations.

#### 2. On the Job Training to Producer Associations

Much time was spent advising producer associations during the past quarter. Farmer meetings were attended with the soybean growers co-operative in Santa Clara, OWD. Participation in seminars with REAP apprentice program and assistance to the three Papaya producing co-operatives in Corozal District was given.

### B. Procurement

Following approval by USAID, Chemonics staff provided support in the preparation of specifications and acquisition of basic equipment needed to carry out on-farm trials. Specifically the equipment included: seed bed covering for producing seedling to be used in on-farm trials, twine for trellising, plastic mulch, hand tools and pest control equipment.

### C. Objectives for Next Quarter

During the next quarter, support activities will be expanded greatly with heavy emphasis being placed on staff development with the extension service. Extension service personnel will gain valuable experience by working with the Chemonics agronomist and subcontractor fieldmen. Producer associations will be given the opportunity to involve themselves in post harvest handling in order to strengthen their position in the overall production and marketing of fresh produce.

As well, a short-term (one-week) assignment is currently scheduled for late October for Chemonics Home-office Computer Applications Specialist to train Chemonics long- and short-term and BABCO personnel in basic word processing, DOS, and LOTUS 1-2-3 spreadsheet and data base applications.