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Evaluation of the USAID/RDO/C Agricultural Research and Extension Project (AREP)

A consultancy report by:

John O'Donnell
Arthur Coutu
Violet Malone

Winrock International
Institute for Agricultural Development

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Executive Summary

This mid-term evaluation of the USAID/RDO/C Agricultural Research and Extension Project (AREP) was conducted in September, 1991 by a three person contract team from Winrock International. The purpose of the AREP Project, which was authorized and obligated in March, 1989, is to strengthen the institutional capability of national extension services and regional research and extension organizations to generate, adapt and disseminate continuing streams of improved agricultural technologies which are responsive to the needs of participating countries and are widely adopted at the farm level.

The project consists of three principal components: technology adaptation, extension services and research/extension linkages that build upon activities funded under the earlier USAID/RDO/C Farming Systems Research and Development (FSR/D) and Caribbean Agricultural Extension (CAEP I and II) projects.

The AREP project is implemented through a grant to the Caribbean Agricultural Research and Development Institute (CARDI) which is responsible for all research activities and overall financial management of the project. Extension activities are implemented through a sub-grant by CARDI to the University of the West Indies, Faculty of Agriculture, Department of Agricultural Extension. Total funding for the five year project is $10,075,000 of which $5,000,000 is provided by A.I.D. and the balance by CARDI, UWI and the OECS.

The purpose of the mid-term evaluation was to review project progress, assess the extent to which project outputs were being achieved, and recommend areas for mid-course correction and improvement over the remainder of the life of the project.

The evaluation team found that the project is making good overall progress towards the achievement of project objectives, particularly in the area of strengthened research/extension linkages. There are, however, several areas which require mid-course corrective action, particularly the research prioritization process, the communications support program, and the training and professional upgrading program for Ministry of Agriculture extension personnel. A summary of the key findings and recommendations is presented below.

In the area of research prioritization, the team concluded that the present process relies too heavily on subjective judgements and should be revised to place emphasis on a more quantitative approach geared to a better understanding of market conditions and potential and also to employment and income generation considerations. Too many commodities have been given priority status, spreading scarce financial and human resources too thin and diluting project impact. In extension, the team concluded that the National Agricultural Extension Services

(NAES) have been strengthened considerably under the CAEP and AREP projects. However, a fundamental problem continues that new hire front line officers often do not possess the education, experience or agricultural background required to carry out the duties included in their position descriptions. This has been ameliorated somewhat by the in-service training programs funded under this and previous projects. An effort should be made to seek more highly qualified new entries and also to strengthen professional upgrading programs for front line officers.

The team concluded that good progress has been made in forging research/extension linkages. In fact, a modified model for research and extension is emerging which utilizes a crop specific task force approach involving researchers, extensionists, farmers and end-users in an integrated, market driven process to provide a reliable supply of high quality product to the end users. The team noted that this modified model has similarities to one that has been used in the U.S. for some time in some of the perishable commodities such as celery, lemons, cherries etc.

The emerging local model was most advanced in Nevis where CARDI, UWI and MOA extension staff are working with a farmers' group on the production of fruits and vegetables for the Four Seasons Hotel and in St. Vincent where a task force approach was being taken for the production and marketing of eddoes, dasheen and ginger for the U.K. and European markets. These experiences should be documented and included in in-service training programs for all project participants. The task force methodology should be formalized and applied in CARDI/UWI/MOA commodity development programs.

The team concluded that training funded under the project has had a positive impact on the performance of research and extension personnel. The UWI diploma in extension and the UWI outreach courses were both highly valued. More technical training, similar to the UWI Faculty of Agriculture CEPAT training program would be useful. More attention should be given to task analysis so that training can be targeted to competency development.

The team felt that the Communications Support Program is the least well advanced element of the project. Linkages between National Agricultural Extension Services and the Regional Communications Unit are weak with the result that project objectives are not being achieved. There is also a critical need to develop more farmer-friendly printed materials to reinforce the technologies disseminated through on-farm demonstrations and formal training programs.

A much greater effort must be made to systematize the collection and analysis of base-line and program data to document program impact. Also, stronger emphasis should be placed on gender issues and increasing the effectiveness of the farm/home management program.

List of Abbreviations and Acronyms

BDDC	British Development Division in the Caribbean
BABCO	Belize Agri-Business Company
CAEP	Caribbean Agricultural Extension Project
CARDATS	Caribbean Agricultural Rural Development Advisory and Training Service
CARICOM	Caribbean Community
CARDI	Caribbean Agricultural Research and Development Institute
CATCO	Caribbean Trading Corporation
CIDA	Canadian International Development Agency
CIP	International Potato Center
EDF	European Development Fund
EEC	European Economic Community
FAO	Food and Agriculture Organization
FSR/D	Farming Systems Research and Development Project
IARC	International Agricultural Research Center
IDB	Inter-American Development Bank
IDRC	Canadian International Development Research Center
IICA	Inter-American Institute for Agricultural Cooperation
NAES	National Agriculture Extension Service
OECS	Organization of Eastern Caribbean States
ORD	Organization for Rural Development
RAECC	Regional Agricultural Extension Coordinating Committee
RDO/C	Regional Development Office/Caribbean(USAID)
RECU	Regional Extension Communications Unit of the University of the West Indies
TROPRO	West Indies Tropical Support Project
UNDP	United Nations Development Program
UWI	University of the West Indies
WINBAN	Windward Islands Banana Grower's Association

I. Introduction

The USAID/RDO/C Agricultural Research and Extension Project (AREP) was authorized and obligated in March, 1989. The purpose of the project is to strengthen the institutional capability of national extension services and regional research and extension organizations to generate, adapt and disseminate continuing streams of improved agricultural technologies which are responsive to the needs of participating countries and are widely adopted at the farm level. The project consists of three principal components: technology adaptation, extension services and research/extension linkages that build upon activities funded under the earlier USAID/RDO/C Farming Systems Research and Development (FSR/D) and Caribbean Agricultural Extension (CAEP I and II) projects.

The AREP project is implemented through a grant to the Caribbean Agricultural Research and Development Institute (CARDI) which is responsible for all research activities and overall financial management of the project. Extension activities are implemented through a sub-grant by CARDI to the University of the West Indies, Faculty of Agriculture, Department of Agricultural Extension (UWI). The project supports the Organization of Eastern Caribbean States (OECS) Agricultural Diversification program and is active in all of OECS states except the British Virgin Islands. Total funding for the five year project is $10,075,000 of which $5,000,000 is provided by A.I.D. and the balance by CARDI, UWI and the OECS.

A mid-term evaluation was included in the project design to review project progress, assess the extent to which project outputs were being achieved, and recommend areas for mid-course correction and improvement over the remainder of the life of the project. (See Annex A, Terms of Reference)

This evaluation of the AREP Project was conducted mid-way through the project by a three person contract team from Winrock International during a four week period, September 4 to October 1, 1991. The team was composed of Agricultural Development Specialist/Team Leader John O'Donnell, Technology Adaptation Specialist Arthur Coutu and Extension Specialist Violet Malone. (Bio sketches of team members are included in Annex B). Field visits were made to a selected number of the OECS countries including St. Lucia, Dominica, St. Kitts/Nevis, Antigua and Barbuda and St. Vincent and the Grenadines, where the team met with CARDI and Ministry of Agriculture personnel and a large number of farmers as well as individuals from other relevant public and private sector organizations. Two working days were spent in Trinidad and Tobago to meet with CARDI and University of the West Indies headquarters staff. The team also reviewed a large number of documents provided by USAID/RDO/C, CARDI, UWI and other sources within the OECS states. The team travel schedule, list of persons contacted, and list of documents reviewed are included in Annexes C, D, and E.

II. Discussion of Overall Project Status

The evaluation team found that the project is making good overall progress towards the achievement of project objectives, particularly in the area of strengthened research/extension linkages. It is making important contributions to improving the agricultural technology system in the OECS countries. There are, however, several areas which require mid-course corrective action, particularly the research prioritization process, the communication support program and the training and professional upgrading program for Ministry of Agriculture extension personnel. A summary of key findings is presented below.

In the area of research prioritization, the team concluded that the present process relies too heavily on subjective judgements and should be revised to place emphasis on a more quantitative approach geared to a better understanding of market conditions and potential and also to employment and income generation considerations. Too many commodities have been given priority status, spreading scarce financial and human resources too thin and diluting project impact. The overall CARDI program is heavily weighted towards import substitution. The team believes that CARDI should devote more attention to crops and value added opportunities for the export market, but based upon a much better understanding of those markets than presently exists within CARDI. Some changes in this direction have been initiated under AREP and should be continued and expanded.

In extension, the team concluded that the National Agricultural Extension Services (NAES) have been strengthened considerably under the CAEP and AREP projects. However, a fundamental problem continues that new hire front line officers often do not possess the education, experience or agricultural background required to carry out the duties included in their position descriptions. This has been ameliorated somewhat by the in-service training programs funded under this and previous projects. An effort should be made to seek more highly qualified new entries and also to strengthen professional upgrading programs for front line officers. This should include facilitating the enrollment of the most promising under-trained front line officers in Eastern Caribbean Institute for Agriculture and Forestry (ECIAF) level training programs. The OECS Ministries of Agriculture (MOA's) should develop and maintain the frontline officers as generalists, having a broad based knowledge of technical subject matter in agriculture and specific competency in the process skills areas. In addition, each frontline officer should be given the opportunity to develop specialized knowledge in one or more of the priority commodities through formal and informal (i.e. close association with CARDI researchers) training programs.

The team concluded that good progress has been made in strengthening research/extension linkages. In fact, a modified model for research and extension is emerging which utilizes a commodity specific task force approach involving

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researchers, extensionists, farmers and end-users in an integrated, market driven process to provide a reliable supply of high quality products to end users. The team noted that this modified model has similarities to one that has been used in the U.S. for some time in perishable commodities such as celery, lemons, cherries etc. The emerging local model, which includes some of the same elements but is less sophisticated than the U.S. approach, has been carried to its most developed state in Nevis where CARDI, UWI and MOA extension staff are working with a farmers' group on the production of fruits and vegetables for the Four Seasons Hotel. A similar model is being applied in St. Vincent where a task force approach was being taken for the production and marketing of eddoes, dasheen and ginger for the U.K. and European markets.

The team concluded that training funded under the project has had a positive impact on the performance of research and extension personnel. The UWI diploma in extension and the UWI outreach courses were both highly valued. More technical subject matter training would be useful. Currently, the UWI Faculty of Agriculture's Continuing Educational Program in Agricultural Technology (CEPAT) program is used as a source for much of this training. More attention should be given to task analysis so that training can be targeted to competency development. Training in research implementation and presentation would improve the quality of CARDI's research results.

The team felt that the communications support program is the least well advanced element of the project. Linkages between the UWI Regional Communications Unit and CARDI and the National Agricultural Extension Services are weak with the result that project objectives in this area are not being met. There is also a need to develop more farmer-friendly printed materials to reinforce the technologies disseminated through on-farm demonstrations and formal training programs.

A much greater effort should be made to systematize the collection and analysis of base-line and program data to document impact. The data base and analyses should include changes in production as well as employment and income multiplier effects extending over the productivity/marketing system (factor markets, on-farm production and the product markets). Stronger emphasis should be placed on gender issues and increasing the effectiveness of the farm/home management program.

Finally, at the request of USAID/RDO/C, the team met with the leader of the CARDI external review team to discuss their findings and recommendations. There were similarities in the findings of the two teams regarding the overall progress of CARDI, concerns on the excess number of commodities being researched along with a belief that more rigorous prioritization processes should be in place, that some CARDI economists should focus on evaluating the impact of CARDI programs, that networks and linkages with extra-regional institutions and IARC's should be improved, that CARDI/UWI linkages be strengthened, that UWI graduate students

be more effectively linked with CARDI, and among others, that CARDI should be assessing options for the future, with a 5 to 10 year perspective.

There were some differences in the respective assessments. The mid-term AREP team was more favorably impressed with the output of technology teams that linked CARDI research, UWI technology transfer specialists and extension personnel of the Ministries of Agriculture, and with the general quality of the applied research activities.

These and other issues are discussed more fully in Section VIII.

III. Status of Inputs

The team reviewed the status of inputs as presented in the logical framework and the project paper. Each of the inputs is presented below with a brief comment on its status. (A Statement of Budget and Actual Expenditures for the first two years of the project is found in Annex H)

A. Personnel

The project provided funding for six technology adaptation specialists (decreasing to three by the final year), a pomologist, an agricultural economist, an extension specialist for the Leeward Islands, a communications coordinator, a farm management specialist, two administrative officers and 11 administrative specialists. Status:

-- Six technology adaptation specialists are employed and stationed on Grenada, St. Lucia, St. Vincent, St. Kitts/Nevis, Dominica and Antigua. In 1992, CARDI will pick up funding for the TAT specialists on Antigua, St. Lucia and Dominica and in 1993 for St. Vincent. There are no definitive plans for funding the two remaining specialists.

-- A pomologist was hired in January 1990 and is stationed on St. Lucia.

-- An agricultural economist was employed in July 1989. A second economist was hired in November, 1989. A replacement for the first economist was hired in March, 1991. One economist will be moved to CARDI funding in 1993. No plans yet for core funding the other economist position.

-- The Extension Specialist for the Windward Islands was employed under the project from April, 1989 until November 1990 when he was moved to UWI core-funding, ahead of schedule.

-- A Communications Coordinator was employed in July 1989. The team was informed that the incumbent will not be continued beyond May, 1992. UWI core-funding of this position is uncertain.

-- The farm management specialist position and all of the administrative officer and administrative assistant positions have been filled.

B. Research and Training Facilities

The project provided funding for establishment and/or upgrading of field

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research, laboratory and training facilities at St. Lucia, Antigua and St. Vincent. Status:

-- Progress has been limited in this area. The facility for Antigua is the most advanced. An architect was hired, plans completed and a contractor selected. Plans are to be presented for USAID approval in October, 1991. Selection of an architect for the St. Lucia facility is expected by November, 1991. An appropriate site is being sought for the St. Vincent facility. A decision is expected by April, 1992. Only $2,500 of the programmed total of $250,000 had been spent by the end of year two.

C. Equipment and Supplies

Funding was provided for CARDI and UWI to purchase vehicles and assorted small equipment and supplies. Status:

-- Three vehicles were procured for CARDI and one for UWI in November, 1989. CARDI purchased another vehicle in May, 1990. CARDI has also purchased a limited amount of field and laboratory equipment.

-- UWI purchased video and audio equipment, computer hardware and software and photographic equipment, primarily for the Regional Communications Unit with the rest of the equipment and supplies for the extension outreach program.

-- $240,000 of the programmed total of $413,500 in this category had been spent through the end of year two.

D. Research and Extension Expenses

Funding was provided for staff and supplies for CARDI technology and validation trials and to support the UWI farm management program.

-- Funding has been used for the specified purposes with $140,000 of the programmed total of $360,000 spent by the end of year two.

E. Travel

Funding was provided for local, regional and extra-regional travel by CARDI and UWI staff in furtherance of project objectives. Status:

-- Through the end of year two, $241,000 had been expended for all classes of travel out of a programmed total of $581,000.

F. Training/Workshops/Meetings

Funding was provided for ten OECS staff to attend the UWI Extension Diploma Program, for 12 person years of graduate training, and for a variety of in-country and multi-country training programs. Status:

-- Six NAES staff completed the UWI Extension Diploma Program in July 1990. Four additional NAES staff will commence the program in October, 1991.

-- Two M.Sc. and one PhD scholarships are funded and underway.

-- A large number of in-country and multi-country training programs have been funded under the project. (See Annexes I and J, AREP Funded Training Activities).

-- Through the end of year two, $227,000 of the programmed total of $747,000 in this category had been spent.

G. Technical Collaboration Consultancy

Funding was provided to maintain linkages with U.S. universities (SECID and MUCIA), that had been involved in predecessor USAID projects, to establish linkages with other U.S. institutions and to support consultancies by UWI staff on project related matters. Status:

-- There has been very little activity under this funding category. Only $39,000 of a programmed total of $450,000 had been spent by the end of year two.

-- UWI has funded consultancies with the Universities of Wisconsin, Illinois and Minnesota. MUCIA has made the consultants available at no charge, except for travel and per diem, which has made the available funds go further. CARDI has not used any of these funds to maintain ties with SECID.

-- CARDI has made limited use of the funds for short term consultancies from the University of Arizona (virus diagnosis) and Polysoft, Inc. (management information systems). Contact was made with the University of Florida but was not followed up.

-- There has been very little use of funds for consultancies by UWI staff. The two institutions are exploring ways to make better use of these funds to increase and improve linkages.

IV. Status of Outputs

The team reviewed the outputs as included in the logical framework. Comments on the status of each output are provided below.

A. Technology Generation

1. More effective technology adaptation at farm level.
   a. Output: Technology adaptation (FSR/E) methodology refined and implemented.

   Comment: The team observed that the technology adaptation methodology has been refined and is being implemented. The focus is on developing recommended technologies through research and on farm validations that are then demonstrated on farms with supporting publications and communications for technology adaptation specialists and extension agents. As discussed in Section VIII, F and G, additional efforts are required to produce suitable printed materials for farmer use.

   b. Output: 150 on-farm tests per year.

   Comment: According to CARDI's records, there were 69 on-farm tests in year one and 92 in year two in the priority project commodities. The Project Management Committee may wish to review this target to determine if it is realistic and achievable by the end of the project. (See Annex M)

2. More effective commodity networks.
   a. Output: Four collaborative research networks (Coordinators, steering committees, annual meetings, IARC's participating, tasks assigned others).

   Comment: There are various ad-hoc coordinating meetings of researchers, adaptation specialists and extensionists. IICA has convened meetings of what they are calling networks in vegetables and root crops. However, these are quite weak and the formal networks envisioned under the project are not yet in place. There appear to be several reasons for this including changes (more focus on ag diversification for export) requested in the CARDI network proposal by the Inter-American Development Bank (IDB), which is to fund the networks, and because of differences on who should be included in the networks.

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B. Technology Transfer/Dissemination

1. More effective interaction among extension workers and farmers.
   a. Output: Increasing number of varieties and practices recommended over a range of commodities.

   Comment: There are a continuing set of varietal, spacing, fertilizer, weed control, pruning, disease and insect management trials being conducted on 10 commodities in the OECS. Reports of these adaptive research activities are being made available to OECS Extension Services and disseminated to farmers. (See Annex F)

   b. Output: Farm management methodology refined and implemented.

   Comment: The farm management methodology has been refined and UWI and the MOA's have made an effort to establish the system by distributing the record books and holding training courses for both extensionists and farmers. However, the team observed that the full methodology is being implemented in only a few locations. The formal record book is not used as completely as planned. More work is required to increase the use of the home management section. Focus should continue on working with 20 to 30 selected farmers in each NAES. Modifications of the record book have been recommended. See discussion in Section VIII, E.

   c. Output: Increasing number of farmers using farm management record keeping.

   Comment: A November, 1990 memo from UWI to the ANR office of USAID/RDO/C reports that almost 600 farmers are using the record books, up from approximately 200 under the CAEP project. A limited number of on-site interviews (10) confirmed that the farmers interviewed are using some form of written record keeping system and several are using the Record Book. Most frontline officers have not been able to collect the profile data needed by UWI to assess performance in this area. Strategies are being prepared to collect the profiles on a sample number of farmers in the region.

C. Institution Building

1. Better trained staff.
   a. Output: Increase in number of CARDI staff with Phd.

   Comment: As of 1991, there are 13 CARDI professionals with PhD degrees, with three additional individuals expected to complete PhD requirements within another 10 to 12 months. This represents a net gain of four with PhD degrees as compared with 1988.

b. Output: Increase in Extension staff with diploma.

Comment: The project indicated that ten extension staff people would receive the UWI diploma in extension using AREP funds. At the present time, records indicate that six extension staff have received the diploma and four others are enrolled in the diploma program. This output is ahead of schedule.

c. Output: Twenty CARDI and Extension staff participating in subject matter workshops.

Comment: Based on data included in quarterly reports since July, 1989, over 40 CARDI and Extension staff have participated in regional subject matter workshops. The training workplan for 1991-92 shows that additional such workshops are planned. The major in service education programs for this staff are the annual two-week In-service Training Courses.

2. More effective management.

a. Output: CARDI carrying out 5 year strategy.

Comment: This report documents the continuous progress being made in implementing the CARDI five-year strategy.

b. Output: UWI and Ministries carrying out 1988 CAEP Evaluation recommendations.

Comment: There have been some favorable actions by UWI and the Ministries of Agriculture towards implementing the 1988 CAEP evaluation recommendations. Effective actions have been taken on coordinating programs at the national, regional and multi-national levels e.g., implementing diploma and degree training; continuous efforts to train and link front line officers with CARDI technology adaptation specialists; an outreach staff position exists for the Leewards; and continuing efforts are underway for greater UWI/CARDI linkages. Some recommendations of the CAEP 1988 evaluation have not been fully implemented. These include the concept of a career ladder and personnel policies; farm management and whole-farm planning; and the utilization of target farms as demonstrational units.

c. Output: Continuing linkages with U.S. institutions (MUCIA and SECID).

Comment: The Agricultural Extension Department at UWI continues to have linkages with the Universities of Wisconsin and, to a lesser extent, Minnesota. CARDI has received assistance from V.P.I., Mississippi State,

University of Florida, Florida A&M, and North Carolina State. (See Annex K, CARDI Institutional Strengthening/Staff Development Activities). Also, CARDI's documentation center is linked to data bases involving U.S. institutions.

3. More effective two-way communication among research, extension, UWI, farmers and policy makers.

   Comment: The AREP project has had a substantial impact on improving two-way communications as discussed in Section VIII, C, Effectiveness of Research/Extension Linkages. There are still some communications problems at the CARDI/UWI headquarters level as discussed in Section V, C, 1.

V. Progress Towards Achievement of Project Objectives

The team reviewed progress towards achievement of project objectives as presented in the logical framework and the project paper. Each of the objectives is presented below with a comment by the team on progress to date, and the likelihood that end-of-project status will be achieved within the programmed time period.

A. Technology Adaptation

1. CARDI is producing a continuing stream of improved technologies over a diversified range of commodities.

   Comment: The technology adaptation and transfer component of AREP has focused as originally programmed, on selected non-traditional export commodities and crops for local consumption, designed to enhance the level of import substitution in the seven OEC States. As programmed, priority attention has focused on root and fruit export crops in the Windward and vegetables as import substitutes in the Leeward nations.

AREP provides support for six technology adaptation specialists. Fortunately, these positions function as an integral part of the CARDI staff and not as a separate AREP staff. These specialists have a record of reasonably well designed experiments; but a highly variable quality of research implementation. Their research results are summarily reported in many quarterly and annual CARDI reports and fact sheets, but are not peer-reviewed or reported in extra-regional professional journals. The quality of on-station research and on-farm validation tests and demonstrations vary. Many appear to be well designed and executed, while others are of lesser quality.

There appears to be some specified divisions of labor on research activities across the seven island nations involving ten crops. However, on each island visited, one observes some duplication of adaptive research efforts on root crops (ginger, dasheen, tannia and eddoes); fruit crops (pineapple, passion fruit, mangoes) and plantains.

There is qualitative evidence of close working relationships between technology adaptation specialists and other CARDI professionals, as well as Ministry (MOA) extensionists. The collaboration occurs in the design and implementation of on-farm validation and demonstration plots. The product of this collaboration is an improved set of technology packages designed to serve producers.

To the credit of the CARDI program, the technology adaptation and transfer

component of the AREP project is well blended into the total research and development effort. These AREP resources are contributing to the end of project objective of delivering a continuing stream of viable technologies over a diversified range of products. (See Annex F, CARDI Adaptive Research Program)

2. Ten percent of farmers in the OECS countries have adopted improved technologies.

   Comment: Farmers appear to be adopting improved technologies, but there are no data sets to validate the ten percent target. If performance with respect to this target is to be met, CARDI and MOA extension staff would have to do a more systematic job of collecting such data. The team questions whether the results would justify the effort. A sample survey should be designed to get some idea of adoption, as part of a more comprehensive evaluation of impact. (See Section VIII, J, Adequacy of Project Data for Evaluation of Project Impact)

3. CARDI is core-funding the technology adaptation program.

   Comment: As of September, 1991, CARDI is funding 50 professionals in crops, livestock and technology adaptation programs with core and project funding. This includes 15 technology adaptation specialists, six of whom are funded under the AREP project. (See Annex G, General Background). Discussion with CARDI officials lead the team to believe that it is unlikely that CARDI will be able to core fund such a large number of technology adaptation specialists by the end of the project.

4. OECS countries are providing expected policy and funding support.

   Comment: OECS officials participate in CARDI planning processes including consideration of CARDI policy issues. The financial support from the OECS states is reasonably on target. Some countries do not pay monthly, but do settle accounts within the year; some lag in payment but most are regular contributors. It is likely that this pattern will continue to prevail at the end of the project.

5. Donor collaborative group formed and donors providing adequate funding (meets regularly in Barbados and CGIAR).

   Comment: A donor group has been formed and it meets once a year in Barbados and also in Washington, D.C., in conjunction with the CGIAR Centers Week. Donors continue to provide project specific funding.

B. Extension

1. UWI is working effectively with CARDI and Ministries of Agriculture (MOA's) to foster an effective extension function.

   Comment: UWI, CARDI and the MOA's are working together to foster an effective extension system in at least two functional areas - Planning and Staff Training. In the functional areas of Organizing, Supervising and Evaluation much work needs to be done to strengthen the capacity of staff to implement plans and to identify impact. More work could be done to involve the UWI agriculture faculty in technical subject matter training and updates as well as collaborative research work and publications. The UWI Communication Unit needs to be strengthened as a resource for all staff and end users. These areas will require considerable attention over the remainder of the life of the project and may require additional time and funding.

2. Ten percent of farmers in the OECS countries participate in farm management planning activities (directly or indirectly).

   Comment: Team interviews with farmers revealed that they often keep some form of written records, but relatively few appear to be involved in the type of farm management planning activities contemplated in the project paper. UWI reports that some 600 farmers are using the Farm/Home Management Record Book, up from 200 under the CAEP project. However, given the nearly 50,000 farmers in the OECS countries, it may be overly ambitious to assume that 10% (5,000) of the farmers will be participating (directly or indirectly) in the type of farm management planning activities discussed in the project paper by the end of project. There is some evidence to indicate that there is an increase in written record-keeping activities and that several external agriculture-related agencies have requested multiple copies of the record book, for use with their constituents.

3. UWI is funding from regular budget extension specialists for Windward and Leeward Islands and Communications Coordinator.

   Comment: UWI has been core-funding the Windward Islands Extension Specialist since the initiation of the project. The transfer of funding responsibilities for the Extension Specialist, Leeward Islands from the project to UWI took place in November, 1990. There is some question as to whether funding will be available for the Communications Coordinator. As reported elsewhere. (See Section VIII, G). The team believes that the AREP Project Management Committee should take a close look at the communications program. Additional funding and time may be required in order to reach the planned end of project status.

C. Research/Extension Linkages

1. CARDI and Extension Department of UWI collaborating effectively.

   Comment: The evaluation team observed that in the field, CARDI staff and the UWI Outreach Coordinators had a close, effective working relationship. At the headquarters level there were formal mechanisms for coordination such as the AREP Project Management Committee and the Communications Coordinations Committee which met at regular intervals. There were also some informal, personal relationships which promoted collaboration. However, the team sensed a tension between the two organizations at the headquarters level which seemed to prevent the close and easy collaboration noted at the field level. Some ways to deal with this problem might be to arrange joint CARDI/UWI field trips and to promote short or medium term secondments between the two organizations. The headquarters staff might also take a page from the field book and organize more task specific joint working groups, such as the ongoing communications coordinating and training committees, to foster increased collaboration. Much work needs to be done to achieve this objective by the end of the project.

2. A Project Management Committee is meeting regularly and providing effective leadership and oversight to the project.

   Comment: The team observed that the Project Management Committee meets regularly and is providing some degree of leadership for the project but has not devoted sufficient attention to certain elements of the project such as the communications program, the technical consultancies with UWI and the initiation of relationships with external sources of technology. These actions should be achievable by the end of the project, with the possible exception of the communications program.

3. CARDI, UWI and National Extension Services are collaborating on planning research and extension programs, i.e., each participates in the annual planning exercise of the other.

   Comment: The team observed that the achievement of this objective is progressing well as discussed in Section VIII, C, Effectiveness of Research/Extension Linkages.

4. CARDI, the UWI Department of Extension and to the extent possible, National Extension Services are sharing sub-regional headquarters offices in Antigua and St. Lucia, and are taking advantage of the opportunity to communicate officially and informally in joint planning and carrying out technology adaptation and extension service activities.

Comment: The sharing of sub-regional headquarters space has not occurred on either St. Lucia or Antigua. However, there is close coordination between the three actors in planning and carrying out research and extension functions although not to the same extent as on Dominica, St. Vincent and Nevis as discussed in Section VIII, C, Effectiveness of Research/Extension Linkages. The team believes that shared office space would be highly desirable, but it appears that the limited amount and high cost of suitable office space will make it difficult to achieve the shared office space objective by the end of the project.

5. CARDI and the UWI Department of Extension are sharing project related communications facilities, and as a result are providing improved information dissemination for all aspects of the project.

   Comment: Progress in this area has not been good. See discussion in Section VIII, G, Adequacy of Communications Support Program. Additional time and funding may be required to achieve this end of project objective.

6. CARDI and the National Extension Services are collaborating effectively to be determined by: 1) the degree to which Technology Adaptation Specialists are working with Extension agents; and, 2) the number of technical innovations which are received and used by farmers.

   Comment: There has been steady progress in cooperation between the Technology Adaptation Specialists and extension agents, especially on Dominica, St. Vincent and Nevis, as discussed in Section VIII, C, Effectiveness of Research/Extension Linkages. It is likely that this cooperation will increase, achieving the project objective by the end of the project. Technical innovations are being received and used by farmers as a result of this cooperation, but data which could quantify this involvement are not being maintained.

7. A Regional Agricultural Research and Extension Coordinating Committee is established and meeting regularly (at a minimum once every 18 months), to exchange information and assist in decision-making on policies for improvement of technology generation and transfer in the Eastern Caribbean.

   Comment:The Regional Agricultural Extension Coordination Committee (REACC) met in November, 1990 in Antigua. Information was exchanged and a set of recommendations made for improving agricultural technology programs, including transforming REACC into a Research and Extension Coordinating Committee. The next meeting is scheduled for February, 1992.

VI. Other Donor Programs

For the past few years, CARDI has received slightly more than half its annual budget from CARICOM governmental contributions. The balance of CARDI's programs are project funded. The major external donors include the United Kingdon, Canada, UNDP, Europe (ECC), IICA, USA and Caribbean Development agencies.

This level of external donor support requires that CARDI leadership respond to donor priorities and to building an integrated research/extension program including core and external support. The general thrust of each external donor program is discussed in this section:

1. Canada (CIDA and IDRC) provides support of about E.C. $.5 million per year which focuses on sheep production and marketing, along with support for on-farm milk production.

2. The European Community (EEC) Economic Development Fund (EDF) is providing $1.1 million per year over four years to support forage and feeding systems for sheep and goats, disease-free planting material and legume production systems. The EEC project also focuses on technology transfer and provides for technical assistance. In addition, about a third of the project resources are programmed to enhance technology transfer activities within CARDI.

3. The FAO/UN project focuses on small ruminants, the development of model farms and training within the CARDATS program. A regional seed project is under discussion.

4. The United Kingdom British Development Division in the Caribbean (BDDC) annually provides U.S. $.5 million to CARDI, in support of agronomy, pathology and entomology research. The BDDC has also supported biometric and tissue culture positions in CARDI. Further, the BDDC has a long history of support to WINBAN that still averages U.S. $400,000 per year, with a focus on research and development.

5. IICA has been a continuing donor to CARDI. The present agreement that runs through 1993, is for annual support of $300,000. This funding is directed to core support of CARDI with some allocations devoted to strengthening linkages between CARDI and Central and South American institutions. There ae policy-related projects involving some MOA's and IICA.

6. The Coffee Industry Board and the Belize Agri-Business Company support CARDI activities in coffee and soybean production.

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The leadership of CARDI has been quite successful in maintaining donor continuity and in integrating donor projects into its research and extension programs. However, many of CARDI's programs are not sustainable without continuing donor support.

VII. Discussion of Project Management

A significant part of the continuing success of the AREP Project is attributable to the effective management provided by the program leader of the Technology Adaptation and Transfer (TAT) program, who also serves as the AREP Project Manager. There is close coordination with CARDI executive management and the crops program leadership. He has also established good relationships with UWI staff and set the stage for close collaboration with the Ministries of Agriculture.

Beyond the research/extension component, project leadership has promoted linkages with market entities. These include linkages with TROPRO, CATCO, public and private trade promotion entities, and others, such as the food managers of tourist hotels seeking dependable supplies of quality products.

Another positive set of management actions has been the smooth implementation of necessary donor procedures for releasing and auditing financial resources. The project and CARDI have also been effective in commodity procurement.

There are three areas of project management where the evaluation team would urge some further consideration. One concerns what appears to be excessive reporting requirements for descriptive and qualitative information placed on research and extension professionals of CARDI. The project management committee should re-assess the need for so many reports or plans, on quarterly results, annual results, etc., also on reports for varying decision-making groups. This reporting process seems excessive, and distracts from the conduct of research/extension activities. This may also be one of the reasons that project reports are delayed or not submitted. The development of a streamlined information management system at all levels for storage and retrieval of data in a timely and efficient manner appears to be needed.

Another management issue relates to the team's impression that there are an excessive number of research (propagation) stations. The real issue is efficient use of scarce human and financial research resources. This issue is discussed further in Section VIII, I., Adequacy of Other Support Systems.

A final issue on management improvement relates to the relatively large amount of scarce management time of the program leader, country representatives and senior executives devoted to the political and market aspects of a successful research/extension program. The TAT program manager appears to replicate the role of the CARDI country representative and some senior executives.

There are alternatives relating to this replication. Perhaps more complete position descriptions specifying roles, responsibilities and tasks, particularly with respect to

political and market responsibilities, would offer a solution. A second option would be to replace the country representatives with the program leader and a senior executive, with each having a designated set of OECS countries. A third possibility would be to assign these political and marketing responsibilities in the OECS to a single senior officer.

VIII. Issues: Discussion and Recommendations

Any evaluation effort on the AREP project confronts the reality that most project activities have rightfully been folded or phased in to the total CARDI/UWI/MOA effort. Consequently, several of the team's recommendations extend beyond AREP resources and, if any action is taken on them, will require funding additional to that provided under the AREP project by the participating institutions. Also, please note that the numbering of recommendations does not imply any sense of prioritization.

A. Appropriateness of Research Priorities/Approach

As with many national agricultural research programs, the scarce human resources of CARDI are over-extended. At least twenty five commodities are included in the research agenda of CARDI in support of import substitution, export promotion and food security objectives. Of these commodities, there are ten crops being researched in the OECS countries.

Clearly, the import substitution emphasis dominates the allocation of scarce human and financial resources. Export diversification and production is a dominant focus in only the Windward Islands. This inward-looking development strategy for the agricultural sector needs to be challenged. The decision to focus on import substitution appears to be based on a highly politicized and qualitative research agenda-setting process. Also, the biennial priority-setting process is a complex one involving over seven phases of meetings, workshops and workplans.

Further, the agenda setters lack an adequate database on external markets. Very unsystematic data exists on market volumes, timing, security of financial arrangements, transportation options and competitors. The USAID/RDO/C TROPRO project should be looked to as an important source of such data.

Another issue is that CARDI has little real defense when ministries request research assistance on a wide variety of commodities. At a minimum, CARDI must be able to handle many such ministerial requests by an enhanced ability to link into the international science community for information and technologies on commodities which have not been accorded priority status by CARDI. Such linkages would substitute for CARDI's present tendency to design and implement additional research efforts in response to OECS country pressures to deal with problems associated with non-priority commodities.

Another important criteria for evaluating priorities is an estimation of the economic potential of crops. Such value estimates can be made by knowledge of how consumer preferences change as they reach higher income levels, what a change in consumption will do to quantities consumed of complementary commodities and also what commodities are substituted for other commodities as incomes and consumers' tastes change.

Finally, the prioritization process is highly qualitative. There needs to be quantitative data sets analyzed in the research agenda-setting process. Data on production, yields, changes in land use, employment, value added, consumption characteristic and among others, data on potentials for yield changes should be incorporated.

Recommendations:

1. CARDI economists should search the literature for quantitative priority-setting procedures and seek external technical assistance from knowledgeable individuals to begin to adapt such analyses to their prioritization process.

2. CARDI should consider the development of a new special project component to address ministerial requests for assistance on low priority commodities. This one or two person component would develop a skills roster of individuals and institutions, along with specific research products on the typical disease, insect and other problems facing minor but individually important crops grown by farmers in the OECS states.

3. CARDI should also consider a more in-depth evaluation of the economic growth potential for the region which could be realized by a greater focus on traditional and non-traditional exports.

B. Appropriateness of Extension Priorities/Approach

The team observed that the OECS National Agricultural Extension Services (NAES) continue to place an emphasis on programs designed to promote farm families with small holdings able to produce efficiently and effectively, diversified non-traditional crops for export as well as for local markets.

Currently, all of the NAES participating in AREP and using a farming systems approach are structured to be successful extension systems in five functional areas: Planning, Organizing, Staffing, Supervision and Evaluation. The problem is one of implementation and each NAES has a weakness in one or more of the five functions except in planning.

In the planning function, most of the NAES have adopted priorities that are also similar to those of CARDI as stated in AREP. A joint planning process has made this possible at the area, district and national levels. The joint planning process includes input from persons having some concern with agriculture. It is very apparent that NAES as well as CARDI, UWI, and the END USERS (farmers) have other priorities that are high on their list of activities outside of those identified in the joint planning process. These other priorities are different for each group and are modified by social, economic and political factors. (See Figure 1)

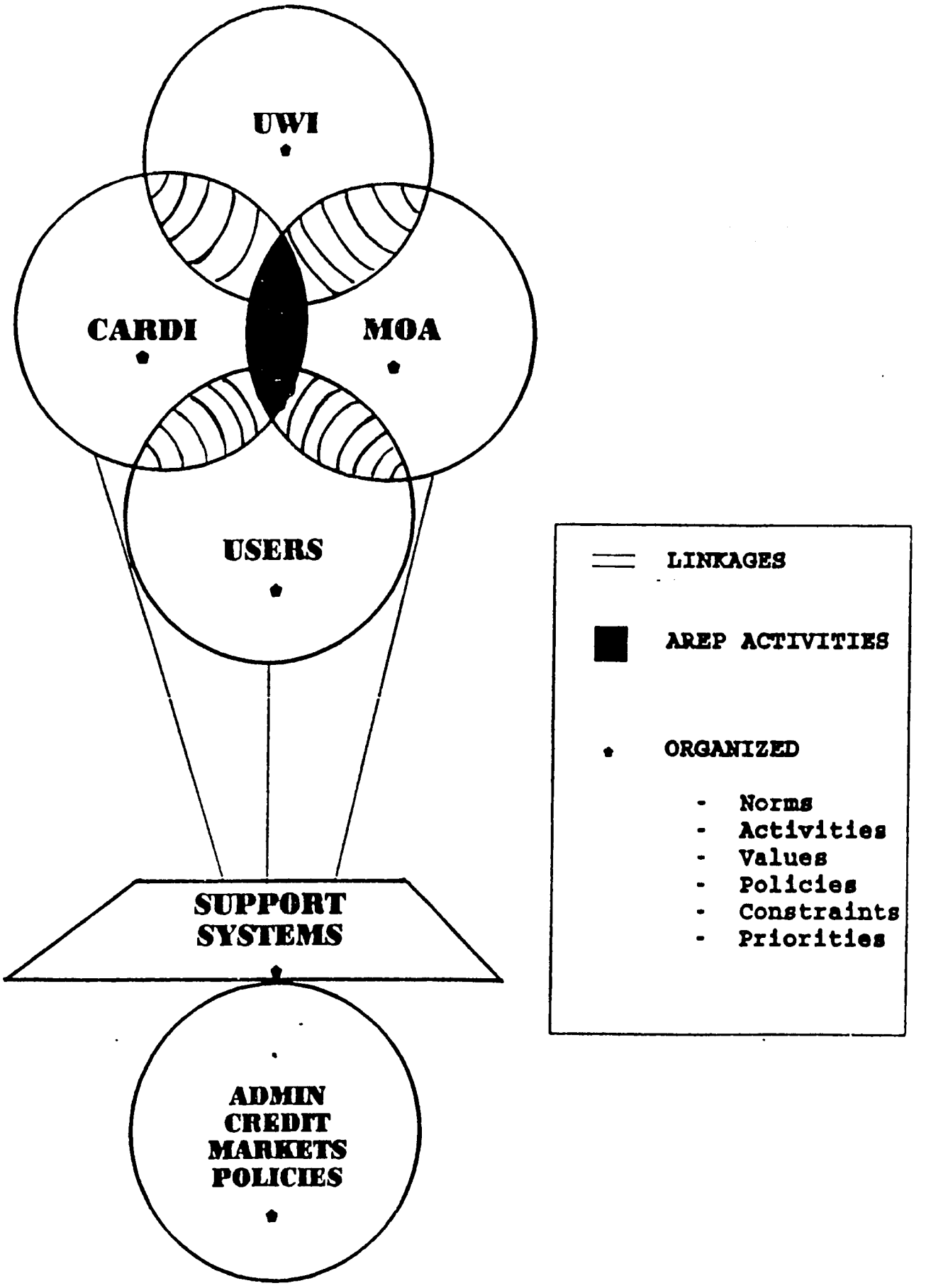
UWI
CARDI
MOA
USERS
SUPPORT SYSTEMS
ADMIN
CREDIT
MARKETS
POLICIES
LINKAGES
AREP ACTIVITIES
ORGANIZED
- Norms
- Activities
- Values
- Policies
- Constraints
- Priorities

Figure 1

Figure 1 is an illustration of the organizational dynamics which serve to identify institutional factors which must be considered in any descriptive analysis of projects such as AREP. The project groups, i.e., CARDI, MOA's, UWI and End Users, are linked to each other in various economic, political and social ways. However, the reality is one in which each group has a larger and more significant set of priorities outside those of AREP. These other priorities modify the way in which each group may respond to a project such as AREP.

It is only when the groups interface through AREP activities as the focus of their attention, that there is adherence to AREP priorities. An illustrative situation is one in which CARDI as an institution has its major expenditures designated for programs related to import substitution, but CARDI as an AREP group member has its expenditures focused on the AREP priority, production for export.

A weak function for the NAES continues to be one of staffing and organizing to work with farmers and other organizational groups at the area or district levels. The job descriptions of the frontline officers and specialized staff require high level competencies. However individuals are not hired at or near those levels; nor is appropriate training timely and sufficient to move them to a competency level in a rapid manner. The team noted that on St. Vincent, the MOA has taken some steps to address these problems.

The supervision of staff is improving with the increased numbers of middle management staff being trained in supervision and management skills. However, the monitoring of staff and programs continues to be hampered by transportation and communication factors. The entire process of monitoring and evaluation must be strengthened. At present, NAES rely heavily on subjective data to assess goal attainment. Little quantitative data are available to demonstrate impact in the priority areas.

Recommendations:

1. MOA's should maintain a farming system approach and functional structure while strengthening the management process to include implementation of programs utilizing the full range of resources provided by AREP and other sources.

2. MOA's should identify the frontline officers(entry level staff) as the key to farm family strengthening, recruit at the level of the competencies needed in the present job descriptions and provide frontline supervision as a source of support to enhance goal achievement. Where possible, promising under-trained front line officers should be provided the opportunity to enroll in Eastern Caribbean Institute for Agriculture and Forestry (ECIAF) level training programs.

3. MOA's should develop and maintain frontline officers who have a broad based knowledge of technical subject matter in agriculture and specific competency in the process skills areas. In addition, each frontline officer should be given the opportunity to develop specialized knowledge in one or more of the priority commodities through formal and informal (i.e. close association with CARDI researchers) training programs.

C. Effectiveness of Research/Extension Linkages

The team felt that the establishment of close working relationships between CARDI, UWI and MOA extension staff has been an impressive accomplishment under the project to date. In all but one of the countries visited by team members, personnel from the two organizations were working closely together in planning their respective programs. CARDI staff members participate actively in the planning of annual work programs for the Ministry of Agriculture extension service. MOA officials also provide substantive input to the CARDI annual work program planning exercise. There were also other types of coordinating mechanisms for the various organizations involved in agriculture such as the Project Country Team meetings in St. Lucia, the "Log" meetings in Dominica and the Heads of Units meetings in Nevis. The team felt that such coordination was very useful and that the MOA's might take an even more active role in setting a strategic course and guiding the actions of all relevant organizations, including the various donors, towards achievement of those strategic objectives. UWI might assist in this process by providing training in strategic planning and program management for MOA leadership and program planning personnel.

At the implementation level, particularly on Dominica, St. Vincent and Nevis, the CARDI, UWI and MOA extension personnel worked very closely together. In those instances there was a blurring of the differences in roles between the organizations as the extensionists became heavily involved in the technology adaptation activities of CARDI and the researchers worked directly with extensionists in disseminating technologies to farmer clients.

An increasingly important feature of the CARDI/UWI/MOA research/extension programs is an appreciation of the importance of the market and the involvement of the end-user in program planning and implementation. In fact, what is emerging is a modified methodology for research and extension which involves a commodity (or group of commodities) specific task force approach that includes the researchers, extensionists, farmers and end users in a dynamic, integrated process to provide the end-users with a reliable supply of high quality products.

The team noted that this modified model has similarities to one that has been used in the U.S. for some time in some of the perishable commodities such as celery, lemons, cherries etc. This market driven approach involves coordinated public and private actions to organize all elements of the supply process i.e., technology, inputs,

production, and marketing (including collection, storage, processing and distribution) into an integrated system. This usually involves collaborative efforts by public sector researchers and extensionists with factor market groups, producers associations and agricultural product marketing organizations.

The emerging local model, which includes some of the same elements but is less sophisticated than the U.S. approach, has been carried to its most developed state on Nevis where CARDI, UWI and MOA extension staff are working with a group of small (2-4 acres) commercial farmers to supply the recently opened Four Seasons Hotel with a variety of high quality fruits and vegetables. When the team interviewed the purchasing manager for the Four Seasons Hotel, he reported that he was very pleased with the quality and timeliness of the products that he was receiving from the group. He also reported his satisfaction with working with just one supplier that could meet his needs for high quality local produce rather than dealing with a number of different sources with uneven quality and fluctuating quantities.

CARDI, MOA extension staff, farmers and the hotel purchasing staff have worked together to establish staggered planting schedules, quality and maturity requirements and weekly product delivery schedules. Efforts are underway to transfer responsibility for planning, transport and quality control from the MOA and CARDI staff to the farmer group. The team believes this transition should not be rushed so that the farmers' group is well prepared before it assumes full responsibility.

A similar activity is underway on St. Vincent where CARDI, MOA extension staff, producers, the Organization for Rural Development (ORD), and the Caribbean Trading Company (CATCO) are involved in a task force approach to producing eddoes, dasheen and ginger for markets in the U.K. and Europe. CATCO and ORD provide information on market quality and timing requirements which the research and extension staff factor into their programs.

Critical to this entire process is the establishment of an organizational mechanism to systematically schedule planting and harvesting to meet stringent market demands for timing and volume. The same organizational mechanism also has to maintain strict procedures for quality control. In the case of Nevis, this mechanism is provided by CARDI and the MOA and in St. Vincent by ORD. The TROPRO project could be instrumental in facilitating the establishment of such organizational mechanisms in other commodities. There are also clear benefits to be gained by applying this task force approach to activities funded under the Agricultural Venture Trust.

The application of this methodology has produced some impressive results:

-- End-users are pleased with the quality and timeliness of product supply.

-- Farmer incomes have increased significantly.

-- There is a high level of morale and motivation among research and extension workers because they are working within an organized and systematic framework, their input is sought and valued by farmers and they can see that their work is making a difference.

Recommendations:

1. CARDI and UWI should document successful activities including the Nevis Vegetable Marketing Program and the St. Vincent Root Crop Export program (including preparation of video, radio and printed materials) and include them in their in-service training programs. These materials should also be available in the documentation center for use by interested external parties.

2. CARDI and UWI should arrange visits to successful activities in Nevis and St. Vincent for CARDI and MOA staff, farmers, hotel staff, exporters and processors to expose them to the benefits that can be realized through the task force approach.

4. CARDI, UWI and MOA should seriously consider formalizing the task force methodology which involves researchers, extensionists, producers and end-users and adopting it as the joint operating methodology for most of the CARDI and MOA commodity development programs.

3. CARDI should consider increasing the size of its post harvest technology staff to make a greater contribution to these demand driven programs.

D. Extent of Farmer/Private Sector Involvement

The methodologies employed under both the FSR/D and CAEP projects emphasized farmer involvement in research and extension planning and implementation. Thus it is not surprising that there is a significant level of farmer involvement in these activities at the local level under the AREP project. Farmers participate in area and district level committee meetings with extension workers to identify problems that should be addressed by the extension service in the coming year. These problems are then consolidated and prioritized at the national level. Farmer involvement at this level is variable but appears to be ad hoc and minimal in most countries.

CARDI researchers, following the FSR/E methodology, consult with farmers early in their planning process to get input on research priorities. However, when these priorities are discussed at the national and regional level there is little farmer involvement. Similarly, there is limited systematic involvement of other private sector institutions such as farmers' organizations, associations of processors and

exporters, etc. in national or regional level planning and priority setting. (The November 1990 meeting of the Regional Agricultural Extension Coordinating Committee was a notable exception.)

The team believes that there should be a greater level of involvement of farmers and other private sector leaders in planning and supporting agricultural technology programs at the national and regional level to build support and foster ownership of the programs. One way to achieve this would be to establish a national private sector advisory committee on agricultural technology which would interact with both CARDI and the Ministries of Agriculture on research and extension programs. These committees could also serve as influential advocates of the importance of agricultural technology with such key actors as the Prime Minister, Ministers of Finance, Trade and Agriculture, the legislature and the public media. These advisory committees should consist of influential and respected individuals in the private sector who are convinced of the importance of agricultural technology in national development and should include successful commercial farmers, processors, exporters and tourist industry representatives.

Recommendations:

1. CARDI and MOA leadership should provide for more formal participation of farmers and other private sector leaders in their national and regional level planning and priority setting processes.

2. The subject of establishing national level agricultural technology advisory committees should be raised by CARDI and UWI at the next meeting of the Regional Agricultural Extension Coordinating Committee (RAECC) with the suggestion that a RAECC private sector sub-committee be constituted to explore the feasibility of setting up such committees in each of the OECS states.

E. Effectiveness of the Farm/Home Management Program

The team observed that many farmers do keep some form of written records. However, it appears that only a small number of farmers are using the farm/home management records program book, approximately 600 in all the OECS countries as reported in a November, 1990 memo from UWI to USAID/RDO/C. This record keeping program is a continuation of an earlier funded effort (under CAEP) and some farmers were able to show records in the book from 1988-89 to the present year.

The farmers who use the book appear to be more literate, more involved in a wide range of diversified commodities, more likely to keep a second system of records, appear to use innovative approaches on the farm site and have leased, purchased or inherited farm lands exceeding 2 acres.

Most farmers interviewed on the subject indicated that they preferred to keep records on a limited amount of information and that the record book required too much data that they did not feel they needed. They were reluctant to provide information on items they felt were "personal business".

In most instances the home management section is not used by the farm families. Cultural relationships and communication patterns appear to be a major factor in rejecting this aspect of the system. The task of keeping the home management section of the book was the responsibility of the spouse or common-law spouse. None of the male farmers stated that they recorded any data in this section.

Some farmers did not want to send their books into an office for analysis. Those who did found that they received little feedback and the turnaround time for receipt of the books was one to three months. Several farmers indicated that they wanted access to a computer to enter their data on a weekly or monthly basis. None of the farmers interviewed were using calculators on a regular basis. There was little evidence that frontline officers used calculators routinely.

Recommendations:

1. UWI and the MOA's should continue to emphasize the value of using a written record keeping system for the families' analysis with assistance from the frontline officer or technical assistant.

2. UWI and the MOA's should eliminate the practice of using the record books as a source of institutional impact data except where these data are drawn from the target group of farmers for their analysis.

3. UWI Ag Extension Department should conduct a study or collect data on the cultural factors related to family communication patterns which may affect the way information on economic issues are handled between male and female members of a family unit.

4. UWI Ag Extension Department should review and modify the record book so that it is farmer friendly (readability level, color coded sections, simple to complex format as farmers become competent and other adult learner strategies) and design an instructional package for the extension staff to us as a standardized presentation.

5. NAES should offer farmers and frontline officers the opportunity to purchase (at discount) or use a loan pool to access devices such as solar power calculators or computers especially for those farmers and staff actively involved in farm records program. Farm/Home management staff should continue to conduct farmer training sessions on the use of the computers for record keeping.

F. Adequacy of Training Programs for Research and Extension Personnel

The written work plans for training illustrate the fact that attention is paid to the needs of professional staff and farmers in a systematic and focused manner. The quarterly reports document the numerous sessions programmed. A problem may exist in that some of the planned training efforts are cancelled, postponed or not offered for various reasons and other unplanned training events are implemented at the NAES district or area levels.

The academic training is ahead of target. AREP provides for 10 diploma students. Six completed the program in 1991 and four more will enter the diploma program in October, 1991. AREP provided support for six degree candidates. Three persons are enrolled in graduate programs. (2 MSc and 1 PHd).

Currently, few technical subject matter in-service education programs are designed into the UWI/MOA training work plan for professional staff except for the two week Annual In-Service Education Program. The concept of conducting technical subject matter "updates" as training sessions do not appear to be used in the region.

The UWI Faculty of Agriculture does offer a continuing education program focused largely on technical subject matter with attendance funded primarily by donor groups. This is the CEPAT program which is not a part of the AREP project. The team believes that both the Faculty of Agriculture technical training courses and the UWI process courses would be strengthened by greater involvement and collaboration by each of the organizations in the training programs of the other.

Extension education in-service is a very strong component of the work plan but implementation sessions are not offered. Followup activities, e.g.coaching and mentoring for practice adoption on the farmers' fields, do not appear to be planned. This shortcoming has been identified by collaborative groups in the post harvest handling of crops. In general, a systematic plan for training frontline officers does not appear to be structured in such a manner as to move from simple to complex learning for practice adoption. Connecting formal clasroom training to the field informal sessions needs to be strengthened.

Little, if any of the training programs are designed around the concept of task analysis so that training may be focused on competency development. Instructors have difficulty determining how to plan a course when they lack knowledge of the entry competencies of participants.

There has been some evidence of training for researchers on design, implementation, analysis and reporting (See Annex K). However, the team observed that the quality of validation and result demonstrations on farms appeared to be highly variable, suggesting that some training on the conduct of these on-farm trials should be

offered. In addition, there was evidence that researchers were unable to conduct method and/or result demonstrations as instructional strategies. Training was also lacking in the appropriate use of the document center. A majority of Cardi and MOA personnel have not listed their technical subject matter interests with the center and consequently do not receive new knowledge associated with their interests.

Farmer training is offered and good participation is noted in some areas. Timing the training to meet the needs of the farm families appears to be a problem. Support materials are not "farmer friendly" and few instructional guides for frontline officers are prepared for use with the farmer. Very little farmer language materials are available for followup activities after a field day or workshop (some notable exceptions included Feeding Small Ruminants (Antigua) and the Group Dynamics workshop (St. Vincent)).

The concept of field days needs to be further developed as an educational tool in the TAT program. Training in this area is needed for all professional staff.

Quantitative data on training has not been collected in a systematic manner to determine the impact of training on the adoption of practices. Data on how many recommendations or promising practices have been presented at farmer training sessions compared to the number of trained farmers adopting the practice would assist staff to know which educational strategies are most useful with farmers.

Farmers visited stated their preferred way of learning...."show me on the land and let me read about it after I have seen it...show it to me on the farmers land and tell me how much I can make and how soon...don't like to sit in class too long away from my work."

It is common knowledge that farmers learn from other farmers. However, farmer innovative techniques did not appear to be used as an instructional resource. Some limited farmer to farmer training was cited in UWI quarterly reports. Expanded use of this resource merits attention.

Some group training is implemented and this occurs mostly in programs associated with an established farmer association or organization. There is high participation in these groups which suggests even greater potential for group training.

Recommendations:

1. CARDI, UWI and MOA should develop a systematic program of training related to competency development, utilizing funds from AREP and other sources.

2. UWI Agricultural Extension Department and Faculty of Agriculture should collaborate on the development of a formalized set of technical subject matter "Updates" utilizing UWI faculty, CARDI and other resource people in the region. The Updates would be short term information sessions offered at different sites within the region, with some of the training elements provided through an enhanced telecommunication system.

3. UWI should maintain documentation on training in a centralize location by NAES.

4. CARDI should train all staff on on-farm validations and method and result demonstration as instructional strategies and prepare instructional manuals on these processes as followup materials.

5. UWI/CARDI/MOA should use farmers as instructors in their group training programs and utilize farmer innovations in these sessions. UWI should continue the training on group dynamics with a focus on interpersonal communication.

6. CARDI, UWI and MOA's should maintain a formalized orientation program for all staff at the entry level and promotional levels. Orientation is done to clarify expectations, develop workplans and to gain commitment to goals of the organization.

G. Adequacy of Communications Support Program

The communication component of AREP does not appear to be meeting the objectives of the project as well as it should and major questions exist as to the feasibility of this component reaching its objective by the end of the project unless serious attention is paid to the stability and coordinating efforts of RECU and the local communication units. While some progress has been made in training local communications personnel, the linkages between RECU and the local units remain quite weak and need to be strengthened.

The communication units at the regional and national levels have been given outstanding technical support from external consultants to the point that the quality of production is very much improved for video/radio work and written reports.

Documentation of the production items developed in RECU is good and illustrates the amount of work that has been done on production. However, the production materials are not packaged to be used by frontline staff nor are their activities focused on direct service to farmers.

An FAO program for a regional communication center in Dominica has improved the capacity of that unit to produce video and audio materials for use with frontline staff and farmers. This program was an initiative of the OECS MOA's who stated that

they wanted a communication unit that would be responsive and relevant to their local needs. It was suggested that RECU was more focused on campus based needs. Currently the program continues to have the support of the donor and a phase Two is planned with donor input from UNDP and the National Family Planning Unit. The Second phase would be funded with the stipulation that a plan for sustainability of the efforts be prepared.

The back-up materials for farmers and the instructional packets for the frontline extension staff or R&D group are lacking in the Dominica project also. Neither RECU nor the local communication units coordinate their work to make these materials available in a systematic and timely manner.

Factsheets are well done for use by researchers and as information sources for the frontline officer. They are not as suitable for farmers. Local communication units do not have the staff or equipment to produce such materials. Fact sheets appear when a "proven recommendation" can be made. Promising practices or research in progress are seldom reported. Few Factsheets represent a collaborative effort between CARDI, MOA and UWI. Desktop publishing has not been utilized by most of the appropriate staff.

Currently TECHPAKS consist of a set of FACTSHEETS. No set of instructional guides are provided with the techpaks or videos to demonstrate a process for conducting the activity. Few R&D staff have been trained to move a technical subject matter program through an educational process for adoption.

A newsletter is published on a quarterly basis by RECU with a revolving editor. Very few issues have included information on "promising research practices", innovative extension or farmer practices, management or instructional strategies or information that communicates to the participants what is happening in the regional programs. This may not be the focus of the current newsletter. If not, one should be created to provide this information. An example of a useful "newsletter" is the Farm and Home Management Circular Letter.

RECU is understaffed and its focus in AREP is not understood by all of the expected users. The local communication units, with the exception of Dominica, are under equipped and their goals are not well defined

The Document Center (DC) at CARDI is an outstanding program and the quality of its work is excellent. They are linked to multiple data bases and international centers. The very limited staff demonstrated a high level of ability to operate the electronic based systems. However, they report that they are not an integral part of the CARDI planning process so they are unable to provide timely materials on planned priorities in AREP. In addition, the CD-ROM station is not connected to any other similar stations in the NAES or CARDI. Currently, data searches on

specific topics may take one to three months to be received by R&D staff. Few if any frontline officers use the document center for extension practices. A modest 10% increase in activity would stretch the current resources of the center beyond its capacity.

Recommendations:

1. The AREP Project Management Committee should decide what role a regional communications center should play in supporting local extension programs, whether the FAO supported Dominica center and RECU can establish a mutually reinforcing working relationship, whether the Dominca center should become the regional communications support center for the OECS states, and whether RECU's role as a service unit for the OECS states should be continued. In considering these questions, the committee should devote greater attention to how a well coordinated communication program (with defined and understood policies and procedures) might be structured at the regional level and at the NAES level that includes a continued emphasis on quality materials prepared in a timely manner for various user groups. In addition, the committee should emphasize the production of farmer level materials and instructional packets for frontline officers. A UWI staff person responsible for the development of such materials should be funded. The role of CARDI technology adaptation specialists in developing farmer friendly extension materials should be thoroughly explored.

2. The UWI Agriculture Extension Department should identify a communication tool that will provide staff with regular information on progress towards goals in R&D, Extension and Farmer/End User involvement. This may be a quarterly newsletter.

3. CARDI and MOA's should establish a system (electronic stations in each NAES) for connecting researchers and specialized staff to the Document Center for broader use of its facilities. A DC representative should be included in the regional priority setting process so that special attention may be given to the collection of appropriate data related to these priorities before the implementation period.

4. CARDI and MOA's should seek funding to provide desktop publication capabilities in at least one of the CARDI/MOA research stations in each NAES.

H. Adequacy of Linkages to External Sources of Technology

CARDI has a sporadic record of linkages with international agricultural research centers (IARC's), the international agricultural science community and

research/extension colleagues in tropical areas. There have been some exchanges of germ plasm and training linkages, but stronger links that produce stronger spillover effects should be very profitable.

Stronger links through a well programmed research network should be considered. A viable research network might include colleagues in Central America, selected IARC's, selected U.S. universities and OECS collaborators. As indicated in the section on priorities, an enhanced skill roster and IARC's data base linkages can be low-cost sources of additional knowledge.

CARDI is utilizing a few UWI graduate students in its research program. There is considerable room for greater use of these low cost research collaborators. There are trade-offs between graduate students with CARDI and research technicians with the MOA's.

Recommendation:

1. CARDI should establish a well-programmed research network involving a selected set of colleagues dealing with tropical commodities of mutual interest.

2. CARDI should seek to establish a more systematic set of linkages with IARC's. In addition to germ plasm and training links, CARDI should have strong links with the IARC's data bases. Also, CARDI should program less frequent but more in-depth visits of more selected IARC professionals to the OECS.

3. USAID should consider a small restricted endowment to CARDI for graduate student linkages. Annual earnings from such an endowment could be used to expand the number of UWI and other university graduate students involved with CARDI research.

I. Adequacy of Other Support Systems

This section focuses on five issues relating to the support systems for agricultural research and extension activities as possible constraints to program progress.

The first issue concerns research facilities and personnel. CARDI operates seven research stations while the Ministries of Agriculture operate twenty research/propagation stations in the OECS. (See Annex G). About a third of the CARDI staff stationed in OECS countries, some 20 to 24 research professionals along with some 24 MOA research professionals and 34 technicians, are associated with these research activities. A majority of the researchers associated with the Ministries of Agriculture, are young and inexperienced.

Recommendations:

1. The MOA's should consider a reduction in the number of research/propagation stations.

2. CARDI and MOA's should evaluate the opportunities for greater substitution of CARDI programs for MOA research programs.

3. CARDI should enhance the data bases and its skills roster that could serve as a substitute source of technical knowledge to satisfy MOA requests for research on non-priority commodities. This action might change the rationale for operating MOA research stations.

A second concern is the salary situation at CARDI and its competitive position on human capital. CARDI salaries have not changed since 1987, except for a five percent bonus in 1991.

Recommendation:

1. That the CARDI Board evaluate and take appropriate action on the degree of erosion of their competitive salary position. Some options would be some position consolidations to free up additional funds and to consider other incentives such as additional off-shore training opportunities or bonuses for outstanding achievement.

Another issue relates to the mobility and non-salary financial support in the MOA's. Only three nations - Dominica, Nevis and St. Vincent, have a revolving vehicle purchase fund. Further, less than five percent of the budgets of the MOA's are for program support.

Recommendations:

1. That other MOA's evaluate the revolving fund for vehicle purchase and move to adopt this most successful system.

2. That MOA's give serious consideration to increasing the level of support funds for MOA extensionists.

A final support system issue is the size of the administrative staff of CARDI. There are eight administrators (three program leaders and five persons in senior management) and possibly 12 country representatives. Further, there are six persons in accounting and auditing. These administrative positions total 26, out of a total professional staff level of 77. The team recognizes that this ratio does not fully reflect the distribution of administrative and scientific/technical staff time as the program leaders and country representatives are also heavily involved in scientific and technical activities.

Recommendation:

1. That CARDI leadership and Board members should evaluate this administrative issue with respect to a possible reduction in the number of administrators and/or the amount of staff time devoted to management and administration. In Section VII, Discussion of Project Management, some alternatives are discussed.

J. Adequacy of Project Data for Evaluation of Project Impact

The project paper sets quantitative targets on levels of technology adoption and reductions in unit costs of production for important agricultural commodities in the OECS countries. Further, CARDI needs impact data on changes in employment and gross domestic product from the agricultural production system, including factor and product markets. Impact reports using such data would help to sustain financial support from collaborating governments. These impact data should also serve to encourage the private sector to more vigorously support CARDI programs.

There are some good case studies on onions, peppers and other commodities in support of yield changes and magnitudes of import substitutions. Also, many researchers have reliable data on potential yield changes. However, there are few reliable data sets that allow for estimating technology adoption rates, yield changes, causes of production changes (increased land in use or yield changes). Further, there are few data sets that permit estimations of changes in agricultural employment and incomes associated with changes in technology and adoption levels.

Recommendations:

1. That CARDI establish a small sample survey system to develop a continuous data base for impact analysis. The survey could reveal data on output projections; actual annual production levels; yield changes; land exchanges; employment changes on farm and in factor as well as other product markets; other input use changes; and product market volumes or changes in the form of raw material purchases.

2. CARDI would need to shift some economic talent to this evaluation process. A single professional with assistance from graduate students could develop at least two types of reports. One focusing on rates of return to research and extension investments; and another on employment and income changes by nations from output increases associated with technology changes and market changes.

3. CARDI should review its agricultural economics program needs and capabilities. The team believes that additional personnel would be required to carry out the functions detailed here and in Section VIII, A. CARDI should

also establish linkages with extra-regional institutions (e.g. U.S. or U.K. universities) to provide a flow of long-term, intermittent technical assistance in economic data collection and analysis.

K. Gender Issues

The team noted that many of the activities contemplated in the Women in Development section of the project paper were not implemented because the additional extra-project funding anticipated for this purpose was not received.

The NAES are to be commended for their effort to include a number of females in various professional positions. Also, about 22% of the CARDI professional staff are women. However, few of the participant groups in AREP collect gender data in a systematic or sustained manner. The statements were made that the program leaders "treat all farmers the same" and that programs are "open to any farmer who wishes to be a participant". Some NAES do collect gender data on some training programs (St.Vincent was a prime example). Gender data are recorded in the academic programs.

Both male and female farmers were asked on each of the islands if there were agriculture tasks performed more by women than by men and ALL said "Yes, especially weeding". However, few if any programs were identified to attract the female farmer or laborer. Women farmers said they would like to attend programs with a focus on women because they could share ideas about the topic and "other things".

Recommendations:

1. The Project Management Committee should review the gender related activities proposed in the project paper and determine which of the activities might be achievable during the remaining life of the project. The Committee should also explore the prospects of securing additional funding for this purpose.

2. UWI should conduct a task analysis of selected agriculture practices to determine which ones are more likely to be performed by females on the farm, then arrange selected workshops to focus on women as farmers.

3. MOA's should consider developing a data base on female farm ownership (number of holdings, size of holdings,joint tenancy,etc) and female farm laborers (wages,hours etc). These data could be used to strengthen the economic conditions of both the male headed households as well as the growing number of female headed households.

4. CARDI, UWI and the MOA's should encourage women to compete for positions within their organizations.

5. All AREP groups should make a conscious effort to consider the needs of both genders in agriculture related materials.

L. Looking to the Future

CARDI has a strategic planning process as well as a biennial review and planning process. Strategic plans are developed about every five years involving CARDI and MOA personnel, plus representatives from farm organizations and other knowledgeable persons. The strategic plan assesses macro trends, agricultural policies, research/development priorities and other issues. A report is presented and reviewed by the governing boards of CARDI.

This strategic planning process should extend its mandate to evaluate other important issues such as:

1. Options to increase CARDI/UWI linkages for professional collaboration and exchanges and increased use of graduate students. This is a sensitive subject that was one of several issues involving the Faculty of Agriculture at UWI, addressed by a recent working group report issued in May, 1991.

2. Establishment of a process in CARDI to assess and implement actions impacting financial sustainability. Some consideration might be given to a financial development program involving private sector support; matching endowment grants from external funding sources; joint ventures on quality control, seed and plant propagation programs.

3. Evaluation of the impacts of a United States, Mexico, Central American, Canadian, Caribbean free trade association on CARDI programs focusing on agricultural export diversification and expansion.

4. An analysis of the impact on economic growth from changes in existing policies on labor, land and capital markets. Issues of farm consolidation, machinery for labor substitution, and increased capital requirements for technology adoption are related to potential changes in such agricultural policies.

5. The increasing importance of natural resource sustainability. Clearly, CARDI has a strong interest in water quantity and quality issues, pollution effects from chemicals and toxic substances, and on soil conservation and agro-forestry alternatives. CARDI should take a leadership role on resource sustainability as the center for agricultural science in the Caribbean.

6. The economic benefits of an expanded effort in export promotion versus an import substitution development strategy.

Recommendations:

1. That CARDI and UWI reassess graduate student linkages and professional exchanges.

2. That CARDI evaluate the options for enhancing financial sustainability. CARDI should analyze the prospects for endowment development with external donors involving cash and in-kind matching grants, as well as options relating to debt donations and purchases. USAID should seriously consider participation in well-programmed endowment development efforts.

3. Some of the scarce economic talent of CARDI should be encouraged to initiate research on new trade associations, important factor markets (land, labor and capital), selected product markets relating to joint ventures, and an analysis of a greater role for export promotion on its agenda.

4. CARDI should also re-assess its role in natural resource sustainability.

IX. List of Annexes

A. Terms of Reference for the Evaluation

B. Evaluation Team Members Bio Data

c. Evaluation Team Schedule

D. List of Persons Contacted

E. List of Documents Reviewed

F. CARDI Adaptive Research Program

G. General Background Information on CARDI, UWI and MOA Program and Personnel

H. AREP Project Budget and Actual Expenditures Through Year Two

I. AREP Funded Regional Training Activities

J. AREP Funded National Training Activities

K. CARDI Institutional Strengthening/Staff Development Activities

L. Statement of Budget and Actual Counterpart Expenditures Through Year Two

M. CARDI on Farm Tests/Validations (1989 - 1991)

Annex A

Terms of Reference

The contractor is requested to review project progress to date and to provide an overall evaluation of the following:

A. The appropriateness of project design given the needs of and the resources available to the sector.

B. The extent to which project outputs are being achieved.

C. Given current progress, the liklihood that end-of-project status will be achieved within the programmed time period.

To carry out this assignment the contractor will provide three specialists as follows:

A. **Technology Adaptation Specialist (4 weeks)**

This person will review the technology adaptation component in general and comment specifically on the following:

1. The process of identifying and the extent to which researchable topics are associated with crops that have high economic potential (Are problems solvable within a reasonable time period given the resources that CARDI and the Project can bring to bear?) *(Section V A 1,2; Section VIII A)

2. The process by which researchers work with extension personnel and farmers in the development and implementation of technology adaptation programs. *(Section VIII C; Section V C 6)

3. The likelihood that CARDI will be able to core fund all technology adaptation specialists by the end of the project given current and future core funding levels. *(Section V A 3; Section III A)

4. The involvement of UWI, OECS countries and farmers in the development of research programs and the degree to which they support these programs during implementation. *(Section V C 1, 3, 7; Section VIII, C)

5. The extent to which CARDI has begun to transfer technology developed under the project and the effectiveness of mechanisms used. *(Section V A, 1; C 6; Section VIII, A and C)

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* A notation follows each question in the Statement of Work, providing a reference to the section(s) in the evaluation report which responds to that specific question.

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6. The extent to which AREP is an integral part of CARDI core programs and not in addition to. *(Section VIII, Introductory Statement)

7. The extent to which CARDI with the assistance of AREP is producing a continuous stream of improved agricultural technologies. *(Section V A 1; Section VIII, A)

B. **Extension Specialist (4 weeks)**

This person will review the national extension services component in general and specifically evaluate the following:

1. The extent to which the extension training program funded by the project responds to the needs of National Extension Services and is sufficient to meet those needs (programming leadership, monitoring and evaluation). *(Section VIII F; Section IIIF)

2. The manner in which the farm and home management methodology is being implemented and institutionalized including number of farmers by country who are effectively using the system and their perceptions of the system, includingits usefulness to women farmers. *(Section VIII E, Section IV, B, 1 b and c; Section V, B 2)

3. The involvement of extensionists in the development of improved technologies and the transfer of the technology to farmers and farmer groups. *(Section VIII, B and C)

4. The involvement of the Regional Communications Unit (RECU) in improving the capability of national communication units and in extending technologies throughout the region. *(Section VIII G; Section V, C 5)

5. The extent to which the Extension Services component is contributing to the improvement of the methodology, organizational structure and management of the National Extension Services. *(Section VIII B)

C. **Agricultural Development Specialist and Team Leader (5 weeks)**

This person will review the extension/research linkages component and CARDI and UWI project management and will be responsible for coordinating all aspects of the evaluation including preparation of the final evaluation document. Specifically, the following items will be evaluated.

1. The functioning of the AREP coordinating committee and the project country teams and the extent to which they provide coordination between research and extension at the national and regional levels. *(Section V C 1, 2, 3 and 6; Section VIII C)

2. The involvement of UWI and National Extension Services, in the research planning of CARDI. *(Section VIII C; Section V A 4)

3. The involvement of CARDI in the planning of national extension programs and regional communications strategies. *(Section VIII C)

4. The extent to which CARDI, National Extension Services and UWI are coordinating the development and publication of communications materials. *(Section VIII G; Section V C 5)

5. The extent to which CARDI is developing a baseline of basic sector information and updating this information on a regular basis so that progress on achievement of project objectives can be effectively monitored. *(Section VIII J)

6. The role of the UWI Department of Agricultural Extension in the development and monitoring of the extension services component. *(Section V B)

7. The degree to which the development and utilization of a common approach to research and extension are accepted and being utilized in the regional technology generation and transfer system. *(Section V C 3; Section VIII C)

8. The extent to which coordination and integration occurs, between the AREP, West Indies Tropical Produce Support (TROPRO) Project and other projects with similar objectives implemented in the region. *(Section VII; Section VIII A and C)

D. **Team Members Qualifications**

A. The Team Leader/Agricultural Development Specialist should at a minimum have:

1. an advanced degree in the agricultural sciences and/or international development or related fields.

2. at least 10 years of experience in international development in the agricultural area.

3. experience with the design, implementation and evaluation of AID funded public or private sector agricultural research and extension projects.

4. experience leading an evaluation team of a major project.

B. The Technology Adaptation Specialist should at a minimum have:

1. A Ph.D in some field of agricultural research.

2. At least 5 years experience with the implementation of agricultural research projects in developing countries.

3. Previous participation in the evaluation of AID-funded project.

C. The Extension Specialist should at a minimum have:

1. An advanced degree in the agricultural sciences and/or international development or related field.

2. At least five years experience with the implementation of technology transfer projects in the developing countries.

3. Previous participation in the evaluation of AID-funded projects.

E. Period of Service

The period of service for collection and analyses of field data and for draft report writing will run from September 2 to September 28, 1991. Six day work weeks are authorized. After review of the draft report by CARDI, UWI and RDO/C, the team leader will be given an additional 6 work days to prepare a final report.

F. Reporting

Prior to departure from the region, the contractor will submit a draft final report which is acceptable to RDO/C. The report will include:

A. A Project Evaluation Summary (PES) prepared according to the guidance contained in AID Handbook 3, Chapter 12.

B. discussion of overall project status.

C. A discussion of progress made toward achievement of project objectives which will include comments on the specific items contained in the terms of reference.

D. Recommendations for areas of improvement, changes in project design, emphasis etc.

Terms of Reference

I. Background

The Agricultural Research and Extension Project (AREP) was authorized and obligated in March 1989. The purpose of the project is to strengthen the institutional capability of national extension services and regional research and extension organizations to generate, adapt and disseminate continuing streams of improved agricultural technologies which are responsive to the needs of participating countries and are widely adopted at the farm level. The Project builds upon many of the activities of previous successful projects on Farming Systems Research and Development and Caribbean Agricultural Extension.

AREP is implemented through a grant to the Caribbean Agricultural Research and Development Institute (CARDI), which is responsible for all research activities and overall financial management. Extension activities are implemented through a sub-grant by CARDI to the Department of Agricultural Extension, University of the West Indies. The project has an authorized level of $5,000,000 over five years. Obligations to date total $3,537,000 of which approximately $1,632,000 has been expended.

Project components consist of:

a. Technology Adaptation - Improving technology for adaptation by the farm population in the Eastern Caribbean.

b. Extension Services - Improving transfer systems through the UWI and the Ministries of Agriculture to foster well-organized and managed national extension services which are fairly effective transferring improved technologies to farmers.

c. Research/Extension Linkages - Improving institutional linkages and collaboration between CARDI, UWI and Ministries of Agriculture to develop and implement adaptive research and extension services in the Eastern Caribbean.

II. Objective

The purpose of this delivery order is to carry out a mid-term evaluation of the Agricultural Research and Extension Project.

III. Statement of Work

The contractor is requested to review project progress to date and to provide an overall evaluation of the following:

A. The appropriateness of project design given the needs of and the resources available to the sector.

B. The extent to which project outputs are being achieved.

C. Given current progress, the liklihood that end-of-project status will be achieved within the programmed time period.

To carry out this assignment the contractor will provide three specialists as follows:

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This person will review the technology adaptation, component in general and comment specifically on the following:

1. The process of identifying and the extent to which researchable topics are associated with crops that have high economic potential (Are problems solvable within a reasonable time period given the resources that CARDI and the Project can bring to bear?)

2. The process by which researchers work with extension personnel and farmers in the development and implementation of technology adaptation programs.

3. The liklihood that CARDI will be able to core fund all technology adaptation specialists by the end of the project given current and future core funding levels.

4. The involvement of UWI, OECS countries and farmers in the development of research programs and the degree to which they support these programs during implementation.

5. The extent to which CARDI has begun to transfer technology developed under the project and the effectiveness of mechanisms used.

6. The extent to which AREP is an integral part of CARDI core programs and not in addition to.

7. The extent to which CARDI with the assistance of AREP is producing a continuous stream of improved agricultural technologies.

B. **Extension Specialist (4 weeks)**

This person will review the national extension services component in general and specifically evaluate the following:

1. The extent to which the extension training program funded by the project responds to the needs of National Extension Services and is sufficient to meet those needs (programming leadership, monitoring and evaluation).

2. The manner in which the farm and home management methodology is being implemented and institutionalized including number of farmers by country who are effectively using the system and their perceptions of the system, includingits usefulness to women farmers.

3. The involvement of extensionists in the development of improved technologies and the transfer of the technology to farmers and farmer groups.

4. The involvement of the Regional Communications Unit (RECU) in improving the capability of national communication units and in extending technologies throughout the region.

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This person will review the extension/research linkages component and CARDI and UWI project management and will be responsible for coordinating all aspects of the evaluation including preparation of the final evaluation document. Specifically, the following items will be evaluated.

1. The functioning of the AREP coordinating committee and the project country teams and the extent to which they provide coordination between research and extension at the national and regional levels.

2. The involvement of UWI and National Extension Services, in the research planning of CARDI.

3. The involvement of CARDI in the planning of national extension programs and regional communications strategies.

4. The extent to which CARDI, National Extension Services and UWI are coordinating the development and publication of communications materials.

5. The extent to which CARDI is developing a baseline of basic sector information and updating this information on a regular basis so that progress on achievement of project objectives can be effectively monitored.

6. The role of the UWI Department of Agricultural Extension in the development and monitoring of the extension services component.

7. The degree to which the development and utilization of a common approach to research and extension are accepted and bring utilized in the regional technology generation and transfer system.

8. The extent to which coordination and integration occurs, between the AREP, West Indies Tropical Produce Support (TROPRO) Project and other projects with similar objectives implemented in the region.

IV. Team Members Qualifications

A. The Team Leader/Agricultural Development Specialist should at a minimum have:

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4. experience leading an evaluation team of a major project.

B. The Technology Adaptation Specialist should at a minimum have:

1. A Ph.D in some field of agricultural research.

2. At least 5 years experience with the implementation of agricultural research projects in developing countries.

3. previous participation in the evaluation of AID-funded project.

C. The Extension Specialist should at a minimum have:

1. An advanced degree in the agricultural sciences and/or international development or related field.

2. At least five years experience with the implementation of technology transfer projects in the developing countries.

3. Previous participation in the evaluation of AID-funded projects.

V. Period of Service

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C. A discussion of progress made toward achievement of project objectives which will include comments on the specific items contained in the terms of reference.

D. Recommendations for areas of improvement, changes in project design, emphasis etc.

ATTACHMENT II
Page 1 of 2 page

Illustrative Budget

1. **Salaries**	Daily Salary	Daily Rate	Days	Total
Technology Adaptation Specialist	307 x 1.52 =	467	24	11,208
Extension Specialist	307 x 1.52 =	467	24	11,208
International Development Specialist	307 x 1.52 =	467	30	14,010

2. **Other Direct Costs**	
-Airfare	
US/Barbados/US X 3	4,500
Barbados/St. Lucia/Antigua/ St. Vincent/Trinidad/Barbados X 3	1,500
- Per Diem	
Barbados 53 days X 172	9,116
St. Lucia 12 days X 136	1,632
Antigua 9 days X 151	1,359

Illustrative Budget cont'd
Page 2 of 2

St.Vincent 9 days X 123	1,107
Trinidad 9 days X 112	1,008
-Local transport $20 X 28 days	560
-Communications	600
-Secretarial Assistance	1,000
-Contingencies	1,192
TOTAL:	60,000

Annex B

Evaluation Team Members
Biographical Data

John B. O'Donnell - (Agricultural Development Specialist/Team Leader)

Mr. O'Donnell is a retired A.I.D. Senior Foreign Service Officer with over 25 years' experience in agriculture and rural development programs in Latin America and Southeast Asia.

During much of his A.I.D. career, Mr. O'Donnell specialized in Latin American programs with assignments as Chief of the Office of Agriculture and Rural Development in Peru (1977-1982) and Ecuador (1985-1987) and Deputy Chief in Guatemala (1974-1977). He was also Deputy Agency Director for Human Resources in the Science & Technology Bureau (1987-1991), Deputy Director and Acting Director of the S&T Office of Rural and Institutional Development (1982-1985), Supervisory Program Analyst in the Latin American Bureau (1971-1973), and recipient of A.I.D.-sponsored graduate training in Agricultural Economics at Cornell University (1973-1974). From 1962 to 1970, Mr. O'Donnell held various A.I.D. positions related to agriculture and rural development in Vietnam, Peru, Hawaii and Thailand.

During his A.I.D. career, Mr. O'Donnell designed, managed and evaluated a wide range of agriculture and rural development projects including a number in agricultural research, extension and education, agricultural policy and planning, agricultural marketing, rural area development, cooperative development, and natural resources management.

He graduated from Stanford University in Economics and History and did graduate study in Economics and Agricultural Economics at Cornell and the University of Hawaii.

Dr. A. J. Coutu - (Technology Adaptation Specialist)

Dr. Coutu has almost 30 years of experience in Agricultural Development, including long term assignments in Peru and Washington DC.; and many short term assignments in over 20 countries with various donor organizations.

As an agricultural economist, he has participated in the pareparation of project identification documents, project papers, project evaluation and special study assignments with many USAID missions. He was trained at the University of Connecticut, Harvard University, Duke University, and NCSU.

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Dr. Coutu was on leave from NCSU to AID/W from mid-1970 to mid-1973. He was head of a new office of agricultural sector analysis in the Technical Assistance Bureau of A.I.D. In this office, he established an administrative unit to focus on agricultural sector assessment methodologies, programmed a series of projects on agricultural policy analysis, and implemented agricultural sector assessment and planning programs in South Korea, Thailand, Mexico and other locations.

He has taught courses in economic development, production economics, and economic principles; and he has contributed to the development literature with many papers, journal articles, and a book about Peru. He also serves as coordinator of a long-term agricultural science development project in Peru, as a research coordinator on the APAP II project, and a participant in agricultural science projects in Costa Rica and Uruguay.

Dr. Violet Marie Malone - (Extension Specialist)

Dr. Violet Marie Malone is a professor and specialist in adult and extension education in the Agriculture Communication and Education unit, College of Agriculture, University of Illinois at Urbana/Champaign Illinois. She has been a faculty member at the university since 1972 where she was responsible for the Cooperative Extension Service staff development, training and the graduate degree program, Extension Education. She will assume the Chair position, Department of Educational Administration and Foundations, Woodring College of Education, Western Washington University, Bellingham, Washington, in October, 1991.

Dr. Malone has served on agriculture sector design teams in the Caribbean, Pakistan and Kenya, where she focused on training, communication, extension management and gender related program issues. She has conducted several U.S. based international shortcourses on "Train the Trainer", and she has been the lead instructor using an experiential learning process for training and train the trainer programs in extension, water resource management and farmer group commodity association development in Jordan, Sri Lanka, Zambia, Pakistan, Canada and the Caribbean. She conducted a training program at ISNAR for senior advisors in May, 1991.

She holds an undergraduate degree in elementary education (Northeastern, Illinois State University), a graduate degree in guidance and counselling (Chicago State University) and one in adult education (University of Chicago). Her PHd is in adult education, with work in anthropology and social psychology (Florida State University). She is the former president of the Adult Education Association of the USA and Chairperson of the National Coalition for Literacy.

Annex C

AREP Mid-Term Evaluation Schedule
Team Members:
John O'Donnell, Arthur Coutu, and Violet Malone

DATE	TIME	EVENT
September 3	10:00 p.m.	Team arrives Barbados
September 4	8:30 a.m.	Meeting with Ronald Stryker, ANR Chief
	9:30 a.m.	Meeting with Mosina Jordan, Director
September 5	Early a.m.	Travel to St. Lucia
September 5-7		Review St. Lucia Program & Project Administration
September 8		Travel to Dominica
September 9-10		Review Dominica Program
September 11-12		Malone to Antigua O'Donnell to St. Kitts/Nevis Coutu to St. Vincent & Trinidad
September 12		Travel to Trinidad
September 13-17		Discussions with CARDI and UWI Senior Management
September 18		Travel to Barbados
September 18-22		Preparation of Draft Report
September 23		Draft Report presented to USAID, CARDI and UWI
September 23-30		Draft Report finalized and presented to USAID

Annex D

Agricultural Research and Extension Project
AREP Mid-Term Evaluation: Persons Contacted

Country Name	Title	Organizations
Antigua		
Brian Cooper	Technology Adaptation Specialist	CARDI
I. Ameen	CARDI - Rep	CARDI
Carlton Samuel	Chief Extension Officer	MOA
Frank Henry	Director of Agriculture	MOA
E. Weston	Permanent Secretary	MOA
St.Clair Barker	Leeward Outreach Lecturer	UWI
Leroy Grant	Research Officer	MOA
Danny Joseph	Extension Officer	MOA
Terrence Joseph	Extension Officer	MOA
Everton Piggot	Extension Officer	MOA
James Spencer	Communications Officer	MOA
McKenzie Edwards	Extension Officer	MOA
Rodney George	Extension Officer	MOA
Mr. Joseph	Farmer	
Clayton Isaac	Farmer	
H. Thomas	Farmer	
D. Bachelor	Farmer	
Dalina Brown	Farmer	
Don Brown	Farmer	
Barbados		
Timothy Miller	USAID-Agriculture	USAID
Ronald Stryker	USAID-Agriculture	USAID
Howard Batson	USAID-Agriculture	USAID
Larry Armstrong	Deputy Director-USAID	USAID
Bill Kedrock	USAID Private Sector	USAID
Gerald Cashion	USAID Project Development Officer	USAID
Dominica		
Rowland Fletcher	CARDI Rep.	CARDI
Lennox Daisley	CARDI Rep. (Designate)	CARDI
Gregory Robin	Technology Adaptation Specialist	CARDI
Puran Bridgemoham	Weed Scientist	CARDI
Oliver Grell	Chief Extension Officer	MOA
Urban Martin	Country Coordinator	IICA
Eliud Williams	Permanent Secretary	MOA

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Annex D cont'd

Agricultural Research and Extension Project
AREP Mid-Term Evaluation: Persons Contacted

Country Name	Title	Organizations
Dominica cont'd		
Donovan Robinson	Chief Technical Officer	MOA
Charles James	Technical Officer, Project Services	MOA
Urban Zamore	Agricultural Assistant, Extension	MOA
Richard Allport	Agricultural Officer	MOA
Hannah Clarendon	General Manager	DEXIA
Norris Charles	Island Manager	CATCO
Leslie	Extension Officer	MOA
Ricky Burmant	Extension Officer	MOA
Michael Royer	Extension Officer	MOA
Caines Dennis	Station Foreman	MOA
Marcel Ino Lewis	Agricultural Assistant	MOA
Cecil Joseph	Manager	Hucksters Assoc
Carla Harris	Agricultural Officer	MOA
Oliver Kupermin		FTC
Walter Tindall	Consultant, TROPRO	CATCO
Dhalia Cuffy	Communic. Specialist	Rural Comm.Unit
Cecil Leblanc	Communic. Specialist	Rural Comm.Unit
Anthony George	Communic. Specialist	Rural Comm.Unit
Andre Charles	Farmer	
Henry Williams	Farmer	
Daniel John-Baptiste	Farmer	
Renaud Blaise	Farmer	
Thomas Etienne	Farmer	
Colin Bully	Project Manager,TROPRO/ Co-ordinator,ADCU	OECS/ADCU
St. Kitts/Nevis		
E. Liburd	Permanent Secretary	MOA Nevis
A. Merchant	Director of Agriculture	MOA Nevis
Timothy Gervan	Purchasing Director	4 Seasons Res.
S. Powell	Chief Extension Officer	MOA,Nevis
D. Arthurton	Marketing Officer	MOA,Nevis

Annex D cont'd

Agricultural Research and Extension Project
AREP Mid-Term Evaluation: Persons Contacted

Country Name	Title	Organizations
St. Kitts/Nevis cont'd		
St.C. Williams	Extn. Officer/Pres.NAAWE	MOA,Nevis
Sherman Weekes	CARDI Rep.	CARDI
Elvin Bailey	Technology Adaptat.Spec.	CARDI
Fred Jones	Plant Pathologist	CARDI
Keith Archibald	Director of Agriculture	MOA, St.Kitts
Gladimir Warner	Permanent Secretary	MOA, St.Kitts
Steven Duggins	Chief Extension Officer	MOA, St. Kitts
Jerome Thomas	Research Officer	MOA, St. Kitts
K. Swanson	Farmer	
M. Browne (F)	Farmer	
N. Thibou	Farmer	
W. Amory	Farmer	
St. Lucia		
Barton Clarke	Project Leader	CARDI
Willard Phillips	Agricultural Economist	CARDI
Lennox Andrews	Fruit Crop Specialist	CARDI
Ronald Pilgrim	Tech.Adaptation Specialst	CARDI
Gary Melville	Agricultural Economist	CARDI
Julius Polius	Soil Scientist	CARDI
Hilary George	Research Station Manager	CARDI
Ronald Newton	Communications Specialist	CARDI
Dianne Ravineau	Finance & Admin. Officer	CARDI
Ithak Kosto	Fruit Specialist	CARDI
Ferdinand Henry	Minister of Agriculutre	MOA
Cosmos Richardson	Permanent Secretary	MOA
Rufina Paul	Head of Planning	MOA
David Demacque	Director of Agriculture	MOA
Andrew Desir	Chief Extension Officer	MOA
Dunley Auguste	Research Officer	MOA
Alma Long	Nemantologist	MOA

Annex D cont'd

Agricultural Research and Extension Project
AREP Mid-Term Evaluation: Persons Contacted

Country Name	Title	Organizations
St. Lucia cont'd		
Antonio Pinchinat	Tech.Gener.&Transfer Spec	IICA
Colin Paul	Project Officer	MOA
Kurt Severin	Project Manager	Mayobuya Valley
Dunstan Campbell	Windwards Outreach Lect.	UWI
Steven Best	Project Manager	SFAD, MOA
Phillip Sydney	Farm Management Coord.	MOA
Christopher Cox	Farmer	
Mr. Ferrnand	Farmer	
Mrs. Bernard	Farmer	
St. Vincent		
Arthur Donelan	CARDI Rep.	CARDI
Azim Hosein	Tech. Adapt. Specialist	CARDI
Lennie Adams	Chief Extension Officer	MOA
Earle Wilkins	Farm Management Coordin.	MOA
Chris Ashton	Adult Education Program	Min.of Educ.
Jethro Greene	Chief Coordinator	O.R.D.
Kenneth Bonadie	Agricultural Officer	O.R.D.
Annette Abraham	Agricultural Officer	O.R.D.
Geoffrey Venner	Permanent Secretary	MOA
Wilberforce Emmanuel	Manager	Nat.Farm.Union
Lai In	Leader	Chinese Tech.Mis.
Hudson John	Extension Officer	MOA
Hillford Bullock	Extension Officer	MOA
Tyrone John	Extension Officer	MOA
Tyrone Gumbs	Extension Officer	MOA
Tyrone Sutherland	Extension Officer	MOA
Mr. M. Hackshaw	Extension Officer	MOA
Mr. Teshea	Farmer	
Jackie Minors	Farmer	
Grace Lockhart	Farmer	
Willoughby Bullock	Farmer	

Annex D cont'd

Agricultural Research and Extension Project
AREP Mid-Term Evaluation: Persons Contacted

Country Name	Title	Organizations
St. Vincent cont'd		
Ivy Edwards	Farmer	
M. Spence	Farmer	
Wilhelmina Pipe	Farmer	
Trinidad		
Calixte George	Executive Director	CARDI
Lawrence Wilson	Dean, Faculty of Agric.	UWI
Anthony Gibbs	Dir.Finance & Administr.	CARDI
St. C. Forde	DED-Scientific Services	CARDI
Hugh Saul	DED-Corporate Services	CARDI
Sonia Manjoo	Documentalist	CARDI
Sabrina Wong-Mottley	Comm.Coordinator, RECU	UWI
Joseph Seepersad	Dept. Agricultural Extn.	UWI
David Dolly	Act.Head, Dept. Extn.	UWI
Don Walmsley	Subject Matter Spec.Soil	CARDI
Richard Brathwaite	Science Lecturer,CropProd	UWI
Carlisle Pemberton	Lecturer,Dept.Economics	UWI
Lorene Phillip	Farm Management Special.	UWI
Patrick Gomes	Sociologist	UNECCLAC
Ann Rajack	Lecturer,Dept.Agr.Extn.	UWI
Ralph Cummings	CARDI Review Mission	USAID/W
John Pino	CARDI Review Mission	NSC

ANNEX E: LIST OF DOCUMENTS

ANDALL, R and PHILLIPS W. (1991)	Production and Marketing System Survey for Papaya in Grenada.
ANDALL, R (1990)	Guide to the production of Solo Papaya in Grenada.
ANDREWS, L (1990)	Fruit Crop Research and Development Strategy for the OECS.
ANDREWS, L (1991)	What's new in Passion Fruit in St. Lucia.
CARDI (1989)	Proceedings of a workshop for traffickers to increase profits by improved post harvest handling of agricultural produce.
CARDI (1989)	AREP Work Programme and Budget - Year 1.
CARDI (1989)	AREP Quarterly Report No. 1.
CARDI (1990)	CARDI/MOA Review and Planning Workshop. A Meeting Held at New Vigie Beach Hotel January 26th 1990.
CARDI (1990)	AREP Year 1 Fourth Quarterly Report. CARDI St. Lucia.
CARDI (1990)	AREP Status Report.
CARDI (1990)	Work Programme and Budget - Year II
CARDI (1991)	Work Programme and Budget - Year - III
CARDI (1990)	AREP Project Charter
CARDI (1991)	CARDI and OECS Agricultural Diversification : Status Report. CARDI St. Lucia.
CARDI (1990)	AREP Annual Report - Antigua .
CARDI (1990)	AREP Annual Report - Dominica
CARDI (1990)	AREP Annual Report - Grenada Unit

Previous Page Blank

ANNEX E: LIST OF DOCUMENTS cont'd

CLARKE. B.A. (1991) Highlights of Research Activities. St Lucia.

CLARKE. B.A. and MELVILLE. G.(1991) Technology Adaptation and Transfer Programme: Executive Review 1987 - 1990.

DOUGLAS, C (1989) "Farm Systems Classification in the Eastern Caribbean: Concepts and Methodology". Paper presented to the 3rd Meeting of the Network of Investigation Methodology in Farming Systems. Bogota, Colombia, August 4-14, 1989.

DOUGLAS, C (1990) The Socio-Economics programme of the AREP Project.

DOUGLAS, C (1990) Economic Evaluation of Feeding systems for Pigs and Goats in Jamaica.

DOUGLAS, C (1990) Financial Evaluation of Small Farm machinery.

DOUGLAS, C., PHILLIPS, W and GEORGE, H. Annual Report Socio-economics Programme.

DOUGLAS, C, GEORGE C and PHILLIPS W (1990) "Perspectives for improving the Appropriateness of Technologies Generated for Caribbean Agriculture." Paper presented top the 20th West Indies Agricultural Economics Conference. Tobago. April 18 - 22.

FONTENELLE, C. M. (1990) The determination of optimum plant population density and nutrient levels required for optimum yield in Plantain (Musa AAB group). Research proposal for M.Phil in Soil Science Faculty of Agriculture UWI.

HOSEIN A. et al (1990) Seedling Emergence as affected by different seed treatment and flooding regimes. A paper submitted for publication in Tropical Agriculture.

HOSEIN, A (1989) The factors affecting rice quality under Trinidad and Tobago conditions. A paper presented at seminar hosted by IICA and Ministry of Food production at Mount Hope Medical complex.

LEACH, J., (1991) Papaya Production Recommendations for St. Kitts and Nevis.

ANNEX E: LIST OF DOCUMENTS cont'd

CARDI (1990)	AREP Annual Report - Montserrat
CARDI (1990)	AREP Annual Report - St. Kitts/Nevis
CARDI (1990)	AREP Annual Report - St. Vincent
CARDI (1990)	AREP Annual Report - St Lucia
CARDI (1989)	Project Management Committee Meeting No. 1
CARDI (1989)	Project Management Committee Meeting No. 2
CARDI (1989)	Project Management Committee Meeting No. 3
CARDI (1990)	Project Management Committee Meeting No. 4
CARDI (1990)	Project Management Committee Meeting No. 5
CARDI (1990)	Project Management Committee Meeting No. 6
CARDI (1990)	Agro Socio-Economic Baseline Survey
CARDI (1991)	AREP Internal Audit Review Number 1.
CARDI (1991)	Highlights of Research Activities. St Lucia.
CARDI (1991)	External Review: St. Lucia Unit.
CDB/CARDI/IICA (1988)	A Programme for Agricultural Diversification in the OECS: Identification and Promotion of Non - Traditional ExportCrops with Potential for Joint Export - Marketing. CDB 27pp.
CLARKE, B.A. (1989)	AREP: Classification of Expenditure and Quantification for reimbursement.
CLARKE, B.A. (1989)	AREP: Guidelines for monthly financial statements.

CLARKE, B.A. and CLARKE, A.P.(1989) "A Network for the Nineties: Setting up the Caribbean Farming Systems Network." A paper presented to theXXV Annual meeting of the Caribbean Food Crops Society.Guadeloupe July 2 - 8 1989.

ANNEX E: LIST OF DOCUMENTS cont'd

PEMBERTON,C. (1989)	Farm and Home Management: Business Record Book. UWI.
PHILLIPS,W. (1990)	Rationalisation of the Current Microcomputer Facilities of the CARDI St. Lucia Unit. CARDI St. Lucia 16pp.
PHILLIPS, W. (1991)	Agricultural Market Policy for St. Lucia. Prepared in consultation with the Marketing sub-committee.
PHILLIPS, W (1991)	A brief introduction to the micro-computer.
PHILLIPS, W (1991)	AREP First Year Annual Report.
PINCHINAT, A. 1990)	Proceedings of the First Regional OECS Vegetable Development
POLIUS, J (1990)	Development of Improved Plantain Production System.
POLIUS, J (1990)	Plantain Production Package.
RAO, M. (1990)	AREP Quarterly Report (St. Vincent) September to November 1991.
RAO, M. (1990)	AREP Quarterly Report (St. Vincent) December 1990 - February 1991.
UWI (1989)	Extension/Training Work plan 1989/90.
UWI (1990)	Extension /Training Workplan 1990/91.
UWI (1991)	Extension/Training Workplan 1991/92
UWI (1991)	**Working Group on "The Faculty of Agriculture, Univ. of the West Indies and the FA/UWI and CARDI Relationship"**

UWI Department of Agricultural Extension (1989 - 1991) AREP Quarterly Progress Report Extension/Training Component

- July to September 1989

- October to December 1989

- January to March 1990

- April to June 1990

- July to September 1990

- October to November 1990

- December to February 1991

- March to May 1991

L. Burris-Phillips (1991)A Report to the Evaluators on the Farm and Home Management Programme of AREP.

Reports of Training Sessions Conducted in AREP Countries.

Farm and Home Management Training Courses 1989 to 1991.

David Dolly (1991)AREP Report of Departmental Overview to Evaluators.

Sabrina Wong-Mottley (1991)Regional Extension Communications Unit Report Re: AREP Evaluation for the period 1989 - 1991.

RECU (1991)Farm and Home Management Business Record Book (1991 version).

Data Analysis System for the Farm and Home Management Record Book.

ANNEX F: CARDI ADAPTIVE RESEARCH PROGRAM

AGRICULTURAL RESEARCH AND EXTENSION PROJECT

CONTINUOUS STREAM OF TECHNOLOGIES

COMMODITY	TECHNOLOGICAL ELEMENT	STATUS	COUNTRY	REMARKS
Papaya	Fertilizer trial	Farm trials started	Grenada	NPK Study at Research Station.
	Varietal Evaluations	Plots established	Antigua/St. Kitts	7 lines evaluated.
	Seed Selection	on-going	Grenada	To maintain germplasm.
Plantain	Fertilizer N.P. Mg.	Crop Established	St. Lucia	M.Sc. Thesis, AREP school varieties
	Varietal Evaluation		St. Lucia	imported from USVI and FIHA.
	Nematode Control		St. Lucia	
	Corm borer Control		St. Lucia	
	Field propagation	Plant Crop Harvested	St. Lucia	9 methods evaluated.
	Bunch Prunning		St. Lucia	
Eddoe	Fertilizer	completed	St. Vincent	Reduced spacing.
	Minimum tillage	completed	St. Vincent	High fertilizer increased yields by
	Variety	To be repeated.	St. Vincent	80%. Yields up to 25,000 Kg/Ha
	Weed Control	Completed.	St. Vincent	achieved
	Cost of production	Data being collected.	St. Vincent	Black eddoe released.
Ginger	Fertilizer	completed	St. Vincent	
	Varietal Evaluation	completed	St. Vincent	
	Land Preparation	completed	St. Vincent	
	Weed Control Spacing	completed	St. Vincent	
Breadfruit	Varietal Evaluation	Initiated	St. Lucia	St. Vincent & Grenada will be typed.
	Propagation Technique	on-going	St. Lucia	Root cutting evaluated in collaboration
	Prunning	on-going	St. Lucia	with farmers.
	Biological Cycles	on-going	St. Lucia	
Soursop	Propagation of Planting Material	on-going	St. Lucia	Quality being assessed.
	Varietal Evaluation	One clone selected	Grenada	Burris clone being evaluated
	Fertilizer	Trial laid down	Grenada	Pseudococus present.
	Pest and Disease management	Survey completed	Grenada	
	Cost of Production	One season completed.	Grenada	

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ANNEX F: CARDI ADAPTIVE RESEARCH PROGRAM cont'd

AGRICULTURAL RESEARCH AND EXTENSION PROJECT

CONTINUOUS STREAM OF TECHNOLOGIES

COMMODITY	TECHNOLOGICAL ELEMENT	STATUS	COUNTRY	REMARKS
Passion Fruit	Prunning	Treatment applied	St. Lucia	Link with CARDI Dominica.
	Varietal Evaluation	Data on yield collected	St. Lucia	Sweet clones released.
	Hand Pollination	First round completed	St. Lucia	Local material fixed.
	Trellis Systems/materials	Laid down	St. Lucia	
Pine Apple	Flower Induction and fruit size	Being harvested	St. Lucia	In collaboration with large farmer.
Hot Pepper	Flower Induction	on-going	Antigua	Material released- latern type.
	Virus Screening	on-going	Antigua	
	Seed Evaluation	on-going	Antigua	
	Fertilizer spacing	on-going	Antigua	
Dasheen	Depth of planting	Trials Established.	Dominica	AREP Scholarship.
	Spacing		Dominica	

Annex G

General Background on CARDI, UWI and MOA Programs and Personnel

The overall CARDI research and extension activities are organized around three programs. The programs are: Crops, Livestock and Technology Adaptation and Transfer. The total CARDI staff consists of 77 professionals with a senior management staff of 8 professionals. As shown in Table 1, there are 17 female professionals, 13 staff members with the PHd, not including 3 professionals about to complete all Phd requirements.

Table 1

CARDI Staff by Function
September, 1991

Positions and Activities	No. of Professionals	No. with PhD Degrees	No.of Women
Crop Production	24	4*	6
Animal Production**	11	5	0
Technology Adaptation and Transfer	15	1	1
Technical Support ***	13	1	6
Administrative Support:			
Senior Management	5	1	0
Program Leaders	3	1	0
Accounting	5	0	4
Auditing	1	0	0
Total	77	13	17

* Three additional professionals are now completing requirements for the PhD degree.

** Two professionals in the animal program have been seconded to ILCA.

*** Includes biometrics, economics, documentation and tissue culture.

In the OECS, the CARDI research and adaptation staff consists of 38 professionals or over 60 percent of the total CARDI group. These professionals stationed in the OECS are supported by the technicians and administrative support personnel group shown in Table 2. This table also reports the research staff of the agricultural ministries. The 62 CARDI and MOA research professionals supported by 64 technicians and 31 administrative persons are servicing an estimated 47,300 farmers in the OECS.

Table 2

CARDI Research Personnel by Countries
September, 1991

	CARDI			MOA		
Countries	Profes-sionals	Tech-nicians	Adm. Support	Profes-sionals	Tech-nicians	Admin. Support
	(Number of Persons)					
Antigua	4	4	3	1	1	1
Dominica	9	8	4	0	0	0
Grenada	6	3	4	4	2	1
Montserrat	1	2	1	0	0	0
St. Lucia	11	8	10	11	20	1
St.Kitts/Nevis	3	2	2	1	3	0
St. Vincent	4	3	3	7	8	1
TOTAL	38	30	27	24	34	4

The CARDI and MOA research staff in the OECS is trained up to various levels, as shown in Table 3.

These data on training levels reflect a substantial increase relative to the situation of a few years ago.

Table 3

OECS Research Staff by Level of Training
September, 1991

Level of Training	Professionals CARDI	MOA	Total
Phd	3	2	5
M.S.	20	12	32
B.S.	20	10	30
Diploma	7	12	19
Total	50	36	86

The total CARDI crops program is widely dispersed over some 25 to 30 commodities. In the OECS states, the crops researchers and technology adaptation specialists are more focused, with research activities on 10 commodities.

In general terms, the animal program is more prioritized. The animal science professionals focus on three animal types in three sub-disciplines including health, nutrition and reproduction.

These research professionals and technicians have access to both CARDI and MOA research stations. There are approximately 22 stations distributed as follows:

Table 4

Research Station Network in the OECS
September, 1991

Country	CARDI (No. and Size of Stations)	MOA (No. and use of Stations)
Antigua	1 (20 ha.)	2 (mostly propagation)
Dominica	1 (tissue culture)	5 (mostly propagation)
Grenada	1 (4 ha.)	-
St. Lucia	1 (13 ha.)	4 (mostly propagation)
St. Kitts/Nevis	1 (4 ha.)	1 (mostly propagation)
St. Vincent*	2 (8 ha.)	3 (mostly propagation)
Total	7 (49 ha.)	15

*There is a new station of seven hectares in the development stage on St. Vincent.

In Agricultural Extension, the Dept. of Agricultural Extension at UWI employes two extension specialists, one each for the Windward Islands and a Farm Management Specialist. The UWI extension department also houses the regional educational and communications unit. These extension professionals are closely linked to the 15 technology adaptation specialists of CARDI. These latter professionals are stationed throughout the eleven CARDI countries.

In turn, these UWI and CARDI technology transfer specialists collaborate with 206 extension professionals and technicians of the OECS Ministries of Agriculture. The following Table 5 describes the distribution of MOA extension personnel in the OECS.

Table 5

MOA Extension Personnel
by OECS and Type
September, 1991

Country	Professionals	Technicians	Administrative Support
		(Number of Persons)	
Antigua	4	19	2
Dominica	1	38	1
Grenada	2	18	6
Montserrat	9	8	7
St. Lucia	8	50	6
St. Kitts/Nevis	3	15	1
St. Vincent	2	29	1
TOTAL	29	177	24

The training level for professional and technical personnel of the MOA as of September, 1991, is as follows:

Level of Training	Professionals and Technicians (No. of Persons)
M.S.	7
B.S.	28
Diploma	91
Total	126

Thus, of the 206 professional and technicians assigned to extension activities by Ministries of Agriculture, over 60 percent have diploma training or above.

Shifting to the general natural resource picture in the OECS, there are very serious constraints. The land resource area totals 2,879 square kilometers, with much of the terrain classified (in U.S. terms) as only suitable for forestry. Further, there appears to be very limited in-depth knowledge (underground flows and supply levels) of water resources. There appears to be mixed understanding on the state of water and land conservation in the OECS.

Also in general terms, there are serious policy issues associated with land, water and labor. The issues of tenancy, land reform, and labor supplies are important. These policy concerns relate to the issues of farm consolidation, technologies adoption levels and competitive uses of limited land and water resources.

These development issues are further confounded by a severe lack of creditable data of a census type and by important knowledge gaps on external markets.

Annex H

Caribbean Agricultural Research & Development Institute
Agricultural Research and Extension Project #538-0164
Statement of Budget and Actual Expenditure (US$)
for the Two Years to May, 1991

	5 Year Budget	Year I Actual	Year II Actual	Costs To Date	Balance
Personnel Costs	1,734,300	360,076	354,182	714,258	1,020,042
Research & Training Centres	250,000	0	2,530	2,530	247,470
Equipment & Supplies	413,500	118,830	121,679	240,509	172,991
Research & Extension Exps.	359,300	41,064	100,091	141,155	218,145
Staff Travel	581,000	80,768	160,123	240,891	340,109
Training/ Meetings	746,500	132,145	94,846	226,991	519,509
Technical Collaboration	450,400	21,991	17,305	39,296	411,104
Overheads	165,000	32,661	31,209	63,870	101,130
Contingencies	200,000	10,575	38,122	48,697	151,303
Evaluation & Financial Reviews/Audits	100,000	0	0	0	100,000
	$5,000,000	$798,110	$920,087	$1,718,197	$3,281,803

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ANNEX I: AREP FUNDED REGIONAL TRAINING ACTIVITIES

AGRICULTURAL RESEARCH AND EXTENSION PROJECT #538-0164
REGIONAL TRAINING GIVEN 1989 - 1991

COUNTRY	ACTIVITIES/SUBJECT	YEAR	PARTICIPANTS Male	PARTICIPANTS Female	TOTAL	TRAINEES	METHOD
DOMINICA	Passion fruit production technology (L. Andrews)	1991	26	2	28	Extension officers of Windward Islands In Service Training Programme - UWI	Lectures, Field visits
DOMINICA	Aroid production	1991	26	2	28	ditto	ditto
DOMINICA	Plantain production technology	1991	26	2	28	ditto	ditto
DOMINICA	Sheep production systems technology	1991	26	2	28	ditto	ditto
DOMINICA	Passion fruit production					OECS/ADCU, CARDI/IICA Regional Workshop on Tropical Fruit Production	ditto
TRINIDAD	Passion Fruit and plantain production	1991				Farmers and Extension. CEPAT Course on production of Tropical Fruit for Export	Lectures
ST. LUCIA	Research Methodology	1990	7	3	10	MOA Research WINBAN MOA Extension	Workshop
GRENADA	Passion fruit production technology	1990				Extension and Farmer UWI Windward Is. Extension In Service Training. Workshop	Lecture Field visits

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ANNEX I: AREP FUNDED REGIONAL TRAINING ACTIVITIES cont'd

AGRICULTURAL RESEARCH AND EXTENSION PROJECT #538-0164
REGIONAL TRAINING GIVEN 1989 - 1991

COUNTRY	ACTIVITIES/SUBJECT	YEAR	PARTICIPANTS Male	PARTICIPANTS Female	TOTAL	TRAINEES	METHOD
GRENADA	Pruning soursop	1990	26	2	28	Extension & farmers UWI Windward Island Extension Training Workshop	Method Demonstration
BARBADOS	Papaya production technology	1990	6	0	6	Researchers	Classroom Field day
ST. VINCENT	Sweet potato production	1991	n/a	n/a	20	Farmers, Extension CEPAT Course	Class room Field day
TRINIDAD	Pesticide application	1991	n/a	n/a	12	Farmers Extension CEPAT Course	Class room Method Demonstration
ST. KITTS	White potato	1991	n/a	n/a	20	Farmers, Extension CEPAT Course	Class room Field Day
ST. VINCENT	Post Harvest technology for fruit, root crops	1990	n/a	n/a	20	Farmers, Extension CEPAT Course	Class room Demonstration

ANNEX J: AREP FUNDED NATIONAL TRAINING ACTIVITIES

AGRICULTURAL RESEARCH AND EXTENSION PROJECT #538-0164
NATIONAL TRAINING GIVEN 1989 - 1991

COUNTRY	ACTIVITIES/SUBJECT	YEAR	PARTICIPANTS		TOTAL	TRAINEES
			Male	Female		
ST. VINCENT	Workshop on improved Post-harvest handling of Agricultural produce	1989	2	16	18	MAIL, CIC, CARDI and two exporters (Barnwell & Gunsam)
	Supervised practical and training session for technicians on laying out of Experiments & Data collection	1990	10	15	25	MAIL, ORD, Rabacca Farms Limited & CARDI
	System for the cultivation of eddoe	1990	12	8	20	MAIL, CARDI & Target farmers
	System for the cultivation of ginger	1990	12	8	20	MAIL, CARDI & Target farmers
	Effect of fertilizer formulation on eddoe	1990	11	3	14	MAIL, CARDI, ORD,Farmers
	Effect of systems of cultivation and fertilizer rates on eddoe production	1990	9	9	18	MAIL, CARDI, SVTEC, ORD and Farmers
	Flower induction in pineapples	1990	8	4	12	MAIL, CARDI and SVTEC
	Ginger, Eddoe and Plantain production	1990	16	10	26	MAIL, ORD, SVTEC, Farmers

ANNEX J: AREP FUNDED NATIONAL TRAINING ACTIVITIES cont'd

AGRICULTURAL RESEARCH AND EXTENSION PROJECT #538-0164
NATIONAL TRAINING GIVEN 1989 - 1991

COUNTRY	ACTIVITIES/SUBJECT	YEAR	PARTICIPANTS		TOTAL	TRAINEES
			Male	Female		
ST. VINCENT cont'd	Flower induction in pine-apples	1990	11	2	13	MAIL & CARDI
	Mite control in the produc-tion of ginger	1990	14	6	20	MAIL & CARDI
	Pineapple flower induction	1990	14	6	20	MAIL & CARDI
	Production of eddoe and ginger	1990	12	0	12	MAIL, CARDI and Lauders Farmers' Organisation
	Flower induction in pineapples	1990	10	3	13	MAIL, CARDI and Lauders Farmers' Organisation
	Effect of different fertilizer formulations on eddoe cultiv.	1990	10	6	16	MAIL, ORD, SVTEC & farmers
	Graduation of technician for training course on data collec-tion and laying out of field experiments	1990	30	25	55	MAIL, CARDI, ORD
	Nursery techniques for strong healthy seedlings	1990	90	60	150	IICA, MFP&ME& farmers of the felicity farmers. Group & members of Trinidad
	Harvest and post-harvest handling of Rice for better quality	1990	90	60	150	IICA, MFP&ME & farmers of the felicity farmers Group and members of the

ANNEX J: AREP FUNDED NATIONAL TRAINING ACTIVITIES cont'd

AGRICULTURAL RESEARCH AND EXTENSION PROJECT #538-0164
NATIONAL TRAINING GIVEN 1989 - 1991

COUNTRY	ACTIVITIES/SUBJECT	YEAR	PARTICIPANTS Male	PARTICIPANTS Female	TOTAL	TRAINEES
ST VINCENT cont'd	Lecture on eddoe production and the use of on farm validations in eduction	1990	28	22	50	Trinidad Island-wide Rice SVTEC, CARDI & Students
	Validation of Technology prior to transfer	1990	5	7	12	ORD Technicians
	New methods of crop culture	1990	4	2	6	Officers of MAIL
	Developing homesteads in the land settlement programme	1990	8	6	14	Farmers from Rabacca Land Settlement programme
	Methods in cultivating ginger and eddoe	1990	5	7	12	ORD technicians
	Diversification within the agricultural sector	1990	8	4	12	MAIL and farmers
	Vegetable Production	1990	10	12	22	MAIL and farmers
	Crop rotation and fertilizer	1990	3	3	6	ORD Technicians
	System for ginger culture	1991	25	16	41	MAIL, CARDI, ORD,STVTEC
	System for ginger culture	1991	4	2	6	MAIL, CARDI, ORD
	AREP diversification process	1991	8	6	14	MAIL, CARDI
	Effect of systems of cultivation and spacing on eddoe prod.	1991	11	2	13	MAIL, CARDI, SVTEC, ORD and Farmers
	Effect of fertilizer and system of cultivation on ginger	1991	11	4	15	MAIL, CARDI and SVTEC

ANNEX J: AREP FUNDED NATIONAL TRAINING ACTIVITIES cont'd

AGRICULTURAL RESEARCH AND EXTENSION PROJECT #538-0164
NATIONAL TRAINING GIVEN 1989 - 1991

COUNTRY	ACTIVITIES/SUBJECT	YEAR	PARTICIPANTS		TOTAL	TRAINEES
			Male	Female		
ST. VINCENT cont'd	Effect of fertilizer on ginger	1991	8	4	12	MAIL, ORD, SVTEC, Farmers
	Effect of fertilizer on ginger	1991	4	2	6	MAIL and CARDI
	Preliminary presentation of tech-pak on eddoes	1991	18	10	28	MAIL, CARDI and ORD
	System of ginger production	1991	14	2	16	MAIL, CARDI and ORD
	Research in Agriculture Development	1991	19	16	35	ORD, CARDI, MAIL and University of Calgary

ANNEX J: AREP FUNDED NATIONAL TRAINING ACTIVITIES cont'd

AGRICULTURAL RESEARCH AND EXTENSION PROJECT #538-0164
NATIONAL TRAINING GIVEN 1989 - 1991

COUNTRY	ACTIVITIES/SUBJECT	YEAR	PARTICIPANTS Male	PARTICIPANTS Female	TOTAL	TRAINEES	
DOMINICA	plantain (3 sessions) papaya	1991	45	5	50	Extension officers Farmers Agric, Officers SEDPA Farmers group	Field day
	group dynamics in hot pepper (3 sessions)	1991	23	2	25	Glenville Farmers group	Lectures Demonstration
GRENADA	Herbicide application in papaya	1990	3	0	3	Farmers	method demon. stration
	Pest monitoring in papaya	1990	2	0	2	Farmers	method demon-stration
MONTSERRAT	Farmer participation in On Farm trials	1991	17	4	21	Extension Farmers	Class room
ST. KITTS/ NEVIS	Establishment of pineapple	1991	4	0	4	Farmer	Method Dem-onstration
	Establishment of papaya	1991	3	0	3	Farmer	Method dem-onstration
	Onion production technology in Antigua	1991	17	3	20	Farmers	Field tour
ST. LUCIA	Ginger production package	1991	6	0	6	Farmers	Field day
	Hot pepper production package	1991	10	0	10	Farmers	Field day

ANNEX J: AREP FUNDED NATIONAL TRAINING ACTIVITIES cont'd

AGRICULTURAL RESEARCH AND EXTENSION PROJECT #538-0164
NATIONAL TRAINING GIVEN 1989 - 1991

COUNTRY	ACTIVITIES/SUBJECT	YEAR	PARTICIPANTS		TOTAL	TRAINEES	
			Male	Female			
ST. LUCIA cont'd	Hot pepper seedling production	1991	10	0	10	Farmers	Field day
	Passion fruit production	1991				Farmers	Radio programr
	Passion fruit production packages	1990	11	2	13	Farmers/Extension	Lecture and demonstration
	Passion fruit production package	1991	10	3	13	Sunshine Harvest Coop.	Method demonstration
	Passion fruit production	1991	7	1	8	Extension	Field tour
	Plantain production practices - fertilizer nematode control	1991	30	12	42	Extension; farmers, Exporters, Researchers, Planners, Policy	Field day
	Use of surveys in Agricultural Extension	1991	10	2	12	Agricultural Cadets	Class room

Annex K: CARDI Institutional Strengthening/Staff Development Activities

Title	Institution	Type	Location	Duration Year	Trainees
New direction in Sustainable Agriculture	Caribbean Food Crop Society	Conference	Dominica	5 days 1991	3
Economic Development Through Centralization and Modernization of Agriculture	Caribbean Agricultural Economic Society	Conference	Trinidad	5 days 1990	3
Germplasm and Biotechnology Crop improvement	Caribbean Food Crop Society	Conference	Puerto Rico	5 days 1990	3
Economics of Agriculture and Food Systems in the Caribbean	University of the US Virgin Islands	Conference	St. Croix	1 day 1991	2
Statistical Needs fo Agricultural Diversification Policies and Programmes	CARICOM EUROSTAT Commonwealth Secretariat	Workshop	Trinidad	5 days 1991	2
Use of Microcomputers in analysis of Farm Business Record Books	Kempville College Ontario Agricultural Institute of Technology	Course	Trinidad	9 days 1991	1
Farm and Home Management	University of the West Indies. University of Minnesota University of Wisconsin	Course	Trinidad	5 days 1990	2
Study of Production Zones of California	Barclay's Bank, OECS-ADCU University of California, Davis	Study Tour	USA	7 days 1990	1
Analysis, Interpretation and Presentation of Statistical Data	CARDI	Workshop	St. Lucia	2 days 1991	5
Post Graduate Training	UWI	Course			
Soil Chemistry (PhD			St. Lucia	3 years 1990	1
Soil Fertility (MPhil.)			St. Lucia	2 years 1989	1
Crop Science (PhD)			St. Vincent	3 years 1990	1
Soil Fertility (PhD)			St. Kitts	3 years 1990	1
Crop Science (MPhil.)			Dominica	2 years 1990	1

Annex K: CARDI Institutional Strengthening/Staff Development Activities cont'd

Title	Institution	Type	Location	Duration Year	Trainees
Onion Production	CEPAT CARDI UWI	Course	Barbados	5 days 1991	4
Pesticides Applications	CEPAT UWI	Course	Trinidad	4 days 1991	4
Tree Crop Management	CARDI	Seminar	St. Lucia	5 days 1991	1
Sweet Potato Production	CEPAT UWI CARDI	Course	St. Vincent	5 days 1990	1
Tree Crop Production	OECS-ADCU CARDI IICA	Course	Dominica	5 days 1991	2
Microcomputer application in Data Base Management, Spreadsheet, Word Processing, File Management	CARDI CFTC ISIS	Course	St. Lucia	5 weeks 1991	12
Farm Household Analysis, Planning	FAO UWI CARDI	Conference	Trinidad	5 days 1990	2
Investigations in Farming Systems Methodologies	IDRC	Conference/ Network Meeting	Colombia	5 days 1989	1
Methodology for analyzing National Agricultural Research Systems in Small Countries	ISNAR	Conference	Netherlands	5 days 1990	1
Caribbean Agricultural	University of French Guyana	Conference	Guadeloupe	5 days 1990	1
Regional Agricultural Extension Coordinating Committee Meeting	UWI	Workshop	Antigua	3 days 1990	6
Complimentary between Agricultural Organizations in the Caribbean and the Tropics. Agricultural Research Training and Development	Caribbean Food Crop	Conference	Guadeloupe	5 days 1989	1
Caribbean and Latin American Plan of Action	FAO CARICOM	Workshop	St. Lucia	2 days 1990	1

Annex K: CARDI Institutional Strengthening/Staff Development Activities cont'd

Title	Institution	Type	Location	Duration Year	Trainees
Annual Review and Planning Workshop	CARDI	Workshop	Trinidad	5 days 1990	17
Annual Review and Planning Workshop	CARDI	Workshop	St. Kitts/Nevis	5 days 1991	17
AREP Project Startup Workshop	CARDI UWI	Workshop	Trinidad	2 days 1990	21
Seed Improvement	Mississippi State University	Course	USA	4 weeks 1991	1
Research Management	British Development Division, Edingbourough University, University of Wales, University of Newcastle, Natural Resources Institute, Reading University	Study Tour	UK	21 days 1991	3
Research Management	USDA, USAID	Course	USA	5 weeks 1991	1
Ginger Production Technology	MOA Dominica Chinese Mission	Field Day	Dominica	2 days 1991	2
CARDI Project Accounting Systems	CARDI	Course	St. Lucia	4 days 1991	7
Safe and Effective Pesticide Use	ICI	Seminar	St. Lucia	1 day 1990	2
The Overhead Projector and its Application	CARDI	Course	St. Lucia	2 days 1991	11
Planning and Designing of Agricultural Experiments	CARDI	Course	St. Lucia	2 days 1991	9
Papaya Production Technology	IICA	Workshop	Barbados	3 days 1991	4
Hardening Tissue Culture Plants	CARDI	Course	Barbados	5 days 1990	1

Annex K: CARDI Institutional Strengthening/Staff Development Activities cont'd

Title	Institution	Type	Location	Duration Year	Trainees
Packaging for Fresh and Processed Agricultural Products	USAID CAIC	Seminar	St. Lucia	2 days 1990	3
Fresh Produce Export Marketing	OCES ADCU ECSEDA CATCO	Seminar	St. Lucia	1 day 1990	3
Tree/Fruit Research and Development	University of Florida, Florida A&M University, North Carolina State University	Study Tour	U.S.A.	6 days 1990	4
Computer Simulation of Crop Growth and Nutrient Management	International Fertilizer Development Center University of Florida University of Hawaii	Course	U.S.A.	14 days 1991	1
Regional Forestry Action Plan	MOA, St. Lucia	Workshop	St. Lucia	3 days 1991	1

Annex L: Statement of Budget and Actual Counterpart Expenditure Through Year Two (US$)

	Budget Head	Budget CARDI	Budget UWI	Budget OCES	Budget Total	Expenditures CARDI	Expenditures UWI	Expenditures OCES	Expenditure Total	Balance of Funds
I.	Personnel Costs	1,850,000	1,200,000	500,000	3,550,000	256,634	69,501	47,053	373,188	3,176,812
II.	Research and Training Centers	0	0	200,000	200,000	89,380	30,000	44,000	163,380	36,620
III.	Equipment and Supplies	175,000	100,000	0	275,000	31,968	0	0	31,968	243,032
IV.	Reasearch and Extension Expense	200,000	50,000	0	250,000	61,537	0	0	61,537	188,463
V.	Staff Travel	180,000	10,000	10,000	200,000	51,612	0	25,200	76,812	123,188
VI.	Training/ Meetings	100,000	100,000	400,000	600,000	21,828	0	0	21,828	578,172
VII.	Technical Collaboration	0	0	0	0	10,500	0	0	10,500	(10,500)
VIII.	Overheads	0	0	0	0	0	0	71,570	71,570	(71,570)
IX.	Contingencies	0	0	0	0	24,930	0	0	24,930	(24,930)
X.	Evaluation	0	0	0	0	0	0	0	0	0
	Total	2,505,000	1,460,000	1,110,000	5,075,000	548,389	99,501	187,823	835,713	4,239,287

Annex M: CARDI on Farm Tests/Validations 1981-1991

Commodity	Location	Male	Female	Total	Number of Farms Year I	Year II	Total	Status	Reference	Remarks
Papaya	Grenada	24	1	25	22	3	25	Production system studied Task Force active First crop harvested	IICA Tech. Pack.	Fertilizer rate too high Bunch top problem Erwinia problem
	Antigua	8	0	8	4	4	8	Crop established twice "Hugo" wiped first crop Hotel market assessed	IICA Tech.Pack.	Erwinia problem CARDI Pathologist input
	St. Lucia	1	0	1	0	1	1	Plants given to farmer Training provided	IICA Tech. Pack.	Bunchy top Problem
	St. Kitts/ Nevis	1	0	1	0	1	1	Production/Marketing system described Task force active Tech.Pack. modified	IICA Tech. Pack.	Shortage of planting Mission
Plantain	St. Lucia	2	0	2	0	2	2	Production system studied Validations abandoned 14000 plants of dwarf var distributed to farmers Tech.Pack. modified Extension officers trained	WINBAN Tech. Pack.	Farmer selection to be repeated
	Dominica	4	0	4	4	0	4	Plant crop harvested 200 plants introduced from St. Lucia Tech.Pack's. Defined	SEDPGA Tech. Pack. CARDI Tech.Pack.	Link with SEDPGA a farmers group and TREDU/FTC
	St. Vincent	2	2	4	2	2	4	Production system studied Tech.Pack. modified Technologies tested Plant crop harvested Farmers trained	WINBAN Tech. Pack. Multiplication plots set up	A shortage of planting material Link with ORD and Rabacca
Passion Fruit	St. Lucia	13	2	15	0	15	15	Task force operating 40 farms and 10.0 ha target initially Farmers trained	UWI Tech.Pack. MOA-DOM Tech.Pack.	Link with CARDI-DOM Agroprocessors

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Annex M: CARDI on Farm Tests/Validations 1981-1991 cont'd

Commodity	Location	Male	Female	Total	Number of Farms Year I	Year II	Total	Status	Reference	Remarks
Pineapple	St. Kitts/ Nevis	2	1	3	0	3	3	Link made with hotels Planting material brought from Guyana Tech.Pack. Defined Crop established	CARDI Ponologist	A shortage of planting material
	St. Vincent	3	1	4	4	0	4	Technologies tested Plant crop harvested Farmers trained Plants being multiplied	CARDI Ponologist	A shortage of planting material Weed management is a constraint
	St. Lucia	2	0	2	2	0	2	Technologies for fruit size control tested Plant crop harvested	CARDI Ponologist	Large farms selected
Hot Pepper	St. Lucia	10	3	132	3	10	13	Tech.Pack. Defined Clean seed introduced Peppers Exported Task force operating	MOA Tech.Pack.	Link with CARDI-Antigua Virus is a constraint Export focus
	Antigua	8	0	8	4	4	8	"Hugo" wiped first crop Production system studied Market established for 1500kg weekly Dec-Apr	CARDI TAS	Export focus Link with CATCO
	Dominica	0	0	0	0	0	0	Production systems reviewed Market requirements defined Farmers & processors extension & research linked	MOA Dominica	MJOA changed to agroprocessing focus
	St. Kitts/ Nevis	3	0	3	0	3	3	Production system studied Seeds imported from AHU Farmers established crop	CARDI TAS	MOA deemphasized this crop
Ginger	St. Vincent	6	6	6	6	6	12	Two crops completed Farmers trained Recommendations made Cost of production done	MOA-Dominica/ Taiwanese Tech. Pack.	Farmers' yield increased to 25000kg/ha

Annex M: CARDI on Farm Tests/Validations 1981-1991 cont'd

Commodity	Location	Male	Female	Total	Number of Farms Year I	Year II	Total	Status	Reference	Remarks
	St. Lucia	18	0	18	6	12	18	Production on 20 farms & marketing by 5 exporters studied Hawaiian var. introduced Crop harvested	MOA-DOMINICA/ Taiwanese Tech. Pack.	Link with Desruisseau Coop
Eddoe	St. Vincent	6	6	12	6	6	12	Market studied Crop harvested Cost of production done Farmers trained	CARDI Tech.Pack.	Link with ORD & NFU
Sapodilla	Grenada	16	4	20	0	20	20	Production system studied Four cultivats identified	UWI Fact Sheet	MOA request
Soursop	Grenada	6	0	6	6	0	6	Production systems reviewed Market requirements defined Cost of production done	CARDI Ponologist	Station research being conducted to solve problems