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MID TERM

EVALUATION

OF THE

HIGH IMPACT REGIONAL COCOA REHABILITATION AND DEVELOPMENT SUBPROJECT

(USAID GRANT No. 538 - 0140.02)

BY

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EXECUTIVE SUMMARY

The USAID initiated the Eastern Caribbean Cocoa Rehabilitation and Development Project (USAID Grant No. 538.0140.02) in 1986 to expand cocoa production in four countries of the Eastern Caribbean: St. Lucia, Dominica, St. Vincent and Grenada. This Project was awarded to the Pan American Development Foundation in Washington, D.C., to be carried out over a five-year period.

The life of project objective of this new initiative was to increase 1) the production of cocoa on the four islands by 30 percent and 2) the region's income from $2.2 million to $5.8 million. Productivity on existing farms had been constrained by inefficiencies at all levels of the production, processing and marketing systems, due to high costs of plant propagation and pest management, low intensity of management of existing stands, and variable quality of post-harvest handling and processing, and adoption of marketing methods.

This evaluation notes that although the Project has made extremely good progress during this period, slow start-up was caused by erroneous assumptions in the original Project design. For example, the large farmers did not want to invest in the improvement of their farms, in part for fear that their land might be confiscated, and also from concern over the future politics of Grenada. Extension agents considered the contract demonstration plots to be an additional burden on top of their efforts to propagate and distribute cocoa plants to farmers under a CIDA project started in 1982. Also, the reorganization of the Grenada Cocoa Association (GCA) took exceedingly long to formalize (June 1989), making some extension agents uneasy about their future employment in the local Agency during the first three years of the Project.

The design goal of increasing the production of cocoa by thirty percent over five years was excessively optimistic. It is impossible to make this kind of increase in production in five years with a crop that requires some three years for new plantings to come into production. Likewise, the assumption that cocoa prices would not decrease during this period was also incorrect, since high prices for cocoa during the previous ten years encouraged new planting in many other countries, thus contributing to an excess supply of bulk cocoa.

Overall, progress of the Project to date is due to the excellent work of the PADF technical team, in particular its rapport with the local counterpart staff. By the end of this year, the national extension and cocoa staffs will have planted or renovated some two hundred acres of cocoa under the contact demonstration plot activity, completing this Project goal. Yields in some of the renovated plots visited were exceedingly high. The PADF team, working with their counterparts, has initiated an excellent data collection system on these plots on all participating islands, and can now provide the cost of both renovation and/or replanting cocoa under a range of activities.

The technologies being used in this Project are very good. They have not used hybrid seed instead of vegetatively propagated material, however, since hybrid seedlings have not yet been proven to have the excellent quality (i.e. flavor) of the existing cocoa. This high quality cocoa is receiving a premium of EC $320.00 per ton over the world market price in the European market, and the market demand at present exceeds supply by almost double the present production.

The demonstration plots are being used effectively to train the extension agents and farmers on the latest production techniques. An extensive lecture and field training program (using the demonstration plots) has been carried out very effectively on the islands, and has been highly instrumental in changing the attitudes of the agents and their supervisors toward assisting cocoa farmers improve their production.

There is no indication of any problems in the management of the Project by the USAID staff of by PADF which could have affected the Project's operation or realization of goals.

Despite setbacks from poor design and slow implementation of certain elements of the program, the prospects for this Project are very good at this time. Since problems are expected in the near future in the sale of bananas to England, and high losses were experienced in bananas due to Hurricane Hugo, the local Governments are also trying to stimulate diversification of their foreign exchange generation base to ameliorate this situation, and are promoting cocoa for this purpose. Also, the very high yields and profitable markets for "flavor cocoa" grown on the islands are causing many farmers to look to this crop for the future.

Suggestions for the improvement of the Project's operations call for the following action by both the USAID and PADF: extending the Project for an additional five years to fully benefit from the investment and progress made to date; initiating a credit program to permit greater numbers of farmers to participate; changing the focus of the farmer assistance to systematized group training and action units to help large numbers of the medium and smaller size farm operators (farms of at least three acres) to plant and/or renovate their cocoa; conducting studies on the effect of magnesium deficiency in cocoa; solving the marketing problem identified on Dominica; and developing a closer working relationship with CIDA in cocoa.

MID-TERM EVALUATION OF THE EASTERN CARIBBEAN COCOA REHABILITATION AND DEVELOPMENT PROJECT

1. INTRODUCTION

This document constitutes a mid-term evaluation of the progress of the Eastern Caribbean Cocoa Rehabilitation and Development Project (Project No. 538-0140) funded by the United States Agency for International Development (USAID) through the Pan American Development Foundation (PADF). The Project was signed on August 31, 1986, permitting PADF to initiate obligations, contract field staff and procure essential Project field commodities.

A small office was created by the Project to manage field activities in Grenada and operate through and with the other island nations and their private sectors. Field activities were initiated when Dr. Oleen Hess, the PADF Chief of Party, arrived in Grenada on September 7, 1986. Dr. Alex Lopez, the Project's Senior Cocoa Outreach Specialist, joined Dr. Hess in Grenada on September 20, 1986. A Communications Officer, Mr. Gary Mathews (Peace Corps), joined the field team in December, 1988.

The Project was originally designed to assist the private sectors and the Governments of Grenada, St. Lucia, Dominica and St. Vincent to improve cocoa production. Memoranda of Understanding were signed with St. Lucia, Dominica and Grenada within eight months of the arrival of PADF's technical team. It was not possible to arrive at an agreement with St. Vincent, and by mutual agreement between USAID and PADF, this country was formally eliminated from the Project in 1987.

Total funding for the Project is $2,973,000, covering the period from August 31, 1986 to July 31, 1991. It was initially funded by a tranche payment of $350,000 to cover the period from August 31, 1986 to December 31, 1987; additional tranches are being made to cover expenses incurred by the Project as required. The total expenditures to August 30, 1989 are approximately $1,386,650.00.

2. PURPOSE OF THE EASTERN CARIBBEAN COCOA PROJECT

The purpose of this grant agreement is to increase the annual export revenues from the sale of cocoa from the Windward Islands using intensified management practices. To attain this objective, PADF is expected to: (1) accelerate the transfer of improved cocoa propagation, management, processing, and marketing technologies to key growers on the islands of St. Lucia, Dominica and Grenada; (2) promote private sector involvement in the production, management, processing and marketing of cocoa; and (3) seek investors willing to form joint ventures to use advanced cocoa production practices.

The overall Project plan calls for introducing superior (hybrid) growing stock, applying improved technology in both establishing and

managing renovated cocoa plantings, improving post-harvest handling and processing, and adopting improved marketing programs.

Through this process, PADF is to integrate its work on the three islands while recognizing the sovereignty of the individual nations involved, using the following specific strategies: (1) concentrate early outreach efforts on a relatively small number of growers who already produce a very large share of cocoa and who are best able to undertake the risk of new investments; (2) establish the economic viability of improved practices through the use of relatively few, representative, highly visible, modest-size farm-based demonstration plots; (3) place heavy emphasis on training the staffs of the organizations currently involved in cocoa technology and outreach programs in order to strengthen region-wide extension and training capabilities; (4) explore the economic feasibility of the application of "Hybrid" technology, and if appropriate, encourage a shift from predominant reliance on vegetative propagation to the use of hybrid seedlings for replanting; and (5) encourage expanded private sector involvement in processing and market development in order to increase the vitality and growth of the industry.

In carrying out the above, PADF was requested to develop close working relationships with the principal cocoa organizations and technical groups on the islands and to carry out its mandate through these organizations. PADF has been encouraged, through the Project, to pay particular attention to the unique social, technical and economic conditions in each country, and to adapt the program to local conditions and needs while maintaining the central purpose of the Project.

Operationally, the Project was designed to have four specific types of working relationships with counterparts. These include: (1) agreements between the Hershey Foods Corporation and other technical assistance and training institutions to provide technical assistance in farm management, processing, handling and shipping, market information assistance and farmer agent training both in country and abroad; (2) individual agreements or memoranda of understanding with implementing agencies that stipulate the working collaboration of their staffs and resources toward the execution of the Project; (3) agreements with the farmer-demonstrators assuring use of specific areas of their farms for demonstration purposes, record-keeping, supervision, etc., in return for payment of certain labor, materials and technical guidance; and (4) informal, close liaisons with individuals, agencies and organizations having cocoa-oriented activities in the region.

PADF is also to maintain close working relations with the USAID in Barbados and the office in Grenada.

The project has four main components:

A. Demonstration Component

Under this component, the PADF staff will encourage and support the establishment of demonstration plots on farms as a means of proving the

effectiveness of improved methods. Data having commercial and technical validity will be collected on these plots, which will be employed in the training programs for extension agents and farmers in each country.

B. Model Farms Component

Working with the Grenada Model Farm Corporation, a plan was to be generated to develop and implement an intensive rehabilitation and replanting campaign on model farm land in Grenada. Training and demonstration plots were to be developed in these areas to assist the GCA farmers, through training and technical assistance, in a similar manner as on non-GCA farms.

Within the first three months after the arrival of the Project staff, it was mutually agreed by the USAID, Grenadian counterparts, and PADF, that there should not be any distinction drawn between the model farms and other farms on this island. As a consequence, this element was officially terminated. The Project has worked equally on both model and other private farms since its initiation in Grenada.

C. Research Demonstration Component

Under this component, the Project is to develop studies of the comparative production, flavor, pest resistance and cost of production of different proportions of clones and hybrid seedlings. The CRP Research Officer was to have the overall responsibility for the research program to be developed at the Maribou location and at other locations throughout Grenada.

In addition, the Project will survey the native gene bank on private farms to ascertain the best lines for testing in the research program. This was expected to require the collaboration of technicians from the American Cocoa Research Institute (ACRI), CATIE, the University of the West Indies (UWI), TOXOPEUS (Holland) and others. The Project team was also expected to carry out a cost/benefit analysis of the proposed hybrid seed gardens with the present clonal propagation system.

D. Joint Venture Component

Working with HIAMP, the team would identify at least two large cocoa farms of at least 500 areas of land which have both the potential and the willingness for joint ventures. PADF's Trustees, OPIC, Ex-Im Bank, promoters of the CBI, etc., would be solicited to assist in identifying funding sources for these ventures. It was expected that firm commitments could be made during the second half of the Project.

E. Extension and Field Agent Training Component

Initially, the Project team was expected to consult a wide range of technical experts and develop a set of farmer oriented technical recommendations to be published in simple bulletins and used in mass media

approaches. The result of this exercise would serve as the basis for training extension agents in Grenada and on the other islands. Assisted by the Hershey Foods Corporation (HFC), CATIE, and CRU/UWI, the team would hold in-country cocoa production and management training courses of up to five days each for both CRP staff members and farmers.

Throughout the life of the Project, the PADF technical advisors are expected to serve as catalysts for technology improvement and transfer, including the development of a training program for national technicians to enable them to transfer these production and processing skills to farmers throughout the tree islands. In addition, the PADF technicians were to maintain close contact with farmers that are carrying out contract demonstrations on their farms.

3. PURPOSE OF THE EVALUATION

This mid-term evaluation was programmed in the original Project design in accordance with USAID policy to evaluate the progress and accomplishments of projects after several years of operation, and its prospects for the remainder of the life of project.

The evaluation addresses the seven issues identified by the USAID and PADF in the Terms of Reference for this evaluation (See Annex A).

Prior to project implementation, no quantitative benchmarks were established in terms of actual production on a national basis, nor were average farm level yields determined using reliable sampling techniques. Neither were in-depth surveys made to determine the actual level of previous training and knowledge of cocoa by extension agents. In fact, the role or willingness of extension agents in promoting cocoa production, motivation, and the capacity to accept and implement different production innovations and processing/marketing changes, appear not to have been evaluated by the Project's designers. In addition, no assessment appears to have been made to determine the interests and motivation of the larger cocoa farmers to improve their production in any of the participating countries. These deficiencies have affected both the progress of the Project as well as this evaluation.

4. METHODOLOGY USED FOR THE EVALUATION

This mid-term evaluation was undertaken between October 12 and November 10, 1989. A review of pertinent Project documentation was undertaken, both at the Washington headquarters of PADF and its field office in Grenada, including the Project Paper, and the Quarterly Progress Reports prepared by the field team since the Project's initiation. Field trips were made in St. Lucia, Dominica, and Grenada to evaluate the progress of the program, talk with farmers and extension personnel, view the contact demonstration plots first hand, and review the elements of the program with counterpart agency leaders and local Government officials. Data was also collected that permitted an understanding of the mode of operation and activities carried out by the staff of the PADF, the USAID and by the participating countries.

On arrival in St. Lucia, my first field exposure to the Project, I was met by the Chief of Party, Dr. Oleen Hess, who accompanied me throughout my field visits and official contacts with the Project's private sector and government counterparts in St. Lucia and Dominica. In Grenada, I was accompanied by Dr. Alex Lopez both in the field and in making contact with the Grenada Cocoa Association representatives.

In each country, I first visited the Project operations in the field, to evaluate the growth of the cocoa, and the type of technical recommendations being used at each site - those for the renovation of old cocoa, mixed, new and renovated old trees, and new plantings. I discussed the progress and problems of the demonstration field plots, assessed interpersonal relations, technical competence of trainers, and motivation and support of the local program by the PADF technicians. I questioned the local staff and farmers on the relevance of this program to the local needs and rural situation. I also inquired as to the relevance, technical enhancement and value to both the extension agents and farmers of the in-country, regional and extra-regional training program, as well as the materials prepared by the PADF staff and the local technicians. I tried to assess the timeliness of PADF payment to farmers for expenditures in the contract plots and the real value of these plots in the local and national context.

Discussions with the national leaders in the cocoa agency and Government officials in each country centered on their appraisal of the level of interest in cocoa at the outset of the Project compared to the present, the level of coordination between PADF staff and the local program, the Project's role in changing the organizational and financial support of cocoa development, the quality of their working relationships with the PADF technicians, and the effectiveness of the program's technical recommendations, publications, etc. I also inquired as to their opinion of the future for cocoa and its market potential on their island.

In all, some nineteen demonstration plots and private farms were visited, and over fifty public sector representatives and farmers were met during the three weeks of field visits.

During all of my discussions in the field with farmers and field agents, and in the Central Offices of the several agencies involved in this program, both Dr. Hess and Dr. Lopez absented themselves from the meetings after an initial introduction. At no time were they present nor did they, in their introduction, make any comment relevant to the operation of the Project, or attempt to influence the discussions in any manner. I am indebted to them for their assistance in assuring that I meet as many people involved in the program as possible.

In some of the meetings, I requested data and background reports on the number and type of participants in the training programs, the use made of the demonstration plots, national production data, the percent of the sales price that the farmer received, and the availability of credit. To the extent possible, this data has been used in this evaluation.

At the end of my evaluation, I was invited to meet with Ambassador Cooper of Grenada to discuss my findings. Following this, I went to Barbados and held an exit interview with interested staff of the USAID. Copies of my draft report were left with both the PADF staff for review with their counterparts, as well as with USAID.

5. EVALUATION ISSUES AND FINDINGS

A. ISSUE: Was the goal of attaining a 30 percent increase in cocoa production realistic?

1. Design Assumptions

The original design of the Cocoa Project assumed that yields during the five year life of project would be increased by 30 percent, and export income from cocoa for the four islands* would be increased from $2.2 million in 1984/85 to $5.8 million in the 1990/91 harvest season.

This goal was excessively optimistic, since the production of cocoa in all participating countries had been dropping for some fifteen years. Cocoa production in St. Lucia had dropped from 585,200 lbs. in 1959 to 117,000 lbs. in 1986. In Grenada, production had decreased from 5,985,503 lbs. in 1975 to 3,813,5541 lbs. in 1986. Similar data are not available for Dominica. Nevertheless, it is obvious that it would be impossible to increase yields by 30 percent within the five-year time frame of this program, especially since it would take three to four years for new cocoa to come into production, and these trees would not reach full production until about their eighth year. It takes at least at least 2 years for heavily pruned, mature, rehabilitated cocoa to come back into production.

Some of the explicit assumptions made in the Project Paper underlying this goal, and the situation found in the field at the time of this evaluation, are noted below:

a. Private agricultural enterprises are prepared to expand or seek to develop new ventures.

It was assumed by the designers of this Project that a significant number of the larger farmers would like to improve their production and would invest in this process. It was estimated that some 25 percent of the 530 largest cocoa farms on Grenada would be willing to modernize their production within the five year time-frame of the Project, with a significant number of them adopting the new production methods within the first two years in order to meet the Project goal. It is evident from a review of the history of the cocoa industry over the previous ten years, as well as the situation faced by this Project, that the designers must not have made any in-depth inquiry into the interest of large producers in modernizing their farms.

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* Early on, this was reduced to three islands, since St. Vincent did not choose to join the program.

The latest survey of registered cocoa farms in Grenada has shown that there are not 530 large farms but only 232 farms with holdings of over ten acres existing today. These farms produced over 60 percent of the total cocoa production on Grenada in the 1988/89 crop year.

After many personal contacts, group farmer meetings, field days and seminars by the CRP and GCA personnel, as well as the Project's PADF technical staff, there has been very limited interest by these larger farmers in making new investments in cocoa. In fact, it has been very difficult to obtain their collaboration in the desired numbers to establish demonstration plots on their farms, even when all of the costs of the plots would be covered by the Project. With the perseverance and an unusual level of effort by both the GCA and PADF technicians over the past three years, this situation is gradually beginning to change.

There appear to be several valid reasons for larger farmer reluctance to modernize their farms. Historically, during the period of the 1970s, the Grenadian Government imposed tight controls on all productive enterprises. Credit was available, but limited, due to its unattractive terms, and high cesses on agriculture were the norm. In addition, the Government began to expropriate these large farms and break them up into small units. As as result, of the 24 largest farms on Grenada today, 18 are still under Government control.

The fear of imminent expropriation of their farms caused most owners of any size to become zero input operators. Most of these farmers are over sixty years of age, as shown by the latest GCA registration survey (1988), and are thus further dissuaded from investing in a long term crop that they may never see reach full production. Significant numbers of the large producers are currently trying to sell their holdings or a portion of their farms.

Although not discussed openly, the current fear that the country may return to the former political situation appears to be another factor in their decision-making process. Also, the current high prices for nutmeg and continuing high prices for bananas, coupled with the depressed prices for cocoa, are serious mitigating factors against change.

b. Governments take necessary structural adjustment measures rapidly to assure program success.

It was assumed by the Project designers that the local governments would rapidly make the necessary structural adjustments required to permit a more coordinated and active role in promoting cocoa production. The merger of the GCA with the CRP in Grenada, however, has occurred much more slowly than anticipated; almost three years were needed to bring about the change. As a result, progress in establishing and utilizing the demonstration plots as the primary extension technology training and transfer tool was drawn out for about two years. This in turn affected the training and application of the contract demonstration concept by the field staff. The delay in effecting the necessary structural changes also had a demoralizing effect on the technical personnel, since many did not

know if they would have a job after the merger, and therefore hesitated to take on new work challenges until the problem was resolved.

The restructuring was completed in July of this year. As a result, internal coordination and staff morale have improved significantly, now making possible a new era in the promotion of the cocoa industry on Grenada. Although the PADF team has worked well with these technicians in the past, and made progress in spite of the structural problem, it now has the opportunity to make even more rapid progress over the next two years.

This progress is already evident on Grenada. All technical personnel who formerly primarily produced and distributed cocoa plants to farmers wanting to replant or fill out their existing plantings, are now working within the same restructured cocoa institution. This permits better coordination and collaboration as well as the effective use of plans for integrated action between the production technicians and the marketing group in the GCA. The extension agents are now utilizing their Project funded training to assist farmers not only to receive plants, but to teach them how to improve production in their fields. Where only 17 contract demonstration plots covering 29.75 acres were operational at the end of the first two years of the Project, there are now some 38 plots covering 60.05 acres at the end of the third year.

On St. Lucia, the Saint Lucia Agriculturalists' Association (SLAA) is working with the Government in a coordinated manner through joint meetings and collaborative use of Project generated data and technical recommendations. As a result, the St. Lucia Government has just announced a cocoa improvement program for farmers producing on an estimated 265 acres of land (134 of mature cocoa and 130 acres of new cocoa). The new program, assisted by the PADF technicians, will follow production practices recommended by the Project. SLAA technical staff will work directly with farmers who elect to become involved in this new national program. An initial amount of EC $220,000.00 has been supplied by the government for the first quarter of this three year initiative, to subsidize 50 percent of the cost to farmers of renovating their plantings. Already, some 75 percent of the first tranche has been committed.

c. Absence of major climatic disturbances.

Although this is a constant threat to both the agricultural and social fabric of these islands, there have not as yet been any major climatic disturbances that would endanger the cocoa industry, or the progress of this Project on any of the three islands. However, Hurricane Hugo caused significant damage to the bananas used for shade over the cocoa in some areas of both St. Lucia and Dominica, and some of the demonstration plots will suffer a slight setback. In some areas bananas have fallen on the young cocoa plants in the plots, and farmers, guided by national technicians and Project staff, are overseeing the clean-up. If the young cocoa plants are not covered again with some kind of shade before the onset of the dry season, they could suffer some setback in growth. At this time, the technicians are advising the farmers to plant additional

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shade and rapidly remove the bananas that have fallen on the young cocoa plants in both the demonstration plots and other plantings. It is not expected that this hurricane will have any appreciable effect on either the demonstration plots or other cocoa holdings on these two islands.

d. The GCA improves its marketing strategy.

The GCA continues to market the bulk of the Grenada crop as it has done in the past. The GCA has a strong base in its traditional markets in Europe, where it receives a premium of $320.00 per ton. The current strategy is to retain this base while expanding into other markets.

Efforts are being made to diversify into new markets and increase the GCA share of cocoa sold at high prices, such as the sale of 500 tons to "World's Finest Chocolate" a year ago for US$1.20 per pound. Unfortunately, the decrease in the island's production during the past few years makes it difficult to expand into other markets at the hoped for rate.

e. No major decline in cocoa prices.

The program designers assumed that there would not be a significant decline in world cocoa prices. However, the high prices of the late 1970s and the early 1980s caused significant increases in plantings of cocoa in many other countries, which is adversely affecting cocoa prices on each of the three islands.

Whereas the New York spot price for cocoa was oscillating between $500 and $1,000 per ton during the early and mid-1970s, it jumped to over $2,000 per ton in August 1976 and continued an upward spiral, reaching an all time high of $4,429 in July of 1977.* Cocoa continued to sell for over $2,000 per ton until February 1982, after which the price settled at around $1,500 per ton.

From May 1983 to March 1986, there was another period of relatively good prices of between US$2,000 and $2,300 per ton. Since then, the price of cocoa has dropped significantly (over 50 percent), due to the many new plantings developed during this period, principally in the Ivory Coast, Brazil, Ghana, and Malaysia.

It should be noted that the farmers in the three countries of this Project receive more of the sale price for their cocoa than farmers do in most of the other cocoa and coffee producing countries. In St. Lucia, the SLAA returns to the producers 90 percent of the FOB sales price; in Dominica, the grower receives over 90 percent of the FOB sales price; and in Grenada the producer is currently receiving about 85 percent of the sales price. This is exceptional for the islands. In Jamaica, in 1988, the coffee growers received only about 48 percent of the FOB price of their coffee, and in El Salvador, the coffee producers last year were receiving about 55 percent of the market price.

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* "World Cocoa Situation", Foreign Agricultural Service, USDA, March issues, p.8

Since the cocoa of the Caribbean is largely of the high flavor types, the price of cocoa from these countries has always been significantly higher than the world market price. This type of cocoa constitutes less that 5 percent of the total world cocoa production, and is highly sought for the highest quality chocolates, ice cream toppings and confections. As a result, the cocoa from these islands usually received a premium, if properly processed, which today is some $320.00 per ton over the world price. This difference is significant, but does not compensate for the full decrease in world market price.

As a result of the decrease in the world price, the GCA has had to reduce the farm price locally by some 25 percent this year alone. Overall, the drop in the world's cocoa prices during the past seven years has had a major effect on the industry. The GCA estimates that during the last seven years, production has decreased from 5.8± million pounds produced to its current low of 3.1 million pounds - a loss of 41 percent in production during this time-frame. Likewise, yield has been estimated by the GCA to have dropped from 526 lbs. per acre to its current level of 397 lbs. for the 1988/89 crop year, and overall acreage has dropped from an estimated 10,000 to 7,800 today.

f. Other implicit assumptions not made by the Project designers.

There are several additional assumptions that should have been made by the project designers that have affected the progress and speed of adoption of the Project, at least during the first two years of its life.

Apparently, the designers assumed that the extension services of the islands were fully involved in promoting cocoa production and husbandry. This is logical, since most extension services are in fact usually engaged in helping farmers with their crop production. However, extension agents had not been involved in assisting farmers improve production, and needed extensive training (especially in St. Lucia and Dominica). This caused an eighteen month delay while Project technicians tried to convince national leaders and their staff that this was the way they could have the most impact on the farmers and their production. This factor has been an important one that the Project designers should have noted.

Before 1986, the CRP cocoa extension service on Grenada was carrying out the CIDA Phase I Project, 1982-1987, involved primarily in plant propagation and distribution. The goal was to plant some 10,000 acres of new cocoa to replace aging plantations and increase overall acreage. Theoretically, CRP was responsible for the cocoa tress until they were four years of age, and carried out this function to the extent possible. The agents were responsible for estimating the number of plants required each year on each farm, guiding the farmers in caring for them and collecting the payment for these plants. Many farmers did not follow their instructions, however, and the loss of plants in the field was exceptionally high. The CRP extension agents played only a minor role in assisting farmers to improve their older cocoa.

In 1986, the CRP began assuming responsibility for assisting farmers in management and production technology transfer and all aspects of cocoa production (except processing and marketing), with assistance from PADF under the Eastern Caribbean Cocoa Project. The GCA has had the responsibility for processing and marketing since the early 1960s.

On St. Lucia and Dominica, the Ministry of Agriculture extension service had responsibility for cocoa. However, extension emphasis was on promoting crops that brought higher prices at the time - bananas, coffee, citrus, etc. Little, if any, attention was given to cocoa. On St. Lucia, a cocoa officer was assigned to the SLAA to work on cocoa quality, but no one had the responsibility of assisting farmers with cocoa production until the PADF Project began. Dominica had no one with particular responsibility for cocoa production, processing or marketing. Very little had been done by the extension service on this crop for several years before the PADF Project.

On all of the islands, the Project served to consolidate and focus extension service efforts on cocoa, promoting cocoa rehabilitation and production as well as training its personnel and farmers in new methods of rehabilitation and development of both old and new plantings.

A number of factors tended to slow progress in establishing contract demonstration plots and utilizing them as the primary extension technology transfer sites and training tool. The CRP extension service staff initially viewed the contract demonstration program as just another job on top of their current responsibilities, and some agents felt they should be paid extra for this work. Since nutmeg was paying the highest prices in its history and required much less work on the part of the farmer, it was a very enticing alternative to cocoa. Likewise, bananas were selling at very good prices with a good system for marketing and payment to the farmer for their work (every two weeks after their delivery to the port). As a result, farmer interest, until very recently, had been focused more on bananas and nutmeg than on cocoa. However, at this time the picture seems to be changing: the questionable future =for bananas, the appearance of the Moca disease of bananas and repeated blow-downs, etc. are causing many farmers to look to cocoa as a viable alternative for the future.

Another additional assumption to be coupled with (e) above, should have been that the cost of production would not increase during the life of the Project. Three factors determine income: production itself, the sales price, and the cost of production. It is not useful to consider any one factor without including the others.

In the case of Grenada, there has been a significant increase in the cost of production. Since the Project started, the price of fertilizer has increase by 28 percent and labor costs by some 63 percent. These tow items have increased the total cost of production by over 45 percent. As a result, the Project has worked to teach the extension agents and farmers how to reduce their cost of production with new technical production methods and labor saving techniques.

Overall, the original design assumptions have not held true, which has had a significant effect on the speed of adoption of improved practices, as well as implementation of the Project's strategies. As a result, at this midpoint in the evaluation of this project, it has been difficult to attain the quantitative goals established for this program.

In spite of these adversities, however, it has made steady advances on almost all of its action elements, and is now in a position to make real headway in the cocoa industry of these islands.

2. Project Management

I have discussed the management of the Project by both the USAID and PADF with national program authorities and the staff of PADF in the field and at their central offices in Washington, DC. I heard only accolades about both agencies throughout my visit. Both the USAID staff and PADF personnel have been prompt in discussing problems and skilled in finding practical solutions to these difficulties. Likewise, opportunities for stimulating increased cocoa production have been met by the USAID in a timely and effective manner.

Discussions with farmers participating in the contract demonstration plots to ascertain whether they have received their payments on time and the required assistance from extension agents have been extremely positive. All payments have been made within two weeks of presenting their expenses, according to the farmers. The only cases of delayed payment have been due to the farmers not presenting the documents required to substantiate payments. They have recognized that the delay was their fault and not that of the Project.

As noted above, there have been some problems in changing the focus of the national extension services of the three islands. The nine months delay of Dominica by signing the Memorandum of Understanding also caused a delay of Project activities in that country. However, since the signing, they have collaborated extremely well with the Project and are on schedule today in carrying out the training and demonstration plot program as required.

The delay in Grenada in reorganizing their cocoa agency, in addition to the initially negative attitude of the extension agents to the contract demonstration program, resulted in a delay of about eighteen months in identification and planting of demonstration plots. The CRP, now the technical arm of the GCA, felt that there was a lack of understanding by the extension service staff of the objectives, operations and implementation processes, as well as their responsibilities in this effort. This difficulty has now been resolved to the satisfaction of all involved. Within the past year, the GCA/CRP staff also have made excellent strides in catching up on these Project actions and may be considered up to date at this time.

The long delay in the implementation of the Project's activities in

St. Lucia was due to a very different type of problem. The SLAA cocoa/coffee officer, in charge of cocoa improvement, would not cooperate with the extension service and resisted any guidance on the elements of the project from the PADF technicians. During his eighteen months in this position, only six areas of demonstration plots were initiated. Since his replacement in June 1988, the new officer, working closely with the extension staff, has planted some 51 acres of new demonstration contracts. These are now in operation, and approval has been received to renovate an additional 9 acres of cocoa on farms already identified.

With the exception of the above, I have not found any management problems that have been a constraint tot he progress of the project. All financial reports, technical monthly reports and other documentation appear to be up to date and complete.

I also have not found any situation or circumstance where the management of the project by either the USAID or PADF has as adversely affected the Project's operations.

B. ISSUE: Are the technologies promoted by the Project effective in increasing production?

An in-depth review was made of the technical recommendations being promoted by he Project. These are of two types. The first is for the planting of cocoa where it was previously planted but has been removed or died, or for the initial planting of cocoa where none has been planted previously. The second situation is where older plantings of cocoa are in sufficiently good condition to warrant renovation.

My review of these recommendations covered the following:

1. Planting material

The Project is using both clones and hybrid seed of selected older clonal trees in heavy production as its primary planting sources. This decision was made by the Project specialists after consulting the best cocoa geneticists in this hemisphere - Dr. Kennedy (U.W.I./Cocoa Unit), Dr. Enriquez from CATIE, and Dr. Bartley from CEPLAC (the cocoa organization of Brazil).

Their recommendation was to preserve at all cost the unique flavor quality characteristics of the cocoa of these islands which bring them a premium on the world market. I support this decision completely.

They further recommended that the program should continue to use cuttings of the GS and the ICS lines that are known to produce the high flavor quality for which the islands are noted. As a result, they are recommending a rather wide spectrum group of forty-one clones, planted in mixtures in the farmers' fields. Some of these clones have some resistance to Black Pod (Phytophthora palmivora), Witches Broom (Crenipilus perniciosus) and the Ceratostomella Wilt (Ceratocystis fimbriata).

The islands now have severe attacks of Black Pod under some high moisture conditions, but only Grenada has Witches Broom. Ceratostomella is not yet found in the region, but could appear at any time due to the heavy movement of people and plants from other areas. This recommendation makes sense to me, and I support it for the present. As time and field testing are carried forward, I hope that the number of clone can be further reduced and grafted trees used instead of cuttings, due to their ability to produce a tap root - not possible with rooted cuttings.

In addition, in research plots in Grenada, CATIE hybrids have been brought in for test and quality evaluation, when in production. This material has produced good results in Central America. It does have one drawback, however: since it is made up of a wide group of crosses, usually over thirty, some offspring produce better than other. If possible, the mother lines should be brought to the Grenada experiment station and test made to select the best producers for distribution to growers in the future.

Likewise, the newer group of material at CATIE resistant to Black Pod, Monilia, Witches Broom and Ceratostomella Wilt have been introduced for observation, quality testing and possible crossing in the future. Some of these diseases are not found in the islands at this time but are a threat to the industry for the future.

In St. Lucia and Dominica, the Project is using open pollinated sees from mother trees selected by Dr. Bartley from among the older clonal trees with proven yield capacity and high quality. Due to the severe limitation of clonal planting material, and the increasing demand for cocoa plants by farmers, this practice is the most desirable at this time. As the Project continues, however, there will be a serious need for additional improved seed. A mother garden is needed on each of these islands as soon as possible. In addition, further testing of these improved line seedlings should be made to assure that they are capable of producing high yields. They should be also tested to assure that they are self-compatible.

The initial growth of these hybrids is excellent in the demonstration plots visited. Some of them with less than two years in the field are beginning to produce their first crop. This is almost one year less than for clonal material planted in the same fields. Similar results are beginning to show up in the plots in the research planting where the CATIE hybrids are growing.

I fully support the recommendations being used for plant material at this time. They are sound, well thought out and offer excellent production returns to producers, while conserving the high quality characteristics for which the region is noted.

2. Planting Distance

The Project recommends that all new cocoa should be planted at a spacing of 9' X 9' on the square for seedlings/hybrids, and 10' X 10' for

clones. This distance for clones may be a bitclose, and will require some pruning to permit the normal cultural practices that will be conducted in these improved plantations. In older plantings, it is necessary to replant missing trees at the same distance as the old planting - usually 10' X 12'.

This spacing follows the same planting distance recommendations that are being used elsewhere, and have been proven most effective in most other countries using clones, through extensive research and commercial application.

3. Weed Control

The current price for labor on the three islands is several times that paid in Central America. In Guatemala, for example, the labor cost per day is about $1.50 for an eight hour day or a full task of assigned work. In Grenada, the cost of labor is today about US$5.75 and the productivity of this labor appears to be much less than in Central America. I was informed by national technicians that tasks are expected to be complete within about three hours, and offers for double payment for completing a second task the same day were refused.

This high labor cost and low productivity has resulted in the Project recommending that the farmers use more weed killers and less hand labor for weeding. This cost-cutting measure appears to be about the only solution possible, and is accompanied by a further recommendation that the farmer cover the land with shade trees and temporary shade as the field is planted. This shade reduces the weed problem considerable, resulting in the use of substantially less weed killer (Gramxone and Roundup).

This recommendation of shade and chemical control of weeds is cost effective. If used carefully, without over application, it is an acceptable practice. Care should be taken in the training of farmers to assure that they do not overuse weed killers and contaminate their land excessively or promote runoff into the rivers, thereby affecting marine life more than necessary. All publications discussing the use of chemical weed killers should point out that if using a little bit is good, more is not necessarily better.

Another tactic used by the PADF technicians is to import portable weed hogs and demonstrate them on some farms. This method of weed control should be further studied to see if it can substitute for the use of chemical weed killers. Possibly a cost/benefit study is needed for this technique. If so, it should be carried out as soon as possible.

4. Pruning

The Project is teaching the extension agents and farmers how to prune both their old cocoa trees and their new clonal and hybrid seedlings. They are attempting to control tree height at about 16' and to open the trees to more light and air circulation. In both the written bulletins and in the field demonstration, this training covers the best system of

creating the main scaffolding of the tree, and still permits free movement of people (and air) through the planting.

The recommendations in practice for pruning follow the best procedures, and are producing good results to date.

5. Shade and Windbreaks

The amount of shade over cocoa is critical for high yields. Throughout the islands, the amount of shade varies considerably. Many of the old plantings of cocoa are insufficiently shaded by a mix of leguminous and non-leguminous trees. In some areas where the shade has recently been cut or otherwise removed, the cocoa is too exposed to the sun. This cocoa will have a tendency to over produce or become subject to severe disease and insect attack. In these areas, more shade trees (both temporary and new permanent) are required. On a small number of farms, the shade on the old cocoa is much too dense and yields are very low.

Based on research conducted in Trinidad, Ecuador and Ghana, cocoa generally grows best, has less disease and insect problems, and produces the largest crops, when the amount of incident light is between 25 - 50 percent of full solar radiation. This level is even more important when the trees are fertilized, since there is a strong relationship between plant nutrition and shade in cocoa. The full effect of good fertilizer use is generally not realized if the mature trees are under more than 35 - 40 percent shade.

Under the Project, farmers are learning how to regulate and control shade for high production. Current Project recommendations include the use of bananas for temporary shade and the planting of Cassia, Immortelle, Leucena and Gliricidia. All are leguminous trees which add nitrogen to the soil and have proven records for cocoa shade in other countries. The Immortelle, under some circumstances, is subject to a stem borer and may not live long on some farms.

Overall, the types of shade trees, the amount of shade recommended, and the planting densities that the Project is promoting, are within good production standards.

The Project is also stressing the need for windbreaks at the edges of the fields, and in some areas of high prevailing wind situations within the cocoa plantings. At times, the islands are subject to heavy winds that damage or remove the cocoa leaves from both young and older trees. There is also a very negative effect of the leaves abrading one another during high winds, and this abrasion frequently permits diseases to enter the trees. The loss of leaves reduces fruit production and the fruit/bean ratio. The use of windbreaks should therefore be very actively supported.

For the windbreaks, the Project is recommending all of the trees that are used for shade plus Red Ceder, Mahogany, French Cashew, Mangoes and Angelica. All are very good selections for this purpose.

The Project's recommendations for the use of windbreaks in cocoa are appropriate and fully supported by the evaluator and existing research.

6. Cocoa Nutrition

No soil is perfect in terms of the amount of each of the fifteen elements that plants require to grow and produce fruit. Three of these elements - carbon, oxygen and hydrogen - are absorbed from the air and are not limiting nutritionally. The remaining nutrients - nitrogen, phosphorus, potash, calcium, magnesium, boron, zinc, manganese, molybdenum, sulfur, iron and copper - are absorbed from the soil. Each is required in a specific amount. The plant will grow and produce only to the extent that is permitted by the element that is in the shortest supply. Cocoa is no exception.

The Project recommends the use of fertilizer, usually N-P-K formulas based on N-P-K research done in several trials carried out by a CIDA-funded study some five years ago. Unfortunately, that study did not investigate the possibility of minor elements limiting nutrition.

The general recommendation for Grenada is the use of 16-16-16. In some areas, they are also adding some magnesium to this formula (about 2 percent). It would be unusual for all of the soils of these islands to have the same requirement for fertilizer; for example, volcanic soils are notorious for being very different in their nutrient availability.

On the other islands - St. Lucia and Dominica - the formula being used is 12-8-24-2, which is the available formula used for bananas. In many cases, the only fertilizers available locally are those used for bananas. There appears to be no source of nitrogen (e.g. urea or sulfate of ammonia) on any of the islands other than in the formulas. I was not able to find any source of minor elements for foliar spraying on any of the islands. On St. Lucia, I was told that from time to time they did have some complete foliar fertilizer available, used only in the nursery.

During my field trips, I noted several deficiencies that should be controlled. Chief were iron deficiency on both St. Lucia and Dominica, and zinc deficiency on Grenada. I also noted that on the newly planted cocoa (one to two year old plants in the demonstration plots), the older leaves were frequently missing and there was a marginal necrosis on the older remaining leaves. I suspect that this is a magnesium deficiency. If so, it is quite widespread, and is reducing the total growth of these young trees. It should be studied to see if this deficiency exists, and if it would be cost effective to control it.

In the Central American countries, it has been advantageous to apply several ounces or urea to coffee before the beginning of the dry season; this permits the plants to withstand the dry season much better. I suspect that the same may be found for cocoa on these islands, and therefore suggest that the Project import urea, and try it at several dosage levels to test the results.

It was noted that soil and foliar analysis has not been made in most of the demonstration plots. It is hard to make good recommendations without good soil nutritional data. I urge the Project to take soil samples as soon as possible on each plot, have them analyzed by a good laboratory, and follow this up every two years thereafter.

Several local technicians commented that they had taken soil samples and sent them to two laboratories, one in Grenada and one in the US. The results were very different from each lab, which may make it necessary to have a good soils specialist review the methods and procedures of the labs and suggest such changes as may be required. It will also be important for these laboratories to improve their correlation between field response and the lab analysis as soon as possible. If this is not done, these analyses will not result in the kind of recommendations that are needed by the cocoa farmers on the three islands.

Until further soils research is completed for cocoa (probably the most important short-run task facing the program), I would agree that the current recommendation be continued. I would strongly propose that further research is in order, especially for the minor elements. For this, the Project should work with CIDA and the national governments to assure that this work is begun as soon as possible.

7. Pest and Disease Control

The Project technicians have recommended that several pest and disease problems be controlled. Chief among these on Grenada are termites, beetles, and thrips, and Witches Broom. On Dominica and St. Lucia, the rat problem is an important factor in production. The main disease problem on all of the islands appears to be Black Pod Disease. On Grenada, losses from Black Pod in old cocoa alone are reported to be as high as 40-50 percent in some years.

The Project has held courses for both extension agents and farmers on the control of both diseases and insect pests on all of the islands. On the contract demonstration plots, they are controlling these problems very well using EPA recommended chemicals. In addition, the Project has published a good set of bulletins on these subjects that are given to all farmers that attend the courses. All of the extension agencies visited had these publications on prominent display, and readily available.

Probably the most difficult problem, and the one that is restricting yields most, is Black Pod Disease. The control measures recommended by the Project technicians are to open the cocoa tree, to reduce shade within the tree, to cut and bury all infected fruit, and to apply two sprays of a copper oxide foliar compound. The first application is made at the start of the flowering season, and the second at the time of the greatest disease incidence. This is a sound cost/effective recommendation, based on research done in several countries, and it is now being carried out successfully on all of the demonstration plots.

A complication for farmers carrying out these recommendations is that the governments on several of the islands have their own pest control

program covering all farms in the cocoa areas of their respective island. They are charging the farmers about EC$0.22-0.28 per pound of cocoa sold for disease control. Their spray teams apply copper and other materials to all cocoa on the islands of Grenada and Dominica. These teams reportedly work very slowly, but do not cover all of the farms well. They apply spray to large areas of cocoa where the results will be extremely doubtful, since the farmers are not carrying out the sanitation measures necessary to complement these sprays. Also these spray crews often do not arrive on the farm at the time when the application is needed most.

On the demonstration plots, farmers are applying the appropriate sprays using their own sprayers. Outside of this, since the farmers are paying for this application, they are very reluctant to buy their own sprayers and apply the copper at the time it is most needed. As a result, it has been very difficult to get good farmer response to the Project's recommendations outside of the contract demonstration plots, and the control of this disease is still not satisfactory.

On Grenada, the GCA recognizes this problem and is beginning to address it. Possibly, the Project staff could work more closely with the GCA on this issue, if desired by the GCA. The Project could even bring in a good specialist to review the situation and find a solution to this problem. As it stands, these islands are losing thousands of dollars annually in production due to this difficulty. If not corrected, it will affect the progress of the other recommendations made.

8. General Comments on the Technical Recommendations

It is generally too early in the life of the Project to fully measure the effect of the different production recommendations in the field, since most of the demonstration plots visited were in their first, second or third year from field planting. Some plots were already beginning to produce some crop, however, and the conclusion is that recommendations made by the Project are sound, follow similar recommendations in other countries where high yields are attained, and are producing good results in plant growth and early production of the trees seen in the field.

Some of the preliminary results on renovated farms are excellent. On Mrs. Ester Green's farm on Grenada, I was informed that the 1.25 acre, two year old demonstration plot in mature cocoa is already producing 50 percent of the total yield of her entire farm of 4.5 acres of cocoa. In another plot, that of Mr. Wilson Rouger, his one acre demonstration plot, renovated in April of this year, had already produced over 800 lbs. of cocoa this production season, and the crop year is still not over. This is about 50 percent of the total production of this entire 4.5 acre farm.

The results to date in the demonstration plots on all of the three islands are being closely observed by many farmers and Government officials. Due to the results obtained to date, they have begun to change their opinion of the merits or cocoa production. Within the past several months a new attitude and several new production initiatives have resulted. This would not have been possible if they did not see a

measurable result in the demonstration plots where the Project's recommendations are being applied.

C. ISSUE: How have both the internal and external factors affected the adoption of the technologies promoted?

1. Local country participation

As noted earlier, several countries demonstrated considerable reluctance to participate in the Project, early in its implementation. It took Dominica eight months to be convinced to participate, while St. Vincent never agreed to the terms of the program and was finally eliminated. A major factor that initially deferred Dominica from accepting the agreement was the Minister of Agriculture's desire to manage all Project funds, and not involve the private sector. In the case of St. Vincent, the government wanted the program to pay for activities not included within the Project scope. It took considerable effort and many discussions between PADF's staff and the three participating countries before Memoranda of Understanding were signed and effective.

On St. Lucia, the lack of cooperation of the original cocoa officer was a serious deterrent to the progress of the program on that island, as discussed fully under Issue (A), section (2) Project Management.

2. Farmer Investment

A second point is that the original design of this program was based on the premise that the large farmers, principally those located on Grenada, would be interested in improving their farms and would invest considerable amounts of money to make the necessary improvements required to increase their production. However, this assumption has proven incorrect, and delayed the attainment of the program's original goal of renovating one thousand areas of old cocoa and planting an additional one thousand acres of new cocoa. At the present time, the main interest in improving cocoa production appears to be shared instead by the midsize and smaller producers. This factor is discussed in detail under Issue (A) (1) Design Assumptions (a).

3. Technical Assistance and Training

A third major factor causing slow initial progress of technology adoption on Grenada was discussed under Issue (A) (1) Design Assumptions (f), regarding the lack of involvement of the extension agents in working with farmers to improve their production. The agents were previously producers and distributors of cocoa plants under the CIDA-funded propagation program, and some did not know how to grow cocoa using modern methods at the farm level, and some reportedly were afraid to reveal their limitations in this regard. On St. Lucia and Dominica, many of the extension agents had little previous experience in cocoa production. At Project start-up, there was considerable initial reluctance by these agents to take on an expanded new role in addition to their current responsibilities.

As the Project has progressed, the demonstration plots have increased in number and have begun to show positive results. Also, as the agents receive more training in cocoa, attitudes have changed dramatically. The extension agents and the agencies they are working for have become convinced of the merits of the program, and are beginning to take pride in their new role in increasing numbers. Most have become strong advocates of the need to improve the cocoa in their area.

The level of farmer understanding of the modern methods of producing cocoa was very low at the beginning of this effort and continues to be so today. In addition, farmers need technical assistance and oversight on a regular basis on their farms. It has been shown through the demonstration plots planted on the three islands that without intense support and frequent visits by local technicians, the farmers too often do not apply the methods and procedures correctly. At the present time, this is being carried out through almost weekly visits to the collaborating demonstration plot farmer fields.

There are several factors, however, beginning to motivate producers of traditional cocoa, as well as others, to take a new look at this crop. Part of this new interest appears to be due to the results of the demonstration plots and the cost data that is accumulating. No cost data existed for cocoa on any of the three islands before this program. The Project has done a remarkable job of establishing the costs of cocoa production in both renovation and new planting situations. This data system for the first time permits the national agents to tell farmers the exact cost and the labor needed to implement the improved practices. From a review of this data, the cost of renovating cocoa is approximately the same for inputs as in other countries of the mainland region. Labor costs are, however, higher than in Central America.

Total cost of renovation is on the order of EC $1,000.00 to $1,500.00 and the average cost for new plantings in the Caribbean is approximately EC$2,000.00 to $2,300.00. The difference in these costs is generally related to the amount of pre-cleaning of the fields of weeds and excess bush. Both are reasonable levels of input for cocoa on the islands. It is not yet possible to estimate the returns on investment, since the oldest plantings are less than three years from field planting or renovation. Preliminary estimates made by the Project staff, assuming production levels of 1,000 lbs. of cocoa per acre on a sustained basis, indicate that cocoa is a good investment even with the present relatively low prices for the crop.

Also, many banana farmers, and the governments of the islands, are becoming concerned with their future, since England joined the new European Economic Community. They see that they may lose their present position in the English market and are being urged to diversify - principally into cocoa and nutmeg. For some, the recent heavy loss of their banana crop due to the blow-down caused by Hugo, as well as frequently damaging high wind situations, is provoking them to look at other crops that are less prone to damage from these natural disturbances.

Despite this increase in farmer motivation, there is a need for the governments and the project to consider another approach to farmer training. Since it is difficult to enlist many large farmers to improve their farms, and increasing numbers of medium and smaller farm operators want assistance, a change in the target farmer, as well as the approach to him, seems warranted. This training must be much more systematic, and reach much larger numbers of individuals, at lower cost per person assisted, than at the present time. At present on Grenada there are only 15 extension agents to serve over 5900 cocoa farmers. It is obvious that through occasional meetings with farmers and considerable time spent attending to individual farmer requests for assistance, agents will never reach enough producers to have the impact desired by the local government agencies, USAID and PADF. The cost of individual farmer support by relatively highly paid extension agents is almost prohibitive.

Since the beginning of the Project, PADF has urged increased use of group farmer meetings. These are increasing in number, with more farmers attending. There is, however, no apparent emphasis on the need for participation to be continuous, systematic and organized by the group being assisted.

In these programs, the agent meets with groups of farmers on a monthly, scheduled basis. There are over twenty farmers in each group (some groups have even decided to assess a fine for any member that fails to attend). Since each extension agent must usually assist over two hundred farmers per month, para-technicians are also employed. These are participating farmer leaders, chosen by their group as outstanding and respected people. They receive additional training on the crop and personally visit each farmer every month to ensure that they understand the practices taught and are carrying them out properly. For this they are paid for about two weeks of work, and continue to work their own farms as well. In addition, they are using mass media (usually radio) to reinforce their messages to the farmers.

I would encourage some of the extension leaders, USAID representatives and PADF technical staff members to visit these programs and consider some adaptation of them to their island situation and cocoa. Something must be done soon, since the interest in cocoa is growing rapidly and farmers will increasingly want help beyond what the existing extension staffs and assistance systems are able to provide on a one-to-one basis. If the extension services continue to operate in the present manner, they will not be able to provide all of the farmer training required.

4. Credit

At the beginning of this program, credit was considered a limiting factor in the adoption of the technologies that the PADF staff were promoting. A credit survey was made by Dr. Albert Greve in June 1987. Now that demand for funds to improve farm level cocoa is increasing, credit is becoming a significant limiting factor. Not only is the capital available for lending limited, but the terms of commercial credit are very high and the required collateral the farmer must provide is a major

stumbling block. On several occasions, in discussing this issue with both bank officials and extension agents, this was given as a major reason why more farmers are not using credit. Loans from commercial sources are running at about 12 percent per annum, which is too high for the establishment or renovation of long-term crops. Also, many farmers do not have clear title to their land, and thus are not able to qualify for any type of credit now available.

Within the last year, with the new emphasis ion cocoa, funds are becoming somewhat more readily available to meet some of the new demand on both St. Lucia and Grenada. On St. Lucia, the government has recently announced a new subsidy program to pay farmers up to fifty percent of the first three years of the cost to renovate 135 acres of old cocoa and plant 130 areas of new cocoa. For the first quarter of this initiative, some EC$220,000.00 are being made available for these subsidies to growers. They are using the cost analysis data generated from the contract demonstration program as the basis for these payments. Unfortunately, this will be too small to meet the demand that is expected by the PADF team and their national counterparts.

In Grenada, the GCA, working through the Government's Development Bank (operating as its agent), announced in 1988 the creation of a fund of some EC$900,000 for the renovation of cocoa. These funds are available at six percent interest deferred for one year, and principal payments deferred for up to five years. Already, this fund is subscribed up to some EC$700,000.

Likewise, discussions with the AID bank officials in Dominica revealed that they saw no problem in making credit available to cocoa farmers and were interested in pursuing this possibility further with national authorities. They did see a problem, however, in deferring the interest and the principal beyond one year, since it would affect their cash flow problem excessively. If these constraints are not addressed and resolved very soon, there will be a limitation on the availability of credit during 1990 on this island.

For the next year, it appears that there will be limited amounts of capital available for lending or subsidizing farmers for cocoa planting and/or renovation. As this program increases, certainly after 1990 as more farmers want to improve their cocoa plantings, something must be done to augment the amount of capital available for this purpose. This is an area that the USAID should being to analyze and determine the conditions necessary to make cocoa practical for farmers. Otherwise, it will be a limiting factor for this Project's success in promoting cocoa production.

If, as I surmise, credit will soon be a major limiting factor for cocoa improvement, the Agency should consider providing it through this program or another AID initiative on all three islands as early as the end of 1990. The problem of farmer collateral may also be an area where the USAID and other agencies could play a part. Possibly, the banks could be provided a guarantee for the loan if they would use crop liens. This guarantee fund could be divided between the national governments and the

USAID. In this situation, the farmers could be required to attend the monthly courses on production and apply the new techniques in their fields. Non-participation would be grounds for stopping their loan.

5. Market Prices

Another deterrent to the expansion of cocoa during the past three years has been the high market prices for several other crops. Bananas have increased at the farmer level from $0.195 per pound in 1984 to $0.3201 per pound in 1988. Nutmeg has increased even more dramatically than bananas. The price for nutmeg was $0.70 per pound dry in 1988; it is currently $2.00 per pound. Nutmeg is a very easy crop to produce and requires almost no labor other than harvest once it comes into production (usually after seven years).

With these prices for bananas and nutmeg, it is hard to convince farmers that they should plant cocoa given its currently low price, despite the fact that farmers in other countries are taking their plantings out of production and the price will consequently increase within a few years. Nevertheless, progress is being made and increasing numbers of farmers are beginning to improve their plantings using the recommendations of the Project and local technicians.

As mentioned earlier in this evaluation, the World's Finest Chocolate Company, in order to further stimulate flavor cocoa production on St. Lucia and Dominica, is offering a premium for their production if it is delivered in ten ton lots. While the current cocoa price in New York is about $0.82 to $0.85 per pound, World's Finest has offered to pay US$1.20 per pound for a five year period in order to promote production on these islands. This is a positive stimulus for increasing production not equaled elsewhere, and it is encouraging many farmers to adopt the new practices.

6. Labor

Another factor accounting for the slow adoption rate of the new practices, especially among the larger farmers, is the high rate of part-time or absentee ownership of farms, as well as the cost, productivity and availability of labor. In the GCA registration study made recently in Grenada, it was found that 42 percent of all cocoa farm owners are only part-time producers. The percentage for the larger farms is even higher. In these situations, it is even more difficult to make progress. One must not only find and convince the owner, but must change the thinking of the farm manager as well.

7. Availability of Planting Material

With the increased demand for cocoa plants on St. Lucia and Dominica, the present capacity of the government facilities to supply improved planting material may become a major obstacle to the expansion of cocoa this year and in future years. Present demand for plants to fill out misses in old fields and for new plantings this year far exceeds the

capacity of these facilities. The USAID should review this situation with PADF technicians and CIDA to find a solution to this problem.

8. Marketing

On Dominica, a farmer informed me that he had some 300 lbs. of dry cocoa which he could sell. It seems that the only real marketing agent, Mr. Rolle, only accepts wet cocoa and ferments it himself. He does not purchase dry cocoa, since it might not be properly processed and would affect his reputation as a processor. Since he will not handle dry fermented cocoa from others, it will be necessary for the Project technicians to assist the local cocoa agency in formulating a system for the sale of cocoa throughout the island. It only takes one or two farmers talking to others about their inability to sell their cocoa to depress interest in this crop.

Conclusion

Overall, the Project has had its difficulties in getting farmers to adopt the new production practices recommended. However, the results being obtained in the demonstration plots, the intensive training program that is being carried out, the effect of Hurricane Hugo, and the additional push that the governments and the cocoa institutions are making on the three islands, are all having a very positive effect. More and more farmers are beginning to search out their local cocoa agents and are following their recommendations. I find this fact to be the strength of the present program, one that foretells a good future for the USAID investment in cocoa on these islands.

D. ISSUE: What is the role, goal and effectiveness of the GCA, the CRP and the Project in Grenada as it relates to the purpose and needs of the network?

1. GCA/CRP Merger

In July of this year, the CRP and the GCA were merged into one agency (named the Grenada Cocoa Association) and the staffs of the two former agencies are now working as a single unit. The manager of the GCA, Mr. Leon Charles, is the overall head of the total program, and the former head of the CRP, Mr. Fitzroy James, is Director of the Technical Division. The latter's responsibilities now include his previous CRP responsibilities, the pest control program, and all maintenance and technical activities. The goal of GCA/CRP efforts focus on improving the production of cocoa per acre and enhancing the quality of the islands' cocoa, which matches the overall goal of the PADF/AID Project. Therefore, there is no conflict in the goals, training program or the manner in which these two entities are working.

Discussions with the General Manager and the Director of the Technical Division reveal that they are very appreciative of the assistance that they are receiving from the Project technicians and want more of it. They recognize that the time taken to formulate the new network has caused some delay in fully utilizing the benefits of the Project. They were very

concerned that the present program is to continue for only another two years, and felt-that it should be extended. They expressly asked me to inform the USAID of this fact. They were very impressed with both the training program and the data collection system being implemented by the Project. For the first time, they were getting reliable data on the production costs and labor requirements of cocoa. They felt that these factors will be of great assistance to them in formulating their next five year program to modernize and expand cocoa production on the island.

I did not feel that the new GCA has, as yet, been able to articulate a clear strategy for the expansion and improvement of cocoa production on the island, nor for how they will meet the technical assistance needs of large numbers of farmers. They are, however, fully cognizant of the need for this and their responsibility in this area. They recognize that they will have to use a system to reach a much larger segment of the 5,800+ cocoa farmers in Grenada with their small staff of technicians (15). Although they have not at this time finalized a strategy to carry this out, it must be remembered that they have been in their new positions for only a few months.

There is a need to develop a specific strategy for a sound technical transfer program and an effective way to carry it out. This Project and its staff can be a catalyst to assist in this process if they so desire.

2. Research Component

Regarding the research component of the Project, it was anticipated at the outset that the program would be able to use land at the Ashendon Station for research studies. After discussion with the national staff and visits to the station, it became clear that the land available was insufficient and broken into too many small plots to be practical to carry out the clonal and hybrid experiments projected.

As a result, another parcel of land (21 acres) was obtained at Lodbur, Mirabau. Meetings were held with Drs. Enriquez (CATIE) and Kennedy (UWI/CRU) to develop the design and content of the trials to go into this station. The clone/hybrid trial alone was finally designed by these specialists as a completely randomized block design covering fifteen acres.

I seriously question the practicality of this design and the ability of the local technicians to carry it out. It will require data collection for growth characteristics, pest tolerance production, and quality sampling on over 6,700 individual trees. At this time, it does not appear that the GCA has the number or type of people on their staff to successfully carry out this work. I recommend inviting a good statistician experienced in this type of research to determine if this trial could be divided into several smaller trials so that the collection of data could be carried out initially on one or two of these smaller plots. As additional personnel are added to the staff, other plots could be tested or converted into fertilizer or pest control trials.

I did not find any research being carried out on the other islands. Their cocoa industry is small and their technical staffs also limited both in number and their capacity to carry out real research. At this time, it is best that they use the results of work done in other countries. Possibly, as their plantings increase and special problems, unique to their environment, are identified, they will find it necessary to undertake original studies. At that time, they can call on the research capacity of the UWI/CRU or other scientists to assist them.

3. Relationship with CIDA

The CIDA investment in cocoa and in some research has been very heavy over the past eight years. Under an agreement dated August 1981, CIDA and the Government of Grenada initiated a cocoa rehabilitation program at a total cost of CDN $8.8 million over a five year period. Their objective was to increase the production of cocoa through a program of assistance to farmers, to accelerate the planting of new improved clonal trees to replace the old trees, and to expand the use of fertilizers and improve pest control. CIDA paid for most of the foreign exchange costs needed for vehicles, fertilizers, pest control chemicals and technical assistance. A major component of this program was the construction and use of an expanded propagation capacity on the island, to permit increased distribution of improved plants from some 250,000 to over 500,000 plants after the third year. The goal was to increase the area planted to cocoa to some 10,000 acres after five years. CIDA created a Fertilizer Counterpart Fund to pay for some of the local costs of the staff for the propagation unit and in the extension service. A training program was started for the propagation of nursery stock and the actual propagation of the clonal material. Several acres of mother trees were planted to supply the propagation stock required.

At the beginning, a management board was created with members drawn from both the public and private sectors. The program used the existing land and facilities of the Ministry of Agriculture. The major focus was on the propagation and distribution of improved plant material. More recently, this board function has been passed on to the GCA.

The actual distribution of the new clonally propagated plants was the responsibility of the extension service. Their agents were required to enforce the rules and regulations of the program for farmers who wanted to obtain plants for new plantings. Little attention was given to assisting farmers in the husbandry of cocoa. Each extension agent was to visit three farmers per day to inspect their preparation for the new plants, or inspect the new planting. They recommended planting the new cocoa at a distance of 13' X 13'. Today, this distance is considered too wide for high production.

The agents had little time for assisting farmers in the management and improvement of their old cocoa. Nor, in the beginning, were they interested in filling out misses in older plantings

The young plantings suffered very high losses, reported to be over 40

percent, for several reasons. In many plots, the lack of adequate shade over the young plants caused heavy loss. Black Pod disease, losses due to termites and beetles as well as poor instruction of farmers in the management of their new plantings, appear to be the main factors. The loss of improved asexually propagated plants in the field resulted in replanting or the farmer abandoning the new planting altogether. Many unsuccessful plantings were converted into another crop.

Over time, farmers gradually reduced the acreage that they were planting and replanting to cocoa. In 1982 the distributed plants going for new plantings were 22 percent of the total plants distributed. By 1988, this had decreased to 9 percent. In 1982, for replanting in old plantations, some 44 percent of the total plants distributed were for this use. In 1988, this had decreased to some 21 percent. At the same time, plants used to replace the lost trees increased from 34 percent in 1982 to 70 percent in 1988.

I was informed by the technical people of the GCA that the cost of an asexually propagated plant was some EC $2.00 - 3.00 per plant, but they are charging the farmer only EC $0.25 per plant. The difference is being paid for as operating costs by the GCA and the local government. The result of this program is that it is not living up to its expectations, and a revised effort should be made by CIDA.

All of the plants needed for the contract demonstration plots have been freely provided by the GCA propagation unit.

In research, the CIDA, working with the UWI Research Unit and the local staff of the GCA, have prepared a research program which on paper is very ambitious and quite complete. It covers testing of clones and hybrids, conservation of the Grenadian germ plasm, testing the newer CRU and ICS clones, introduction of new crosses as well as making new crosses in Grenada, evaluating the flavor characteristics of the existing clones, conducting fertilizer trials (no detail is given if this will cover the minor elements), rootstock studies, various studies of diseases and pests, cost studies of grafting seedlings, etc. Most of these studies are expected to be carried out for a minimum of five years and many are scheduled for a ten year research life.

The problem with this research plan is the fact that there is only one person in the GCA, the Research Chief (B.Sc. degree), responsible for this work. I was informed that they have two additional people at the UWI securing their degrees in agriculture, but was not assured that they had the funds to employ these people when they graduate. Thus far, the Research Chief, largely due to his present workload, has not been able to give the appropriate attention to the Mirabou research plot. This has resulted in slow provision of basic data on the plants growing there. Also, I do not see how they can expand their research program as indicated in the CIDA proposal without additional staff.

The USAID and PADF should meet with the CIDA representative in Barbados to see how their new research program will be carried out and how

they can integrate the work at the Mirabou Station with the CIDA plan.

Conclusion

Overall, I found no conflict in the goals and objectives of the GCA research, extension and training program and the PADF cocoa programs. Indeed, the GCA manager and the technical division chief thought that these two efforts were fully complementary, as well as with the CIDA program, and were fully supportive of their national program in cocoa.

E. ISSUE: To what degree have the 5 strategies outlined in the Project Description of the Cooperative Agreement been employed and what is their effectiveness?

The original design of this Project called for the contractor to carry out five different strategies to maximize effectiveness and most efficiently use the small budget cost-effectively. These strategies and their actions are as follows:

1) Early outreach to small numbers of large producers

As has been noted previously, the Project technicians tried to interest many of the larger farmers, principally on Grenada, to modernize plantings which had been all but abandoned for many years. Both group meetings and individual visits were used over an eighteen month period to try to stimulate them to participate in this program. Not only did these farmers not want to participate in the improvement of their farms using their own resources, but most of them did not even want to use a portion of their farms for contract demonstration plots (only six large farmers have demonstration plots today). Many of these large farmers were more interested in selling their farms than developing them intensively.

This strategy was apparently not viable from the beginning. Although it appeared to be reasonable to the program designers, they did not actually survey these farmers to determine their real interest in and willingness to modernize their farms. The result has been that the Project's technicians spent a large amount of time trying to convince these large farmers to participate, but to no avail.

2) Establish a limited number of highly visible farm level demonstration plots

The Project staff began to promote the demonstration plots soon after they arrived at post. At first, there was resistance from the extension personnel to this idea. The agents saw this as an extra chore for which they were not receiving additional salary. During the first two years, due to perseverance and the training courses, the Project technicians were gradually able to interest these local extension agents in participating in a useful and a valuable means of in-the-field training of farmers. In the last year, the extension agents' attitude changed drastically. The demonstration plots are now seen as the main training tool of the extension service and they are proud of their work with them.

The following table shows their progress in this area:

ANNUAL CONTRACT DEMONSTRATION PLOT PROGRESS
(Acres Planted)

COUNTRY	YEAR				
	1986	1987	1988	1989	Total
Grenada	5.0	8.8	17.7	29.3	60.8
St. Lucia	-	7.0	14.0	38.5	59.5
Dominica	-	-	21.0	21.0	42.0
	5.0	15.8	52.7	88.8	162.3

This set of demonstration plots is now the backbone of the program. The PADF staff has developed an excellent system of data collection on each plot and field practice carried out on each farm. For the first time, each country has actual cost data for both renovated and new plantings. This data is being maintained by the agents for the plots they supervise. At the national level, the senior cocoa officer has a complete set of data for all of the plots that are on his island, and data for all three islands is computerized at the Project headquarters on Grenada.

As a result of these demonstration plots, the extension staff is now able to show farmers how to make real changes in their plantings, as well as the cost of each change. When these plots come into full production, they will also be able to show the results of these investments from both a cost and profit standpoint.

The plots are being actively used as the basis for training farmers in all of the practices needed to improve cocoa on the three islands. Training courses are carried out almost every month on these plots. The agents are now able to show the farmer that the practices work not only in an experimental situation, but under the conditions that the farmers face in their own fields.

The Project staff has done an excellent job in carrying out this strategy. At the end of this year, they will have almost all of the planned demonstration plots in the ground and operational. I do not think that additional plots will be needed after that, unless St. Vincent is added to this program.

3) Training the staffs of the counterpart organizations involved in transferring modern cocoa technology.

From the beginning of this program, the PADF technical staff has concentrated on the training of the national technicians. At first these people, especially the extension agents, were not really involved in assisting farmers in the improvement of their cocoa farms. They were almost completely dedicated to the production of cocoa plants and their

distribution to producers under the CIDA cocoa initiative It was evident that considerable attention must be given to changing the orientation of these agents if they were to assume a new role.

The Project technicians carried out a wide range of courses on the demonstration plots, including field planting, pruning, weed control, shade and windbreak management, disease control, cocoa nutrition and harvesting the crop. Throughout all of the local instruction sessions, the demonstration plots were used to provide on-the-spot field training in how to apply fertilizers, spray the plants, renovate old plantings, establish new shade, reform old shade, etc.

The following table shows the number of training courses that have been held on Grenada alone, as well as the target group:

TRAINING COURSES ON GRENADA
1986 TO 1989

YEAR	FIELD LECTURE	PARTICIPATION FARMER	PARTICIPATION EXT. AGTS.	TRAINEE/ DAYS *	TOTAL COURSE DAYS
1986	6 field	XX	XX	491	18 days
	3 lecture		XX	60	10 days
1987	9 field	XX	XX	171	53 days
	4 F/L	XX	XX	611	82 days
	7 lecture		XX	113	14 days
1988	3 field	XX	XX	113	9 days
	1 F/L	XX	XX	414	18 days
	2 lecture	XX	XX	274	4 days
1989	3 field	XX	XX	916	44 days
	5 F/L	XX	XX	104	8 days
	8 lecture	XX	XX	282	44 days

* Total number of person days for all courses in this category

The Project technicians have done an excellent job of training their counterparts and providing them with the experience needed to assist farmers, particularly on St. Lucia and Dominica. Many have developed the confidence to go to the field and effectively teach the farmers new methods and inform them of the real costs and benefits that they should expect.

In addition, a number of national technicians went to the Hummingbird Farm in Belize to see what they were doing and how their results could be applied to the Caribbean. This training mission was basically to open the minds of the local staff to new ideas about cocoa and gain additional perspectives on the improvement of their national industry.

4) Shift from reliance on vegetative propagated material to lower cost hybrid seed production

At the start of this Project, the PADF technicians imported the best hybrid lines from CATIE and other centers of excellence for use in carrying out this strategy. Some 60,000 seedling hybrid plants have been grown and planted on both the Mirabou Station and on selected private farms.

In-depth discussions with the best geneticists in this hemisphere have caused the team to move very cautiously in the broad use of this material. It has been the advice of the CATIE, UWI/CRU, and CEPLAC geneticists that this material has not been adequately tested for its quality. Since the cocoa of the islands is classified as among the highest flavor cocoas of the world, they cautioned not to expand the use of hybrids until thoroughly proven to have the same high qualities inherent in the existing cocoa produced throughout the islands.

While this material is growing, the technicians have had the assistance of Dr. Bartley of CEPLAC in Brazil to identify outstanding plants of clonal origin with proven quality and high yield. They are now in the process of teaching local technicians to hand pollinate and produce seed from this material. As greater amounts of seed from these selections become available, they will be used in the program.

I believe that the Project staff has been exceedingly responsible on this subject, and is taking the best tack possible. Quality is the basis of the islands' comparative advantage, and it is not in the interest of the Project or the USAID to adversely affect this in any way.

5) Encourage expanded private sector involvement in the processing and marketing of cocoa on the three islands

All marketing of cocoa on the three islands is done by the private sector or the semiprivate associations that work in cocoa. The producers on all three islands are receiving a higher percentage of the market price than their counterparts in any Latin American country that I know. The special price that is being offered by the World's Finest Chocolate Company of Chicago to producers in St. Lucia and Dominica is about 50 percent higher than the world market price. Likewise, in Grenada the GCA is receiving EC$320.00 per ton above the world market price for the cocoa they sell to Europe. The Project technicians are currently giving courses to both extension agents and interested farmers on the proper fermentation and drying of cocoa to enhance its quality, and further courses are planned for this year.

There is a problem on Dominica with the marketing of cocoa that warrants special attention. As noted previously, the principal processor on this island will only purchase cocoa before it is processed so that he can ferment it himself. This is an unsatisfactory system, since growers cannot deliver fresh beans to him due to the distances they must transport their crop to his processing plant. I discussed this problem with the

Dominican cocoa authorities and they will be consulting with the PADF outreach technician to find a solution to this problem.

On St. Lucia and Dominica, the Project technicians are making every effort to assist farmers process their crop properly and are training them in the best procedures to carry out this process. On the marketing side, the CIDA has been providing assistance to the GCA and is expected to continue in this role.

F. ISSUE: Has the private sector been involved in all aspects of the program and are joint ventures being promoted that use the advanced production technologies that are being recommended by the Project?

1. Private Sector Involvement

The private sector is at the heart of this program and is the motivating force on each island. The Grenada Cocoa Association is a semiprivate agency with six of the nine cocoa producing Board members coming from the private sector. Likewise, the National Development Foundation on Dominica is a private organization run by its farmer members. The St. Lucia Agriculturalists' Association is entirely private and represents the interests of its members. This association sells chemicals and materials for construction to its members at lower prices than are available in the commercial sector. These three entities are the counterpart agencies working with the project. In addition, all of the demonstration plots are also being carried out on private farmers.

Overall, I think that the program is fully committed to private sector involvement in this Project and will continue to stress this focus in the future.

2. Joint Ventures

As previously noted, the Project technicians have taken a very active role in trying to persuade large farmers to enter joint ventures to increase their capital, improve their farms, and expand their processing operations. Only five farms have shown any interest in this proposition, and these were brought to the attention of the HIAMP staff. HIAMP has pursued these leads, but to date no agreements have been completed for various reasons. At the time that negotiations were in full progress, one farmer went to England to sell his farm, without the knowledge of the HIAMP staff and the investor. Another farmer was about to complete negotiations, but it was discovered that he did not have full, clear ownership of the property in question. Another effort was terminated when it was found that the "US partner wanted to put very little money into the transaction".

In spite of these setbacks, the Project team continues to try to find interested parties for joint ventures. However, the prospect for this type of operation does not look favorable to either the team or to HIAMP.

G. ISSUE: What has been the effect of the contract demonstrations?

The contract demonstration plots on all three islands are the backbone of this program. They have been a valuable tool in teaching both the extension agents and farmers how to carry out the different practices promoted by the Project under a wide range of plant and farm situations.

Since they cover a wide range of different production situations, including both the renovation of old, poor yielding cocoa as well as the planting of new fields, both the producers and the extension agents are learning new sets of recommendations that will fill most production conditions throughout the islands. These demonstrations have clearly shown farmers that results can be dramatic on their own farms, not just on an experiment station where the farmer perceived the situation to be different from his own.

In addition, since the local extension agent is responsible for following through with the farmers in carrying out these recommendations, the demonstrations have given the agents a new perspective on their role in assisting the producers, as well as greatly strengthening the agents' confidence in working with farmers.

The Project cost data collection system for the first time has provided the local counterpart agencies (GCA, SLAA, NDF) with good data on the costs of both material and labor requirements for each of the different recommendations, used to show potential producers both the costs and the benefits of improving their cocoa. Likewise, the governments of St. Lucia and Grenada have used this information as the basis of new promotion programs to assist additional farmers to diversify into cocoa.

Overall, the demonstration plot program has been a very valuable system and an excellent investment of money and time. It has already changed the thinking of both the farmer and the cocoa support agencies about what can be accomplished. I think that the approximately 200 acres of contract demonstration plots are all that are needed in this area, and I would not recommend that further plots be initiated beyond those already in the ground and those that are beginning this season.

6. CONCLUSIONS

Although PADF technical staff arrived at post on time and began to carry out their mandate in a thoroughly professional manner, progress was initially hampered by setbacks caused by flaws in the Project design, including delays in securing agreements with the local governments, and in getting large farmers to invest in modern cocoa production, or even to participate in the contract demonstration plot program on their farms. In the case of St. Lucia, the unfortunate selection of an uncooperative cocoa officer caused problems for the SLAA and the Project; until this person was removed in June 1988, there was little action in installing the demonstration plots on that island. Since then, there has been a dramatic change in the work and cooperation of the SLAA, its technical staff and that of the Ministry of Agriculture.

In the last eighteen months a number of impressive changes have taken place as a result of this Project and the work of its dedicated staff - both local and from PADF. The government of St. Lucia has just begun a three year program to renovate 265 acres of cocoa using the methods promoted by the Project and the demonstration plot cost data. Some EC$220,000.00 in grant funds have been made available for the first quarter of the program, to finance one-half of the cost of renovating up to ten acres per farm. Likewise, in Grenada there is now available EC$900,000.00 in grant funds, as a fifty percent subsidy for the planting of new cocoa using procedures generated by the Project.

In addition, there are several external factors that are changing the outlook of many farmers on St. Lucia, Dominica and Grenada which are favorable to the future of this program. The recent damage to the banana crop caused by Hurricane Hugo this year is causing both the farmers and the government to look at other crops not subject to these disasters. Also, since England is becoming a partner in the E.E.C., many are concerned about their future in selling bananas to that country and are beginning to look at cocoa much more closely than before as a diversification crop.

All of these factors, in addition to the impressive work that the PADF team has accomplished in training local technicians and farmers, the demonstration plots and management of this program, promise a good future for this Project. I am impressed with the rapport the PADF staff has with its counterparts in all of the participating countries. I never have had so many people at all levels tell me of their admiration and respect for the personal relationships and technical competence of these technicians, compared to those of any other Project that I have evaluated to date.

I strongly believe that this Project is a sound investment on the islands and will continue to show increasing progress over the next several years. However, the initial life of project established for this effort is entirely too short to realize the full benefits of a crop such as cocoa. At least ten years is necessary for long-term crops and livestock projects. I wish to emphatically recommend that the USAID seriously consider extending this program for an additional five years, to fully reap the benefits of its investment and the excellent work that has been done.

7. PRINCIPAL RECOMMENDATIONS

A. FOR USAID:

1) I encourage the USAID to carry out a dialogue as soon as possible with the Government of Grenada to encourage it to sell or otherwise divest itself of the large farms that are still being held.

2) The USAID and the PADF team should meet with CIDA in Barbados, to better coordinate the assistance efforts of these organizations, since they can be made even more mutually supportive of the cocoa industry on all of the three islands.

3) Since one factor reportedly holding up the use of the new technologies being promoted by the Project is the availability of credit, and the conditions under which it is available (especially farmers' lack of a clear title to their land), I recommend that the USAID consider the formation of a loan fund appropriate for long-term crops, to permit more farmers to modernize their cocoa production. This might also include a guarantee fund to cover the title issue and permit the banks to accept crop liens.

4) The Project should be extended for an additional five years to benefit from the investment already made and the momentum that has been generated to date.

B. FOR PADF:

1) Since it has not been possible to interest large numbers of the major cocoa producers in improving their farms, another strategy is needed to meet the goals of the program. It appears that the future will lie with the medium size and upper small size farmers (from 3 to 30 acres), Since the number of these farmers is large, and the number of agents to assist them is relatively small, I suggest that the principal leaders of the three national programs with personnel from the PADF and USAID visit the Guatemalan Coffee program to see their work with large numbers of farmers, and its possible role in developing a new outreach strategy for this program.

2) Seed gardens of about four acres in size are badly needed in St. Lucia and Dominica. Land for them should be secured as soon as possible, and they should be planted with the best clones and hybrids as a source of propagation material for the future.

3) Yield tests should be made of the hand pollinated seed from the clones that have been selected by Dr. Bartley and Dr. Lopez.

4) As feasible, there should be further tests made of the use of weed hogs and other similar machines to see to what extent they can be used on commercial cocoa farms instead of chemical weed killers.

5) The newer Monilia Pod Rot, Black Pod, Ceratosistis and Witches Broom resistant material from CATIE should be introduced and placed in the research station for testing. If not already present on the islands, these diseases will appear at some time in the future. This new material will give the islands some assurance of having good lines ready when that time comes.

6) The problem of the availability of planting material on both St. Lucia and Dominica must be solved as soon as feasible, since it can cause many farmers to delay improving their plantings using the recommendations of this Project.

7) The marketing problem of farmer-processed cocoa noted on Dominica must be solved immediately. If not, it will be detrimental to the entire thrust of this program.

8) Good signs must be placed near the road by all demonstration plots to advertise their presence to the public, indicating the source of funding as well. These signs should also provide the essential information on when the plot was started, the owner of the farm, and whether the plot is a renovation of old cocoa or a new planting.

8. LESSONS LEARNED

Project Design Implications

The designers of this Project assumed several things that have had a detrimental effect on its progress during the first two years. They assumed that large farmers would like to modernize their production and would invest in this effort; that there would not be a downturn in the market price of cocoa during the period of this program; and that the extension services on all of the three islands were assisting farmers in the improvement of their farm management and production of both new and old cocoa. None of these assumptions proved correct.

In future projects, greater care should be taken to survey the potential recipients of technical assistance to assure that the target audience is receptive and that the world production will in fact be stable and attractive to new producers.

The success of this Project to date is due to the efforts of the PADF team in overcoming the design flaws. It is now beginning to show significant results and should be amended as soon as possible to maintain the positive momentum.

SCOPE OF WORK
MID-TERM EVALUATION

Project: EAST CARIBBEAN COCOA PROJECT

Cooperative Agreement No.: 538-0140-G-00-6061-00

LOP Dates: August 31, 1986 - July 31, 1991.

LOP Funding: AID $2,973,000

I. Evaluation Purpose and Objectives

According to the program description, a mid-term evaluation will be conducted in Year Three by a cocoa expert not a staff member of the Grantee organization. He should have experience in cocoa production and processing, and be familiar with agricultural extension programs. The mid-term evaluator will consult with all interested parties. He will be encouraged to invite short, specialized studies of specific aspects of the cocoa production and marketing cycle by locally-based specialists.

II. Project Purpose

The purpose of the grant is to increase the annual export revenues from sales of cocoa from the Windward Islands using intensified management practices.

III. Evaluation of Project Purposes

The success of the project will be evaluated in terms of project accomplishments as measured against project objectives as stated in Section I. Purpose of the Grant of the Program Description (Attachment 2) of the Cooperative Agreement.

The evaluation will consider revised targets and factors identified during the course of implementation beyond the control of project managers, having an effect on the project's purpose and goals. These considerations include a 50 percent drop in the world price of cocoa, the lengthy reorganization and merger of the Cocoa Rehabilitation Project (CRP) with the Cocoa Growers Association (CGA), conflicting demands on the extension personnel of the CRP, and the relative inaccessability of grower credit despite high bank liquidity.

Given that St. Vincent declined to participate in the project, the evaluator will not travel to St. Vincent. However, the evaluation report will include a brief assessment of what occurred on this island.

IV. Evaluation Team Composition and Responsibilities

One external consultant, a cocoa expert not a staff member of the Grantee, will be selected to conduct the mid-term evaluation. The consultant should possess the following background:

1. Experience in cocoa production and processing.

2. Familiarity with agricultural extension programs.

3. Knowledge of cocoa marketing mechanisms and markets, both national and international.

4. Understanding of factors influencing small farmer investment in cocoa vs. competing investments.

V. Evaluation Issues

1. Based on production figures for the first two years, it is unlikely that cocoa production will increase by 30 percent as a result of programmed project interventions. The evaluator will examine this considering the original project design, original assumptions, project management by PADF, USAID and each host country, and factors external to management control.

2. The cocoa technologies promoted in the field by the project will be reviewed to determine their effectiveness in increasing production. This review will include hybrid vs. vegetative propagation, plant population, infrastructure such as shading and windbreaks, and inputs.

3. The evaluator will review the internal and external factors affecting farmer adoption of the promoted technologies. This review will consider, at a minimum, availability of credit, level of farmer training required, level of farmer directed supervision required, initial investment costs, ongoing costs, and economic risk resulting from the new technologies. External factors such as more lucrative crop options and international prices will also be considered. These factors will be discussed in relation to large farmers and small farmers.

4. A review will be made of the cocoa research, extension, technical assistance and marketing network in Grenada, consisting of the CGA, CRP, and the Project. The evaluator will consider the purpose and goals of this network and the Project's role, and discuss the appropriateness and effectiveness of this role in relation to the network's purpose and needs. Special consideration should be made of CIDA investments in the network in Grenada. A similar assessment will be made of the extent of networks in the other countries' participation in the project.

5. The evaluator will assess the degree to which the 5 strategies

outlined in the Program Description of the Cooperative Agreement have been employed and evaluate their collective effectiveness.

6. The promotion of private sector involvement in all aspects of the cocoa industry and investors for joint ventures to use advanced cocoa production technology will be carefully reviewed in light of the overall HIAMP Project design and implementation.

7. The effect of the contract demonstrations will be carefully assessed.

VI. Methods and Procedures

Primary data sources will include interviews with project beneficiaries, host country government officials, USAID Mission staff, PADF field staff, Hershey Foods Corporation advisors, CGA and CRP personnel, CIDA staff, and PADF home office staff. Secondary data sources will include project records and data, including original OPG Program Description and AID/PADF Cooperative Agreement, and project files (narrative progress reports, monthly financial reports, home office trip reports, farmer records, etc.).

The Cooperative Agreement program description will serve as legally binding description of targeted accomplishments under the project.

VII. Reporting Requirements

The final evaluation report will include:

(a) Executive Summary which will have the following format: The summary should not exceed three pages. Avoid unnecessarily complicated explanations of the activity or activities evaluated or of the evaluation methodology. Get all the critical facts and findings into the summary since a large proportion of readers will go no further. Cover the following elements, in the order given:

1. Purpose of the activity or activities evaluated. What constraints or opportunities does the grant activity address? What is it trying to do about the constraints? Specify the problem, then specify the solution and its relationship, if any, to overall Mission strategy. State the purpose and goal of the Project.
2. Purpose of the evaluation and methodology used. Why was the evaluation undertaken? Briefly describe the sources and evidence used to assess effectiveness and impact.
3. Findings and conclusions. Discuss major findings and interpretations related to the questions in the Scope of Work. Note any major assumptions about the activity that proved invalid, including policy-related factors.
4. Principal recommendations. Cite the principal recommendations for the Project. Specify the pertinent conclusions for AID in design and management of the activity, and for approval/disapproval and fundamental changes in any follow-on activities.

5. Lessons Learned. This is an opportunity to give AID colleagues advice about planning and implementation strategies (i.e., how to tackle a similar development problem, key design factors, factors pertinent to management and to evaluation itself. There may be no clear lessons. Don't stretch the findings by presenting vague generalizations in an effort to suggest broadly applicable lessons. If items 3-4 above are succinctly covered, the reader can derive pertinent lessons. On the other hand, don't hold back clear lessons even when these may seem trite or naive. Address:

- Project Design Implications. Findings/conclusions about this activity that bear on the design or management of other similar activities and their assumptions.
- Broad action implications. Elements which suggest action beyond the activity evaluated, and which need to be considered in designing similar activities in other contexts (e.g., policy requirements, factors in the country that were particularly constraining or supportive).

(b) Table of Contents

(c) Body of the Report (detail required to support the conclusions and recommendations.)

(d) Appendices, including the evaluation Scope of Work, list of documents consulted, individuals and agencies contacted, discussion of methodology or technical topics if necessary, and copies of any questionnaires used for the evaluation process.

VIII. Evaluation Steps/Timetable

1. Review of Project files, interviews with PADF Home Office Staff, telephone interviews with Hershey Foods advisors (3 days)
2. Travel
   - -travel to St. Lucia to conduct evaluation (3 days)
   - -travel to Dominica to conduct evaluation (3 days)
   - -travel to Grenada to conduct evaluation (4 days)
   - -travel to Barbados for meetings/interviews with USAID Mission staff (1 day)
   - -travel to Grenada to conduct evaluation (4 days)
3. Evaluation debriefing and preliminary discussion of findings in Grenada with PADF field advisors, PADF Project Officer and USAID Mission representative(s) (2 days)
4. Report write-up/review in the U.S. (3 days)
5. Comments and feedback on major questions and factual input from PADF/Washington, PADF field team, and USAID Mission
6. Evaluation report finalized and submitted to PADF/Washington for distribution

ANNEX B

PUBLICATIONS CONSULTED

During the process of reviewing this Project, I consulted the following reports and other documents.

1. The Project paper for the HIAMP Program.

2. The Cooperative Agreement for the cocoa program NO. 528-0140-G-00-6061-00 of August 31, 1986.

3. All of the Quarterly Field reports from December, 1986 to September 1989 were read.

4. Dr. Hess history of the cocoa industry of Grenada.

5. Cocoa production statistics for both Grenada and St. Lucia.

6. Planting Material Recommended for Propagation and Distribution to Farmers. (no date)

7. Market price data for the sale of bananas and nutmeg. Grenada Bananas and Nutmeg Associations. (1989).

8. A Cocoa Planting Credit Incentive, by the GCA/GDB., 1989.

10. HIAMP - Venture Capital for Agribusiness Investments. (1988)

11. SLDB Loan Program, 1988

12. St. Lucia Cocoa Project. Achievements during June, 1988 to August 1989

13. HIAMP Business Plan for the Grenada Cocoa Association, September 21, 1988.

14. CIDA/GCA Summary of Trials/Activities, 1988

14. CIDA Plan of Operations (Final), Grenada Cocoa Rehabilitation, CIDA Project # 420/13962, April, 1989.

15. Dominica Agricultural Industrial & Development Bank. Financial Report for the year endintg December 31, 1988

16. Grenada Cocoa Report for the 1987/1988 Crop Year.

17. Contract form for the Contract Demonstration Plots. St. Lucia.

ANNEX C

LIST OF PERSONS CONTACTED

1. PAN AMERICAN DEVELOPMENT FOUNDATION

1. Amb. Marvin Weissman - Executive Director
2. Mr. Lewis Townsend - Deputy Executive Director
3. Mrs. Phoebe Lansdale - Project Officer
4. Ms. Amy Gillman - Project Assistant
5. Mr. Jim Heinzen - Project Officer (Telecon)
6. Dr. Oleen Hess - Chief of Party, Grenada
7. Dr. Alexander Lopez - Senior Cocoa Outreach Advisor, Grenada

2. SAINT LUCIA PROJECT COMPONENT

1. Mr. Alban Cumberbeatch - Cocoa Officer
2. Mr. R.R. Raveneau - Manager/Secretary, St. Lucia Agriculturists Association
3. Mr. Cecil K. Wooding - Assistant Manager, St. Lucia Agr. Assoc.
4. Mr. Cleatus Hyacinth - Accountant, St. Lucia Agr. Assoc.
5. Mr. Cornelius Lynch - Extension Agent, Reg. #7
6. Mr. Aloysius Lesfloris - Extension Agent, Reg. #8
7. Mr. Thomas Lister - Assistant Agent, Reg. #8
8. Mr. Martin Smith - Assistant Agent, Reg. #8
9. Mr. Paul Francis - Extension Agent, Reg. #4
10. Miss Bernadine Evans - Extension Agent, Reg. #4
11. Mr. Robertine Caneu - Extension Agent, Reg. #4
12. Miss Marie Louise Reed - Research and Training Officer
13. Mr. Francis Blanchard - Extension Agent, Reg. #4
14. Mr. Albert St. Clair - Coordinator of Traditional Crops, Ministry of Agriculture
15. Mr. David Demarque - Director, Division of Agricultural Services
16. Mr. Andeen Desir - Chief Extension Officer

3. DOMINICA PROJECT COMPONENT

1. Mr. Eluid Williams - Permanent Secretary, Min. of Agr.
2. Mr. Errol Harris - Chief Technical Officer, Min. of Agr.
3. Mr. Oliver Grell - Technical Officer, Min. of Agr.
4. Mr. Mark Barnard John - Project Cocoa Officer
5. Mr. Richard E. Leslie - Manager, AID Bank
6. Mr. Patrich Delauney - Farm Improvement Officer, AID Bank
7. Mr. Lionel James - Project Officer, Caribbean Dev. Bank
8. Mr. Pat Rolle - Owner, Hillsborough Estate
9. Mr. Paul Patrich - Farmer
10. Mr. Dan Ferero - Extension Agent, Sub-district # 11
11. Mr. Morrill Daniel - Farmer, Clark Hall Estate
12. Mr. Albert Peters - Farmer, Melville Hall Estate
13. Mr. Rodger Thomas - Manager, Londonary Estate

4. GRENADA PROJECT COMPONENT

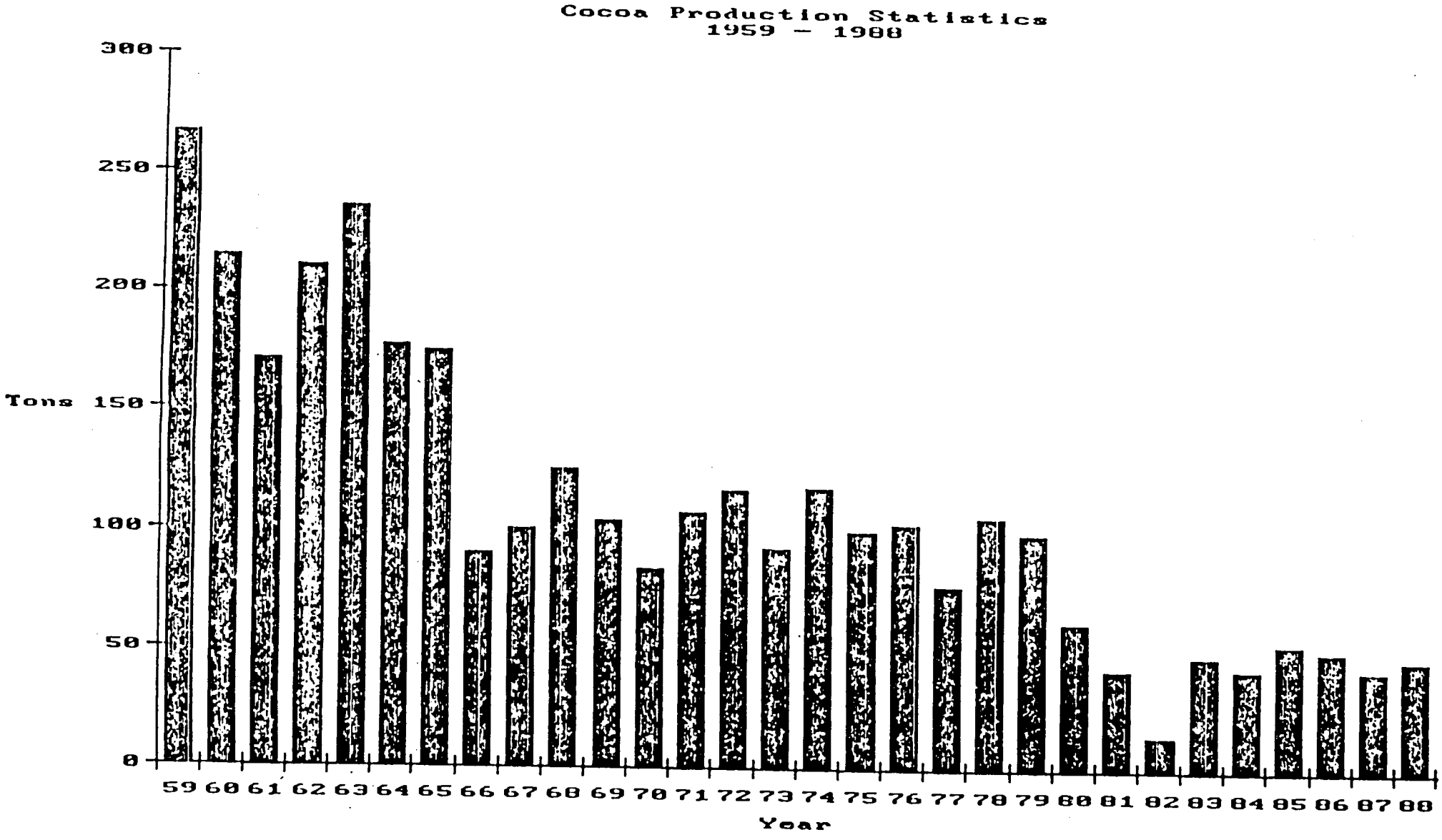
1. Mr. Georgereal Taylor - Extension Supervisor, Moran
2. Mr. Charlie Mollar - Extension Agent, Moran
3. Mr. Wolme James - Extension Agent, Moran
4. Mr. Chillonde Baidgemen - Extension Agent, Moran
5. Mr. Lennox Braithwaith - Extension Agent, Moran
6. Mr. Mitchel - Estate Manager, Pleasent Estate, St. John
7. Mr. Lionar St. Paul - Farmer
8. Mrs. Jenifer Andall - Chief Ext. Officer for Cocoa, Mount Horne Office
9. Mr. Olsen Licorish - District Cocoa Officer Extension Service Mount Horne Office
10. Ms. Ester Greenwhiteman - Farmer
11. Mr. Wilton Rogiere - Farmer, Rogiere Farm
12. Mr. Gordon Clyne - Station Manager, Bolougne Propagation Station, Boulogne
13. Mr. Fitzroy James - Manager, Technical Department Grenada Cocoa Association, St. George's
14. Mr. Leon Charles - General Manager, Grenada Cocoa Association, St. George's

5. U.S. GOVERNMENT

1. Ambassador Ford Cooper - Grenada
2. Mr. Tom Fallon - Acting Director, USAID/Barbados
3. Mr. Larry Laird - Chief, Agr. & Rural Development USAID/Barbados
4. Mr. Tom Miller - Agr. Development Officer, USAID/Barbados
5. Mr. Al Merkel - Agr. Development Officer, USAID/Barbados
6. Mrs. Rebecca Niec - Agr. Development Officer, USAID/Barbados
7. Mr. Jerry Perry - Project Development Officer, USAID/Barbados

ST LUCIA

ANNEX D



GRENADA COCA PRODUCTION 1960 - 1988
(in 1000 lbs.)

Year	Production	Year	Production
1960	4,258	1975	5,316
1961	4,098	1976	5,986
1962	5,162	1977	4,307
1963	5,006	1978	5,370
1964	6,221	1979	5,789
1965	4,773	1980	4,690
1966	----	1981	5,546
1967	6,084	1982	5,024
1968	6,230	1983	5,219
1969	6,737	1984	4,673
1970	6,451	1985	4,776
1971	6,318	1986	3,816
1972	5,536	1987	3,813
1973	5,344	1988	3,865
1974	5,259		

Source: A History of Cocoa in the Eastern Caribbean.
Hess, Oleen. (in Draft)