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**Programming for Sustainability: Lessons Learned in Organizing and Financing
Private Sector Agricultural Research in Latin America and the Caribbean¹**

by

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for

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Office of Development Resources
Bureau for Latin America and the Caribbean
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¹This "cross-cutting analysis" is based on four case studies--the Colombian National Federation of Coffee Growers (FEDERACAFE), Fundación Chile, Jamaica Agricultural Development Foundation (JADF), and Ecuadorean Foundation for Agricultural Development (FUNDAGRO). These case studies and the present "cross-cutting analysis) comprise the "Sustainable Private Agricultural Research in Latin America and the Caribbean (SPARLAC)" study. The case studies are available as separate documents from LAC TECH.

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Executive Summary

U.S. Agency for International Development (AID) support for non-profit private sector agricultural research organizations in the Latin American and Caribbean (LAC) region generally has been supply-driven; that is to say, AID's assistance has tended to emphasize supply of technology to increase agricultural productivity rather than ensuring that the supported research focuses on developing market-relevant technology. In the process, AID and the assisted organizations have been more preoccupied with managing and disbursing project funds than with developing a demand-driven approach to agricultural research that would place highest priority on helping assisted organizations to identify and provide marketable services that would enhance organizational sustainability. In effect, this supply-driven approach to technology generation and transfer loses sight of the outputs the assistance was intended to achieve, with both donor and assisted organization becoming bogged down in the micro-management of project inputs.

By contrast, the Sustainable Private Agricultural Research in Latin America and the Caribbean (SPARLAC) study identifies a demand-driven (market- and client-oriented) model of agricultural research as the key to developing sustainable agricultural research programs in AID-assisted non-profit private sector organizations. While SPARLAC does not test this supply- vs. demand-driven hypothesis, the study does examine the concept of a demand-driven approach to agricultural research in the light of the experience of four agricultural research organizations—two AID-assisted organizations [the Jamaica Agricultural Development Foundation (JADF) and the Ecuadorean Foundation for Agricultural Development (FUNDAGRO)], and two organizations not assisted by AID [the Colombian National Federation of Coffee Growers (FEDERACAFE) and Fundación Chile]. In terms of demand-driven agricultural research, the experience of FEDERACAFE and Fundación Chile points to the important role that a market link and/or market orientation plays in ensuring that an agricultural research program is organized both to respond to market opportunities and client needs and to be sustainable.

In an era of declining donor funds, the sustainability of an agricultural research program in a non-profit private sector organization increasingly will depend on the organization's ability to develop a diversified research portfolio that captures resources from private sector, public sector, and donor sources. Being responsive to market opportunities and client needs to exploit those opportunities is the key to attracting the funding required to ensure sustainability of a research program. By being effective in generating the technologies that clients need to exploit market opportunities, inclusive of the social and policy goals of public sector and donor clients, the organization can more effectively attract a range or mix of clients who are willing and able to help finance the organization's agricultural research program, both the direct costs of the client's specific project as well as a share of the indirect (operating costs) of the organization.

While JADF and FUNDAGRO have made progress in organizing research to respond to the requirements of donors, work yet is needed to accelerate progress toward sustainability (e.g., expanding the client-financed research project portfolio to include greater private sector participation). Achieving this goal will require that AID-assisted private sector agricultural research organizations become demand-driven, that is, market- and client-oriented. In other words, these organizations must have or develop the ability to implement or coordinate the implementation of research that generates technology (broadly defined as inclusive of information) that is valued by clients in an open market place. For such technology to be of value to farmers, producer associations, agribusinesses, and other clients who can provide research funding, the research programs of these organizations must produce technologies and information that enhance the capacity of farmers and agribusinesses to compete more successfully in the market place, that is, to be more productive and to earn increased revenue.

While donors may continue to provide organizations such as JADF or FUNDAGRO with funding for specific agricultural research projects, there is a growing recognition that no single donor can be expected to continue to cover the lion's share of an assisted organization's operating costs. To the contrary, if the agricultural research programs of non-profit private sector organizations like JADF or FUNDAGRO are to be sustainable, they will need to convert to an organizational culture (inclusive of administrative and financial management systems) in which a portion of indirect (operating) costs is recovered from each client—whether donor, public sector (government), or private sector (producer associations, commercial firms, etc.)—rather than continuing to depend primarily or solely on large—and unsustainable—financial inputs from a single funding source such as a donor project or even on endowment earnings that likely will not be of sufficient size to cover all of the organization's operating costs.

The need for AID-assisted private sector agricultural research organizations to develop both a diversified funding base and efficient internal management systems is highlighted in Table ES-1. As this table suggests, sustainability is analogous to a soccer team. For a soccer team to succeed (i.e., a winning record), the team needs both good offense and good defense. In a similar vein, the sustainability of an AID-assisted private sector agricultural research organization depends on the organization having a good offense (i.e., aggressive funding diversification) as well as a good defense (i.e., tight internal fiscal management by applying proven organizational management techniques). Like a soccer team, the organization's team (i.e., employees) needs a forward line that is effective in scoring (i.e., cultivating funding opportunities), a back line to defend the organization's financial integrity (i.e., that expenditures do not exceed income), and a middle line to exercise tight internal management control over the organization's overall operation. Obviously, the specific quantity, type, and mix or diversity of funding available (or that can be tapped) will be an important factor in determining at what level (e.g., number of employees) the organization's research program can be sustained.

In the last analysis, it is the responsibility of the assisted organization to identify and generate alternative income sources; if the organization's management fails to ensure that some of the organization's income is used to identify new business opportunities (e.g., research projects) and capture resources from the potential clients who can provide the required funding, then the organization will not be sustainable. Even if endowment earnings cover a portion of an organization's operating costs, the organization's sustainability still depends on attracting sufficient additional funds from other sources and ensuring that the level of costs does not exceed the level of income. In this regard, the sustainability of a donor-assisted organization can be enhanced by adopting proven mechanisms for efficient organizational management. As outlined in Table ES-1, these mechanisms include steps for determining direct vs. indirect costs and calculating a provisional overhead rate; developing systems for budget monitoring, reporting, and projecting; providing oversight; establishing systems for new business development; and developing communication and human resource development systems.

ning Strategy Is Balancing the Offense and the Defense.

SIB:

IVERS CA

DEFENSE: TIGHT INTERNAL FISCAL MANAGEMENT

TO
I EN 3 SURCES

**APPLICATION OF PROVEN ORGANIZATIONAL
MANAGEMENT TECHNIQUES**

Research Grants and Contracts:

- Private Sector
 - Producer Associations
 - Agribusinesses
 - Large Commercial/High Value Crop Farmers
- Public Sector
- Donors

Income-Generating Activities:

- Sale of Commercial Crop (e.g., Rice)
 - Check-off (Cess) on Crop Produced by Growers
 - Sale of Crop Produced by Organization X
- Sale of Specialized Goods and Services
 - Goods (e.g., Planting Materials)
 - Services (e.g., Tissue Analysis)
 - Consulting
- Joint Venture Projects

Investments:

- Interest Earnings on Savings
- Earnings on an Endowment
- Rent Saved or Earned from Capital Infrastructure (e.g., own a building)

A. Finance and Administration:

1. Determine direct vs. indirect costs and calculate a provisional overhead rate;
2. Develop budget monitoring/reporting/projections systems; and
3. Ensure oversight

B. New Business Development—Create an internal system to manage and support new business development (i.e., capturing new funds for or contracts to administer research):

1. Create a Director of Project Development; and
2. Implement following systems and procedures:
 - a. Develop a standard proposal format;
 - b. Develop a budget template (spreadsheet);
 - c. Establish a filing system;
 - d. Select a team for each proposal effort undertaken;
 - e. Establish a tracking system to monitor the status of potential contract awards;
 - f. Hold a project proposal meeting on a regular basis; and
 - g. Make available a set of promotional materials

C. Communications:

1. Staff Meetings
2. File Circulation
3. Local Area Network (LAN)

D. Human Resources:

1. Bonuses
2. Training

See Annex 2 for detailed presentation of management techniques.

Based on the SPARLAC study's "cross-cutting analysis," five "lessons learned" emerged as follows:

- #1: Certain areas of agricultural research will not be funded by the private sector; hence such areas remain a public sector responsibility. This, however, does not imply that research in these areas can be implemented only by the public sector. To the contrary, the track record suggests that the management and administration of donor funds supporting such research potentially can be carried out more effectively by a private sector organization than by a public sector agency.**
- #2: The change in AID's development assistance policy in the 1980s toward creating and supporting private sector organizations reflected a supply-driven assumption--"If we fund it, it will become sustainable." In retrospect, even as AID funded these organizations at levels higher than the host countries could sustain based on national-level (public and private sector) resources, inadequate attention was paid to helping the assisted organizations to develop a "demand-driven" approach to sustainable agricultural research capacity.**
- #3: The sustainability of an organization's agricultural research program is interrelated with the greater problem of the sustainability of the organization itself; hence more attention must be given to developing a market- and client-orientation and improving internal management.**
- #4: Development of a sustainable capacity for demand-driven technology generation and transfer requires that technology beneficiaries play an active role in setting the research agenda and that they provide at least some of the funding required to support research.**
- #5: Sustainability must be chosen and achieved by the assisted organization. This is best achieved by allowing responsibility for allocation of resources to reside with the principals of the organization. Micro-management of an organization by the donor or the entity's own Board of Directors can deprive the assisted organization of the opportunity to choose to be sustainable. An organization that is deprived of the freedom to fail will be severely hampered in terms of its chances to succeed (i.e., become sustainable).**

The specific approach that a donor such as AID takes to the question of how to facilitate institutional strengthening ultimately is critical in determining whether an assisted organization will or will not develop a sustainable capacity for technology generation and transfer, at some point becoming independent of rather than dependent upon continuing donor institutional support. If the objective is to develop sustainable technology generation and transfer capacity--sustainable without continuing subsidization of operating costs by an external donor, decisions about resource use on donor-funded project X must be the assisted organization's decision, not AID's, to make. If the assisted organization is to become a mature, i.e., self-sustaining, institution, it needs the liberty both to succeed and to fail. The practical implication for future dealings between AID and the assisted organizations is that AID must lower the profile on inputs, while bringing a performance-oriented approach to the fore.

List of Acronyms

| | |
|--------------------|---|
| AID | Agency for International Development |
| ARF | Agricultural Research Fund (Guatemala) |
| ATT | Agricultural Technology Transfer project (Perú) |
| CARDI | Caribbean Agricultural Research and Development Institute |
| CENICAFE | Centro Nacional de Investigaciones de Café "Pedro Uribe Mejía" |
| CIANO | Centro de Investigaciones Agrícolas del Noroeste (Mexico) |
| CINDE | Coalición Costarricense de Iniciativas de Desarrollo |
| COLCIENCIAS | Consejo Nacional para la Ciencia y la Tecnología |
| DIVAGRO | Diversificación Agrícola (El Salvador) |
| EXITOS | Central America Export Industry Technology Support project (ROCAP) |
| FCh | Fundación Chile |
| FDA | Fundación de Desarrollo Agropecuario, Inc. (Dominican Republic) |
| FP | Fundación Polar (Venezuela) |
| FEDERACAFE | National Federation of Coffee Growers (Colombia) |
| FENARROZ | National Federation of Rice Producers (Ecuador) |
| FEPROEXAAH | Federation of Agricultural and Agroindustrial Producers & Exporters of Honduras (FPX) |
| FHIA | Fundación Hondureña de Investigación Agrícola |
| FUNDAGRO | Ecuadorean Foundation for Agricultural Development |
| FUNDEAGRO | Fundación para el Desarrollo del Agro (Perú) |
| FUSADES | Fundación Salvadoreña para el Desarrollo Económico y Social (El Salvador) |
| FUSAGRI | Fundación Servicio para el Agricultor (Venezuela) |
| GEXPRONT | Gremial de Exportadores de Productos No-Tradicionales (Guatemala) |
| GOH | Government of Honduras |
| IDEA | Instituto de Estrategias Agropecuarias (Ecuador) |
| INIA | "Instituto Nacional de Investigación Agropecuaria" (generic, not specific country) |
| JADF | Jamaica Agricultural Development Foundation |
| JARP | Jamaica Agricultural Research project (programme) |
| LAC | Latin America and the Caribbean |
| NGO | Non Government Organization |
| PIEAES | Patronato para la Investigación y Experimentación Agrícola del Estado de Sonora, A.C. (Mexico) |
| PROEXAG | Non-Traditional Agricultural Export project (ROCAP) |
| REE | Research, Extension, and Education project (Ecuador) |
| SPARLAC | Sustainable Private Agricultural Research in Latin America and the Caribbean |
| TA | Technical Assistance |
| TG&T | Technology Generation and Transfer |
| UAPPY | Union of Associations of Small Producers and Processors of Cassava (Ecuador) |
| USAID | United States Agency for International Development (also, AID) |

Programming for Sustainability: Lessons Learned in Organizing and Financing Private Sector Agricultural Research in Latin America and the Caribbean

I. Introduction

This report provides the findings, conclusions, lessons learned, and programming implications emerging from the Sustainable Private Agricultural Research in Latin America and the Caribbean (SPARLAC) study.

A. Background

During the 1980s, agricultural researchers in Latin American and Caribbean (LAC) public sector agricultural research organizations found it increasingly difficult to attract and maintain adequate levels of public and/or donor funding for agricultural research, especially when a major donor, the United States Agency for International Development (AID), chose to reroute to LAC private sector organizations funding that traditionally would have been allocated to bilateral projects supporting public sector agricultural research. Indeed, during the past decade, AID Missions invested considerable resources in the LAC region in establishing and/or providing funding support for private sector organizations that engage in agricultural research (Lindarte, 1986; Coutu, 1987; Sarles, 1990; Hansen, 1990). Table 1 provides a summary of several private sector organizations, now active in the region, that engage in agricultural research. As the reader may observe, many of these organizations were established as foundations and have been partially sustained by funding support from AID Missions. The table also lists other LAC private sector organizations that engage in agricultural research such as Colombia's FEDERACAFE (a producer association), Fundación Chile, and Mexico's Patronato de Sonora.

AID's interest in establishing and/or providing funding support for private sector organizations engaged in agricultural research grew out of a frustration with the general inability of the public sector in AID-assisted LAC countries to adequately fund and deliver agricultural research. Also, the effective delivery of agricultural research often was impeded by political interference and the inability of public sector organizations to pay a level of remuneration that would attract and retain highly skilled and trained professional scientific talent.

Further, agricultural research funded and delivered by the public sector often suffered from an inability to be demand-driven, that is, to focus on and be responsive to market- and client-relevant problems. Agricultural researchers typically focused on problems or constraints to increased agricultural productivity, this reflecting what may be described as a production or supply-driven orientation to agricultural research, with the research agenda often focusing on problems to increased per hectare productivity, regardless of whether farmers would be able to market the surplus production resulting from the adoption of productivity-increasing technology developed through agricultural research. This supply-driven orientation, in short, suffered from an insensitivity to market realities and/or client (farmer and agribusiness) needs.

| REGION | | | |
|------------------------|---|--------------------------|------------------|
| Country | Name | Acronym (*) | Year Established |
| ANDEAN | | | |
| Bolivia | (potential "Agricultural Technology Foundation" under study) | (*) | |
| Ecuador | Fundación para el Desarrollo Agropecuario | FUNDAGRO (*) | 1987 |
| Perú | Fundación para el Desarrollo del Agro | FUNDEAGRO (*) | 1983 |
| CARIBBEAN | | | |
| Dominican Republic | Fundación para el Desarrollo Agropecuario, Inc. | FDA (*) | 1987 |
| Jamaica | Jamaica Agricultural Development Foundation/Jamaica Agricultural Research Programme | JADF / JARP (*) | 1984 / 1987 |
| CENTRAL AMERICA | | | |
| Costa Rica | Coalición Costarricense de Iniciativas para el Desarrollo | CINDE (*) | 1982 |
| El Salvador | Fundación Salvadoreña para el Desarrollo Económico y Social / Diversificación Agrícola | FUSADES / DIVAGRO (*) | 1983 |
| Guatemala | Gremial de Exportadores de Productos No-Tradicionales / Agricultural Research Fund | GEXPRONT / ARF (*) | 1989 |
| Honduras | Fundación Hondureña de Investigación Agrícola | FHIA (*) | 1984 |
| OTHER | | | |
| Bolivia | Fundación Pro-Bolivia | Fundación Pro-Bolivia | 1964 |
| Chile | Fundación Chile | FCh | 1976 |
| Colombia | National Federation of Coffee Growers / Centro Nacional de Investigaciones de Café "Pedro Uribe Mejía" | FEDERACAFE / CENICAFE | 1927 /1938 |
| Mexico | Patronato para la Investigación y Experimentación Agrícola del Estado de Sonora, A.C. / Centro de Investigaciones Agrícolas del Noroeste | PIEAES / CIANO | 1955 / 1964 |
| Venezuela | Fundación Servicio para el Agricultor, Fundación Polar | FUSAGRI, FP | 1972, 1977 |

* = Organization established with and/or partially sustained by funding from the U.S. Agency for International Development.

⁴A set of descriptive syntheses on most of these organizations is provided in the References (section 2).

In choosing to establish and/or provide operational and program funding support for these private sector organizations, AID consciously was seeking to ensure that each assisted host country would be able to continue to develop the capacity to provide needed agricultural research services. With few exceptions, the role of the assisted private sector organization was to serve as a coordinator rather than actual implementor of the agricultural research being funded by AID. Nevertheless, AID's broader intent, in creating and/or supporting most if not all of these private sector organizations was consistent with AID's traditional emphasis on strengthening host country agricultural research capacity, utilizing the modality of a private sector organization as a new vehicle to reach an old destination. Further, this strategy assumed that the assisted private sector organizations not only would be free of the problems that traditionally had plagued public sector agricultural research organizations but also that this freedom would facilitate a more productive agricultural research program, particularly given AID's concern for ensuring that agricultural research led to technology that would benefit the small farmer.

However, with the passage of time, there were increasing signs that AID's strategy for creating and/or supporting private sector agricultural research organizations had not taken into account that the shift of development assistance funding from the public to the private sector, without accompanying changes in orientation, management, and other factors, would not necessarily result in the assisted organizations adopting a demand- rather than supply-driven orientation. Nor did it guarantee that the agricultural research programs funded thereby would be any more sustainable under private sector management than they had been under public sector management. Indeed, the charge that the assisted organizations be responsive to the technology needs of the small farmer would, at least at first glance, appear to jeopardize any possibility of these organizations developing sustainable agricultural research programs, since it is precisely the small farmer who is in the least advantageous position in terms of being able to afford to pay a fee for agricultural research, particularly when the research is focused on relatively low-value basic grain crops.

Further, AID underestimated just how long institutional development of a new private sector organization would take, especially where the pool of available individual and organizational research capacity in a given country already is extremely weak. Initially AID was extremely generous in terms of providing interim funding for operational and program support. However, over time, it became increasingly clear that AID would no longer have the financial resources to continue to be the sole or primary funding source for these organizations. Eventually the realization of this limitation led AID to the conclusion that it must send a signal to these organizations that the Agency no longer would be able to provide operational funding support for these organizations indefinitely, and that the assisted organizations, if they were to survive, would need to develop at least a minimal level of self-sustaining capacity. Hence most of these AID-assisted organizations came, some more quickly than others, to recognize that they must become sustainable without continuing dependency for core operational support on uncertain funding from a single donor source such as AID.

In view of these developments, the question arises: "How can these private sector agricultural research organizations develop sustainable agricultural research programs?" Stated somewhat differently, "What must these organizations do in order to develop a self-sustaining capacity to play their roles as coordinators and/or, in some cases, implementors of agricultural research?"

B. Definition of Terms

1. Agricultural Research

While agricultural research may be classified as adaptive, applied, strategic, and basic (Umali, 1993), the ultimate objective is to develop information and technology that provide farmers and agribusiness with options for improving resource productivity and raising farm income, while also lowering food and fiber costs to consumers. To this end, agricultural research may cover a broad range of problems, including preliminary market assessments; conventional laboratory, greenhouse, and field research; socioeconomic and marketing research; and post-harvest handling and food processing studies. While some of the AID-assisted private sector organizations may and do become involved in activities (e.g., policy and marketing studies or agricultural development activities) that go beyond agricultural research narrowly defined, such activities can play a role in establishing a meaningful agricultural research agenda or the research itself may be an integral component of the organization's broader development program. Thus, while some of an AID-assisted private sector organization's activities (e.g., agricultural credit) may go beyond agricultural research *per se*, the focus of the present study is on the role that these organizations play in coordinating and, in some cases, implementing agricultural research programs in their respective countries.

2. Sustainability

As used herein, sustainability refers to an organization's capacity to attract sufficient resources so that the organization is able to cover the costs associated with providing the particular goods and/or services that fall within the organization's mandate. Research implementation and/or coordination cannot go forward on a sustainable basis without ensuring that the program's recurrent costs--both direct and indirect--can be met on a continuing basis from revenue sources that can be tapped by the organization. Thus, the sustainability not only of an organization's agricultural research program but also of the organization itself entails the organization's ability to identify new opportunities to attract the required resources, to successfully capture those resources, and to manage and administer those resources in an efficient manner.

B. Purpose

The SPARLAC study provides LAC AID Missions with information, analysis, and "lessons learned" that may prove useful in programming development assistance in support of projects to develop productive and sustainable agricultural research capacity in host country non-profit private sector agricultural research organizations or private sector organizations having an agricultural research component. Typically, these organizations do not have ready access to either public sector funding or to market-derived profits from the sale of a particular commodity as in the case of for-profit private sector commercial firms. Further, as emphasized earlier, the availability of donor funding has become increasingly uncertain as a source of funds to cover agricultural research program costs or the overhead costs of the organization that is coordinating and/or implementing the research program.

Yet evidence from various LAC countries indicates that the sustainability of many AID-assisted non-profit private sector agricultural research organizations has become a growing concern to the Agency. Even if some of these organizations have made progress toward sustainability, most face continuing uncertainty regarding their ability to attract sufficient funding to cover the costs of a self-sustaining agricultural research program. Indeed, several organizations have gone through or now face the prospect of major restructuring and/or downsizing, in order to bring projected expenses in line with projected income. During the past few years, several LAC AID missions have wrestled with the sustainability implications of programming decisions, as they seek to define what role AID can play in helping these organizations to address the sustainability problem. Specific cases where AID has been concerned with the sustainability problem are illustrated by the following examples:

- **Bolivia**--how to establish a private agricultural research foundation;
- **Ecuador**--how to make FUNDAGRO sustainable beyond the life of the REE project;
- **Perú**--how to make FUNDEAGRO sustainable beyond the life of the ATT project;
- **Costa Rica**--how to sustain a research program in CINDE;
- **Guatemala**--how to convert ARF into a self-sustaining program;
- **Honduras**--how to ensure GOH commitment of PL-480 funds for FHIA's endowment;
- **Dominican Republic**--how to increase funding for FDA's research program;
- **Eastern Caribbean**--how to privatize CARDI research and extension functions; and
- **Jamaica**--how to sustain JADF's research program beyond the life of the JARP project.

Given the concern of LAC AID missions for the sustainability issue, SPARLAC seeks to identify ways to strengthen the capacity of AID-assisted private sector organizations to attract the funding required to carry out a sustainable agricultural research program. The study is premised on the assumption that an organization's capacity to attract funding for its agricultural research program will depend on its ability to develop a research program that is market-oriented and client-responsive. In other words, the study's premise is that the emergence of demand-driven agricultural research capacity in a private sector agricultural research organization is vital to ensuring that the organization will be able to attract sufficient private and public funding to sustain the organization's agricultural research program.

C. Approach

It should be emphasized that this study does not set out to test the assumption of the primacy of a demand-driven orientation to agricultural research as the key to capturing the funding needed to make an agricultural research program sustainable. Rather the study seeks to bring this assumption into the light so that it may be considered in the light of real-world experience, as described in this study's approach outlined below.

To explore the potential validity of the premise of the SPARLAC study, LAC TECH selected four cases of private sector organizations that conduct or coordinate agricultural research in the LAC region: the Jamaica Agricultural Development Foundation (JADF) in Jamaica, the Foundation for Agricultural Development (FUNDAGRO) in Ecuador; the National Federation of Coffee Growers (FEDERACAFE) in Colombia; and Fundación Chile in Chile. The former two organizations are currently AID-assisted, whereas the latter two organizations have not been AID-assisted.

The two AID-assisted organizations were selected on the basis of several factors, including an LAC/DR/RD survey of AID Mission willingness to have the subject organizations included in the study. On the other hand, the other two organizations were selected because they provide two different types of private sector organizations—one being a producers association (FEDERACAFE), the other a foundation (Fundación Chile)—that have successfully engaged in agricultural research with a proven track record of sustainability.⁵

The two organizations (FEDERACAFE and Fundación Chile) not assisted by AID, like the two AID-assisted organizations (JADF and FUNDAGRO), generally function as not-for-profit organizations, as distinct from the for-profit motive of private sector commercial agribusiness firms that fund and/or implement agricultural research. Also, as discussed in greater detail later, both provide examples of private sector organizations that have a demand-driven approach to agricultural research, that is, they operate with a market- and client-based orientation to agricultural research. Table 2 summarizes key information about each organization, drawing from each organization's case study.

⁵LAC/DR/RD extended an invitation to all LAC AID Missions that might be interested in participating in the SPARLAC study, in view of the funding support which those Missions have provided for private sector agricultural research organizations in their respective host countries. Two AID Missions (Jamaica and Ecuador) responded positively to the invitation to participate in the subject study, while two Missions (Costa Rica and Honduras) expressed reservations about the SPARLAC study collecting primary data in their host countries. Security considerations precluded the possibility of placing a study team in the field in Perú. The requirement of Mission concurrence led LAC TECH to reassess the study's approach which subsequently was refined to include, for comparative purposes, two examples of organizations (FEDERACAFE and Fundación Chile) that have not been assisted by AID but that have a proven strong track record as implementors and/or coordinators of agricultural research. Resource limitations precluded including pure for-profit private sector commercial firms (i.e., agribusinesses) that provide fund for and implement agricultural research.

Table 2. An Overview of SPARLAC's Four Case Study Organizations.

| Country | Colombia | Chile | Jamaica | Ecuador |
|--|---|----------------------|---|--|
| Organization | National Federation of Coffee Growers (FEDERACAFE / CENICAFE) | Fundación Chile (FC) | Jamaica Agricultural Development Foundation (JADF / JARP) | Foundation for Agricultural Development (FUNDAGRO) |
| Type | Producer Association | Foundation | Foundation | Foundation |
| Year Created | 1927 / 1938 | 1976 | 1984 / 1987 | 1987 |
| Staff Size (Research / Total) | / | / | 7 / 29 | 36 / 48 |
| FUNDING SOURCES | | | | |
| A.I.D. Project Support? | No | No | PL 480, JARP | PL 480, REE |
| Other Multi- & Bilateral Donors & Foundations? | COLCIENCIAS, GTZ, others | ITT / GOC | No | W.K. Kellogg, IDRC, CAF, & expanding |
| Private Contributions? | No | No | No | Demo Farm |
| Sale of Services? | Yes | Yes | No | Exploring |
| Sale of Goods? | No | Yes | No | Demo Farm Produce |
| Joint Ventures? | No | Yes | Exploring | Exploring |
| Consulting? | Yes | Yes | No | Exploring |
| ENDOWMENT: | No | Patrimonio | Exploring | Yes |
| Year of Endowment | N.A. | 1976 | N.A. | 1988 |
| Initial Size | N.A. | in tranches | N.A. | U.S.\$ 1.9 M |
| Current Size | N.A. | U.S.\$ 57 M | N.A. | U.S.\$ 2.8 M |
| Earnings Applied to Operations? | N.A. | Yes | N.A. | Not until 1998 |
| COMMODITY FOCUS: | | | | |
| Food Crops: | No | No | Ethnic/Local Crops | Potato, Corn, Sorghum |
| Industrial Crops: | No | Yes | Selected Crops | Cassava, Tomato |
| Traditional Export Crops: | Coffee | No | (by commodity boards) | Coffee, Cacao |
| Non-Traditional Export Crops: | Various Diversification | Yes | Fruit, Flower/Ornamental | Melons & Organic Veg. |
| Livestock: | Some | No | Livestock Forage & Feed | Dairy, Guinea Pigs |
| Agroforestry: | No | Yes | Conservation | Yes |
| RESEARCH ROLE: | | | | |
| Competitive Research Grants? | No | No | Yes | Yes |
| Programs? | Yes | Yes | Yes | Yes |
| Organizes? | Yes | Yes | Yes | Yes |
| Coordinates? | Yes | Yes | Yes | Yes |
| Executes? | Yes (Coffee) Some (Diversification) | Yes | Only When Others Can't | No |
| Controls Resources? | Yes | Yes | Yes | Yes |
| Evaluates Results? | Yes | Yes | Yes | Yes |

The case study of each organization focused on two basic issues and, for each issue, two basic questions, as follows:

- A. Organizing a Demand-Driven Research Program--How does each institution organize its agricultural research program so that it is market-oriented and responsive to client needs; in other words, how does the organization make its research "demand-driven"?**
- 1. Progress toward Demand-Driven Research:** To what extent is each organization's research agenda demand-driven, that is, to what extent are the research priorities based on market opportunities and/or producer requirements for technologies to exploit market opportunities?
 - 2. Efficacy of the Research Model:** Looking across the four organizations, is there evidence that one type of private sector institutional model is more effective in technology generation and transfer (TG&T) than another? In other words, to what extent is the function of Organization X to implement and/or to coordinate the implementation of agricultural research? What has been the experience of Organization X in implementing and/or coordinating the implementation of agricultural research? In looking across the four cases, what difference does the institutional form make, and do some forms better serve clientele?
- B. Developing a Sustainable Research Program--How does the institution attract the funding essential for a sustainable research program?**
- 1. Progress toward Sustainability:** What progress has each organization made toward sustainability? In other words, to what extent has Organization X developed an agricultural research program that is sustainable? To what extent has the organization developed a financial base to support agricultural research that is broader than being dependent on any single donor project?
 - 2. Determinants of Sustainability:** What are the determinants of sustainability? In other words, what factors or determinants can be attributed to the success of Organization X in attracting public and/or private sector funding to support an ongoing agricultural research program?

On completing the case studies, LAC TECH looked across the experience of the four organizations to identify the principal findings, conclusions, lessons learned, and programming implications for AID. Annex 1 provides a summary of the case study findings, with the case studies being attached to this report (or are available from LAC TECH on request). The study's findings are presented in Section II as conclusions, focusing first on organizing a demand-driven research program, second on developing a sustainable research program, and third on providing the study's overarching conclusion. Section III presents the lessons learned emerging from the study. Section IV turns briefly to the issue of programming implications for AID, while a final word is presented in Section V.

II. Conclusions

A. Organizing a Demand-Driven Research Program

1. Progress toward Demand-Driven Research

Looking across the four case studies, one sees a range of approaches to demand-driven research, with FEDERACAFE's research programs being market-linked (i.e., closely tied to the coffee market and the needs of coffee growers to protect their coffee income and market share) and Fundación Chile's research program being market-oriented (i.e., targeted on identified market opportunities to exploit Chile's comparative advantage). Stated somewhat differently, Fundación Chile's research program has focused on identifying potential winners in the marketplace and cultivating those opportunities, including agricultural research to the extent that such research is essential to cultivating and tapping potential revenue streams from commodities for which Chile has comparative advantage. By contrast, while neither FUNDAGRO and JADF initially were involved in producing commodities for sale in the market, to a limited extent both organizations took market and other factors in consideration in establishing research priorities. However, the prospect or certainty of AID project funds ending as well as signals from AID for these organizations to become sustainable without continuing to be dependent on AID project funding has put these organizations under pressure to seek out alternative funding sources. FUNDAGRO has been more aggressive than JADF in developing such alternative funding sources inclusive of producing and marketing commercial crops and tapping a greater diversity of potential donor funds.

In effect, both FUNDAGRO and JADF increasingly recognize the need to move to a more demand-driven (i.e., market- and client-oriented) approach as the basis for sustainability. This, however, requires a revolutionary shift in the orientation of these AID-assisted organizations that, largely as a function of their initial dependency on AID project funding, have been supply-driven. This shift and AID's role in fostering a supply- rather than demand-driven approach in JADF and FUNDAGRO is articulated in the evaluation (Box 1) of the USAID/Perú Agricultural Technology Transformation (ATT) project that provided assistance to Peru's Agricultural Development Foundation (FUNDEAGRO).

2. Efficacy of Research Model

FEDERACAFE's research program is implemented primarily by its own research staff (CENICAFE), while Fundación Chile conducts most of its research with its own staff and contracts the remainder out to other research providers. In the case of the two AID-assisted foundations (JADF and FUNDAGRO), the actual research is implemented largely by other organizations, with the role of the foundation being that of a research facilitator or coordinator. This, for comparative purposes, is in sharp contrast to the foundation model provided by the Fundación Hondureña de Investigación Agrícola (FHIA) in Honduras, where the research primarily is carried out by FHIA's own staff.

Box 1. A Case of Supply-Driven Agricultural Research: Observations from the Final Evaluation of USAID/Peru ATT Project Design and Implementation.

While technology demand and technology supply issues were addressed in the project paper, the emphasis in the Log Frame was on technology supply. . . . ATT project designers expanded the six priority program elements of the REE project (rice, corn, potatoes, cereals, grain legumes and oil crops) to include Andean crops, tropical crops and livestock. The concern is that this expansion was more a matter of continuing support to existing research programs than a selection of potentially viable production and marketing systems. . . . the lack of emphasis in project working documents on demand-driven research and technology transfer allowed these very busy individuals [the Vice-Minister of Agriculture and the Chief of the Agriculture Office of A.I.D.] to continue with the more traditional supply-driven planning. . . . [Beyond the] nine enterprise priorities and the related research and technological transfer programs that were selected by the project..., several additional programs received ATT support funds. A.I.D. project managers apparently allowed the additional dilution of funding to help INIA keep programs alive that had been supported by the World Bank and IDB.technology transfer has been somewhat random and lacking in focus on major, high priority problems in a production and marketing system for targeted crops and enterprises. . . . FUNDEAGRO was so preoccupied with managing and disbursing project funds that it failed to develop the marketable services that it should have, and it has been seen primarily as a funding source (Boone, et al., 1993).

With respect to the question of the efficacy of one research model compared with another, the case studies suggest that productive agricultural research can be carried out by non-profit private sector organizations--whether the organization is a producer association (FEDERACAFE) or a foundation (FUNDAGRO), and whether the organization implements research (FEDERACAFE's CENICAFE) or facilitates research implemented by agricultural researchers in public sector institutes or agricultural universities (JADF or FUNDAGRO). However, the case studies illustrate that such non-profit private sector organizations face the challenge of capturing sufficient resources--from the private sector, from the public sector (government), and/or from donors--to continue to pay both for the direct research costs and the indirect costs (i.e., overhead) required to keep the organization a going concern.

B. Developing a Sustainable Research Program

1. Progress toward Sustainability

FEDERACAFE (CENICAFE) ensures the sustainability of its research program by making this research program responsive to the market-based needs of the organization's clients, that is, the coffee growers who comprise the membership of FEDERACAFE and who, through their representatives, are in a position to approve or disapprove the yearly research budget. As long as CENICAFE responds to the technology needs of FEDERACAFE's membership, the federation will continue to allocate funding from coffee sales for research on coffee (or on diversification crops).

The sustainability of Fundación Chile's agricultural research program undoubtedly has been facilitated by the large investment of funding made by the Government of Chile and ITT to establish the foundation. Yet the foundation's clear market orientation has been essential for ensuring that funding for research is invested in potential winners rather than dissipated on likely losers.

While both JADF (JARP) and FUNDAGRO initially were heavily dependent on AID funding, FUNDAGRO has been more effective than JADF in diversifying donor support and attracting private funding (e.g., melon grower funding, sale of produce from the foundation's demonstration farm). But the goal of expanding private sector funding support has not been made any easier to the extent that AID has expected both organizations to perform development functions (e.g., revitalize a country's agricultural research, extension, and education system, or develop technologies for resource poor small farmers) as compared with going after potentially more lucrative opportunities to attract private sector funding (e.g., focusing the research portfolio on non-traditional agricultural export crops produced by commercial growers rather than low-value grain crops grown by resource poor small farmers). To the extent that donor and/or government funding does not continue to be forthcoming to support development-type activities, both organizations will face increasing pressure to become more market-oriented, that is, to invest resources in the development of more lucrative, income-earning activities geared to the needs of commercial farmers and agribusinesses.

The pressure on these organizations to move to more remunerative revenue-generating activities will be particularly great where a donor such as AID becomes unwilling and/or unable to cover the major share of an organization's non-program operating costs beyond the life of the donor project that is providing operational (non-program institutional) support to the assisted organization. Indeed, one may anticipate that such donors will become increasingly unwilling to play the role of primary sustaining donor when other donors who also rely on the same assisted organization to implement their projects shirk from paying their fair share of the indirect costs (overhead) that must be covered if the organization is to continue carry out its function on a sustainable basis. In short, the lack of public sector and/or donor funding for agricultural research on low-value crops produced by resource poor small farmers will impede the ability of non-profit private sector organizations such as JADF and FUNDAGRO to implement or coordinate the implementation of research on those crops on a sustainable basis.

In the last analysis, if donor and/or public sector agricultural research funding declines, revenue-generating activities from market-oriented research conducted in response to the needs of and with the funding support of private sector clients will need to become the primary source of funding to cover the non-program operational costs of AID-assisted private sector agricultural research organizations. If these organization cannot develop a mix and volume of marketable services sufficiently large to generate the revenue required to cover their non-program operating costs, they will need to "right size" to a more modest cost structure that can be sustained within actual and projected levels of income.

2. Determinants of Sustainability

The success of FEDERACAFE and Fundación Chile has, in some measure, been influenced by the availability of relatively stable funding. FEDERACAFE has access to income from coffee export sales. At the same time, while no substitute crop for coffee has yet been discovered, the coffee market has not been stable. In view of such market risk, FEDERACAFE recognized the need to expand its research into diversification crops, funding the research in part from coffee revenues but also by obtaining donor funding. On the other hand, while Fundación Chile was guaranteed a large endowment from the outset, much of this funding was made available only in tranches upon compliance with achieving certain benchmarks, this reflecting a performance (i.e., results) orientation where the emphasis by the foundation's board of directors was on the bottom line results and not on micro-managing how the foundation used its available resources to obtain those results. In effect, both FEDERACAFE and Fundación Chile are output-oriented, with management holding the organization accountable more for achieving results than how the results are achieved.

But funding availability did not guarantee instant success. Indeed, the programs of Fundación Chile were not without occasional disappointment or even failures, with the foundation initially struggling to define its organizational culture. FCh's success really started to take off when the foundation began to develop and apply its market orientation to exploiting Chile's comparative advantages. Similarly, just as CENICAFE researchers focus their market-linked research on current or anticipated technology needs of Colombia's coffee growers, FCh researchers focus their market-oriented research in support of developing potential income-generating projects. Research is not done just for the sake of research.

By contrast, the sustainability of the agricultural research programs of JADF and FUNDAGRO was tied in these organization's initial years to income from PL-480 local currency generations and/or AID project funding. However, as these organizations gained experience, they increasingly recognized the need to shift from dependency on supply-driven (donor-provided) funding to identification and cultivation of market- and client-oriented (demand-driven) projects that provide the potential to recover operating costs from the revenue they can generate by selling to the private sector or other buyers (inclusive of donors and/or the government) research or other services that respond to the needs of the client and for which the client is willing to pay fair compensation. In the case of the private sector, such research or other services will be linked closely to helping the private sector enhance its profits from the production and marketing of agricultural commodities.

At the same time, the ability of these AID-assisted organizations to shift to a demand-driven and output- (results-) oriented approach may have been impeded to the extent that the donor (AID) allowed its attention to focus on micro-management of how the assisted organization allocated project-provided resources. Directors of both AID-assisted organizations revealed the considerable time each has spent in discussions with AID project managers in regard to how project-provided resources had been or would be spent--e.g., whether or not it would be productive to fill the foundation's "development position." In effect, AID was second-guessing the ability of the assisted organization to make the right decision.

C. Closing the Loop

This "cross-cutting analysis" of four case studies, as anticipated in the Introduction, buttresses this study's underlying premise, namely, that the sustainability of private sector agricultural research organizations or the agricultural research component (program) of such organizations depends on the organization's ability to develop and deliver a research program responsive to the needs of a range of clients in a diverse market place. In effect, for the organization's research program to be sustainable, the research must be demand-driven, that is, market-oriented and responsive to client need. In an era of declining availability of donor funding, the sustainability of an agricultural research program in a private sector organization increasingly will depend on the organization's ability to develop a diversified research portfolio that captures resources from private sector, public sector, and donor sources. By being effective in generating the technologies that clients need to exploit market opportunities, inclusive of the social and policy goals of public sector and donor clients, the organization can effectively attract a range or mix of clients who are willing and able to help finance the organization's agricultural research program, both the direct costs of the client's specific project as well as a share of the indirect (operating costs) of the organization.

Achieving this goal implies that non-profit private sector agricultural research organizations such as JADF and FUNDAGRO must become demand-driven (market- and client-oriented). These organizations must have or develop the ability to implement or coordinate the implementation of research that generates technology (broadly defined as inclusive of information) that is valued by clients in an open market place. For such technology to be of value to clients who provide research funding, it must enhance the capability of farmers and agribusinesses to compete more successfully in the market place, that is, to be more productive and to earn increased revenue.

At the same time, while an organization initially may have been heavily dependent on donor funding, the fact remains that donors and the public sector (government) are potential clients and funding sources for certain types of agricultural research where the private sector does not have or does not perceive there to be an adequate incentive (i.e., profit or return) for investing in agricultural research. In such instances (e.g., basic grains), even if the private sector (e.g., a large grain producer) provides funding for research on a grain crop, this individual (or several such individuals) may gain a small return on their investment; however, their individual gain will be small compared to the returns to the sector as a whole from investment in research. Given the relatively small return to any individual, he (or she) does not have an incentive to provide the full level of resources needed to carry out the required research; hence the role for and the necessity of public sector and/or donor funding of research in certain areas such as low-value basic grain crops that are a primary income source for the rural poor.

On the other hand, while any donor may, from time to time, be interested in providing an organization such as JADF or FUNDAGRO with funding for specific agricultural research projects, no single donor can be expected to continue to cover the lion's share, if not all, of the operating costs of such an organization. To the contrary, if non-profit non-governmental organizations (NGOs) like JADF or FUNDAGRO are to become sustainable, they will need to convert to an organizational culture (inclusive of administrative and financial management systems) in which a portion of indirect (operating) costs is recovered from each client--whether donor, public sector (government), or private sector (commercial firm)--rather than continuing to depend primarily or solely on large--and unsustainable--financial inputs from a single funding source such as a donor project or even endowment earnings which, given low interest rates, are not likely to produce sufficient earnings, particularly when the endowment's corpus is initially small, to cover all of the organization's operating costs.

Finally, the experience of FEDERACAFE (CENICAFE) and Fundación Chile point to the importance of holding an organization accountable for achieving its mandated output, without the organization's oversight mechanism (i.e., Board of Directors) getting so involved in the organization's internal management questions (e.g., resource allocation decisions) that the organization loses sight of its objective(s). In this context, the "rules of the game" under AID's "cooperative agreement" relationship with AID-assisted organizations such as JADF and FUNDAGRO contributed to a situation where the assisted organization became "so pre-occupied with managing and disbursing project funds that it failed to develop the marketable services that it should have." In effect, while AID had the authority and responsibility to hold the assisted organizations accountable for achieving certain results (e.g., project outputs), AID was not in a position to guarantee that the assisted organizations would become sustainable beyond the funding provided by AID projects having a finite life span. Further, to the extent that AID also became preoccupied with micro-managing the assisted organization's internal management, AID may have compromised the opportunity for these organizations to gain the experience and confidence to choose to make the hard decisions that ultimately lead to achieving sustainability for the organization.⁶

⁶The present study was nearing completion during the same period that John Lamb was evaluating Guatemala's Agricultural Research Fund (ARF) and participating in the ongoing PROEXAG II (EXITOS) institutional development analyses of Central American export support organizations (Barbee and Thomas, 1992). Also, the sustainability issue was the focus of private sector agricultural research foundation representatives who participated in the IICA-sponsored "I Reunión de Consulta de Organismos del Sector Privado de Apoyo a la Investigación Agropecuaria de América Latina y el Caribe para Estrategias de Acción Conjunta," Santo Domingo, Dominican Republic, May 5-7, 1993 (see section 2 of References for a listing of "descriptive syntheses" on the various organizations participating in this meeting). Annex A provides a summary of observations that John Lamb has made on the sustainability issue.

III. Lessons Learned

The four private sector agricultural research organizations reviewed provide working models of private sector agricultural research organized in a manner that is responsive to the needs of agricultural producers, although FEDERACAFE and Fundación Chile have established a much more positive record than the AID-assisted JADF and FUNDAGRO in terms of their ability to attract and maintain private sector funding. Despite the funding problems yet to be resolved by the JADF and FUNDAGRO, these organizations have not had the "sustainability" crises experienced by other AID-assisted private sector organizations in the LAC region.

However, for several of these organizations, the AID projects that have been the primary or a major source of funds for covering their operating costs during the past four to five years or longer will be terminating within the current or next year. In some cases, AID is now assisting these organizations to carry out sustainability analyses, with the focus of the analyses often being little more than contracting consultants to assist these organizations to look outward toward identifying alternative funding sources. Two real-life examples of the typical approach are presented in Box 2 as exemplary of what not to do, at least in the sense that these scopes of work make no reference to the need to look to where the market is for the types of goods and services the organization can provide. Generally, as these real cases illustrate, the consultant's scope of work asks him or her to help the organization to find funding from potential donor sources. What these scopes of work fail to require of the consultant is to assist the organization in looking at two important questions: Where's the market for the organization's actual or potential goods and services? Is the organization being managed and administered in a way that contributes to its sustainability?

As LAC TECH reflected on the findings and conclusions emerging from the four case study organizations, five key "lessons learned" emerged, as summarized in Table 3. These lessons learned and their operational implications should be taken into consideration by anyone embarking on assisting a private sector agricultural research organization to become sustainable. The ensuing discussion will deal one by one with each of the lessons learned and its operational implications. Annex 2 provides more detailed discussion to amplify on the operational implications of Lesson Learned #2. The reader should note that all five of the lessons learned are interrelated with each other, with no single lesson learned necessarily having any strict one-to-one correspondence with the issue and/or question on the same row of Table 3. In effect, these lessons learned provide a more detailed analysis and discussion of the study's overarching conclusion, namely, that the sustainability of an AID-assisted non-profit private sector agricultural research organization depends on the organization's ability to develop a research agenda that is demand-driven (i.e., market- and client-oriented).

Box 2. Achieving Sustainability—What Not to Do: Two Real-Life Examples of Scopes of Work for Sustainability of AID-assisted Private Organizations*

Institution X: The consultant will:

- Identify and contact potential sources of financing, to determine the possibility of their involvement in the program of institution X;
- Provide a list of the persons and/or entities interested in supporting institution X's research program, including the conditions to be met to access each funding source; and
- Analyze the feasibility of establishing a trust fund that would generate resources to finance institution X.

Institution Y: The consultant will:

- Outside Institution Y:
 - Study the possibility of establishing an endowment;
 - Recommend national activities that Y can organize and that permit capturing funds;
 - Study the possibility that Y can be the country representative of international donors and can intermediate in the capturing of funds, and establish the required steps to achieve this goal; and
 - Recommend to Y alternative investments ("títulos valores, activos fijos, y otros bienes") and study the possibility of issuing bonds.
- Outside Country Z:
 - Identify the main problems that international organizations address, the assistance they offer, and the potential role Y can play vis-à-vis these organizations;
 - Identify donor organizations interested in financing projects in country Z, similar to the projects developed by Y (specify in detail each organization's requirements);
 - Recommend international events where Y can meet with international and financial donor organizations, in a way permitting closer relations that increase the likelihood of subsequent financial cooperation (establish a calendar of events);
 - Identify the countries/organizations that offer training and TA; and
 - Detail the effective negotiating procedures for capturing funds from international donors.

*At least in the sense that these scopes of work make no reference to the need to look to where the market is for the types of services the organization can provide.

Table 3. Sustainable Private Agricultural Research: Five Lessons Learned

| Issue | Question | Conclusion | Lesson Learned |
|--|--|--|--|
| <p>A. Organizing a Demand-Driven Research Program</p> | <p>1. Progress toward Demand-Driven Research</p> | <p>The sustainability of an AID-assisted non-profit private sector agricultural research organization depends on the organization's ability to develop a research program that is demand-driven (i.e., market- and client-oriented).</p> | <p>#1: Certain areas of agricultural research will not be funded by the private sector; hence such areas remain a public sector responsibility. This, however, does not imply that research in these areas can be implemented only by the public sector. To the contrary, the track record suggests that the management and administration of donor funds supporting such research potentially can be carried out more effectively by a private sector organization than by a public sector agency.</p> |
| | <p>2. Efficacy of the Research Model</p> | | <p>#2: The change in AID's development assistance policy in the 1980s toward creating and supporting private sector organizations reflected a supply-driven assumption--"If we fund it, it will become sustainable." In retrospect, even as AID funded these organizations at levels higher than the host countries could sustain based on national-level (public and private sector) resources, inadequate attention was paid to helping the assisted organizations to develop a "demand-driven" approach to sustainable agricultural research capacity.</p> |
| | | | <p>#3: The sustainability of an organization's agricultural research program is interrelated with the greater problem of the sustainability of the organization itself; hence more attention must be given to developing a market- and client-orientation <u>and</u> improving internal management.</p> |
| <p>B. Developing a Sustainable Research Program</p> | <p>1. Progress toward Sustainability</p> | | <p>#4: Development of a sustainable capacity for demand-driven technology generation and transfer requires that technology beneficiaries play an active role in setting the research agenda and that they provide at least some of the funding required to support implementation of the research.</p> |
| | <p>2. Determinants of Sustainability</p> | | <p>#5: Sustainability must be chosen and achieved by the assisted organization. This is best achieved by allowing responsibility for allocation of resources to reside with the principals of the organization. Micro-management of an assisted organization by the donor or the entity's own Board of Directors can deprive the organization of the opportunity to choose to be sustainable. An organization that is deprived of the freedom to fail will be severely hampered in terms of its chances to succeed (i.e., become sustainable).</p> |

A. Lesson Learned #1

Certain areas of agricultural research will not be funded by the private sector; hence such areas remain a public sector responsibility. This, however, does not imply that research in these areas can be implemented only by the public sector. To the contrary, the track record suggests that the management and administration of donor funds supporting such research potentially can be carried out more effectively by a private sector organization than by a public sector agency.

Discussion continues in many LAC countries regarding whether agricultural research is a "public good" and what role, if any, the public sector should play in "financing" and/or "implementing" agricultural research. The track record demonstrates that the private sector, given its profit orientation, will not invest in certain research areas and that research will not be conducted in these areas unless it is financed by the public sector or donors. Thus, the question of the level of public sector (government) or donor support for agricultural research is a separate issue from that of who actually is best qualified to implement or coordinate the implementation of the research. In other words, the cliché that agricultural research is a "public good" does not imply that such research must necessarily be implemented by a public sector agency, only that certain areas of agricultural research will not be funded by the private sector, hence the funding of research in these areas remains a public sector responsibility, regardless of whether the research itself is implemented by the public or the private sector.

FUNDAGRO and JADF generally do not implement research; their role has been to help the public sector (the country-specific "National Agricultural Research Institute" and universities) to design and implement agricultural research. In other words, these AID-assisted private sector organizations have supported the implementation of donor-funded projects by managing and administering the investment of donor funds that are allocated to research project implementors in the public sector. At the same time, where an AID-assisted private sector organization can identify potential private sector clients and funding sources, these organizations, like Fundación Chile, have the flexibility to be responsive to opportunities to earn income by doing research for private sector clients.

Thus, the question of whether an agricultural research program is to be implemented by the public sector or the private sector is far less important than the question of whether there are adequate incentives for the implementing agency to perform sustainably. Where public or donor funds are managed by an AID-assisted private sector organization such as JADF or FUNDAGRO, the organization is more likely to perform successfully--and sustainably--if the managers of the organization perceive that it is in their interest to respond to the client's (public sector or donor) interest. This can be achieved by the public sector: (1) ensuring that the public interest is defined in a way that it is understood by the private sector; and (2) contracting with the private sector TG&T provider to respond in a timely manner.

To a limited extent these principles are seen to operate in the TG&T programs of the JADF and FUNDAGRO. In both cases, AID as donor entered into a "cooperative agreement" (a form of "written contract") that spells out what is expected of the cooperating organization (JADF or FUNDAGRO). The agreement provides for a measure of accountability (e.g., right of the funding agency to audit the organization's financial records). Also, the agreement and associated funding provides the cooperating organization with the flexibility to hire the most qualified staff. It is widely known that organizations such as FEDERACAFE, Fundación Chile, JADF, and FUNDAGRO, have the flexibility to pay salaries that are significantly above those that can be paid if the same individual is an employee of a public sector agency such as the Ministry of Agriculture. Hence these organizations are able to attract and retain high calibre professionals.

Further, as is the case with JADF and FUNDAGRO, both cooperating organizations have utilized the "competitive research grant" as a mechanism for allocating research resources both to specific research problems and to the potential implementors of the research. Also, where these AID-assisted organizations have matching grant programs (e.g., ARF in Guatemala, CINDE in Costa Rica, and FUNDEAGRO in Perú), this mechanism serves both to attract private sector funding from interested farmers and agribusinesses that can afford to pay for research and to help ensure that the available matching grant funds are allocated to market- and client-relevant research problems.

In short, the "rules of the game" in each case provide at least a modest approximation toward getting the right structure of performance incentives into the TG&T system. Further, the FUNDAGRO experience demonstrates that an A.I.D.-assisted private sector organization can develop an independent capacity to identify research funding opportunities and to write "winning" project proposals that attract grant or contract funding. Thus, while FUNDAGRO's research role primarily has been that of a facilitator rather than an implementor, the organization is not simply a "pass through" bureaucracy. On the other hand, while the JARP has been successful in terms of remaining a small unit within the larger JADF, providing essential research coordination and funding of research carried out by other organizations, there is considerable room for improvement in terms of attracting a broader range of funding from public, private, and donor sources.

The bottom line is that, while AID-assisted organizations can play a useful role in coordinating the implementation of public sector research or, in some cases, actually implementing the research, the prospect of continuing to be able to perform these functions on a sustainable basis is brought into question when the prospect arises that a primary donor such as AID is going to reduce and/or terminate its funding support. Hence such organizations must look carefully at the types of research that are needed and identify who is the client that is in a position to provide funding for the implementation of each type of research. Ultimately, as is argued below, the sustainability of these organizations will depend on their ability to develop a capacity to attract a mix of donor, public sector, and private sector funding of sufficient size to cover the organization's operating costs, and to use these funds in a way that provides for maximum leverage of other public and private sector investments.

The implication for a donor organization such as AID is that care must be exercised that AID's assistance to organizations such as FUNDAGRO and JADF is structured in a way that provides incentives for these organizations to become agile not only in attracting funds but also in ensuring that the funds are spent are allocated to those areas where the assisted organization has comparative advantage. For example, absent the public sector fully funding FUNDAGRO to implement an applied research program on basic grains, FUNDAGRO needs to be careful that its limited donor funds for research on basic grains are allocated to leverage the maximum participation of public sector resources assigned to this problem area. On the other hand, if FUNDAGRO is to be sustainable beyond the life of a donor-funded project, the organization must also cultivate opportunities to capture revenue from other income sources, both by expanding the portfolio of donor-funded projects and by increasing the number of contracts with private sector clients who will pay for specific goods and services that can be most cost-effectively provided by an agricultural research organization.

B. Lesson Learned #2

The change in AID's development assistance policy in the 1980s toward creating and supporting private sector organizations reflected a supply-driven assumption—"If we fund it, it will become sustainable." In retrospect, even as AID funded these organizations at levels higher than the host countries could sustain based on national-level (public and private sector) resources, inadequate attention was paid to helping the assisted organizations to develop a "demand-driven" approach to sustainable agricultural research capacity.

During the 1980s, AID became increasingly discouraged trying to implement projects through public sector counterpart organizations (e.g., Ministries of Agriculture). This led AID to begin to allocate resources to the creation and support of new private sector organizations charged with various mandates (e.g., promoting non-traditional agricultural exports). While these resources were allocated during a period of declining donor and public sector resources, it is surprising that the assisted organizations did not realize earlier that they could not live forever off of the funding available from a single donor and that the first thing they would need to do is diversify the funding base of the organization.

Both Fundación Chile and FEDERECAFE sought to be self-sustaining with a view toward the "long haul." In spite of the fact that FCh had a relatively enormous *patrimonio*, the organization never considered this to be a bottomless source of financing but rather sought to preserve the endowment by identifying market-oriented income-generating activities. FEDERECAFE, in a slightly different vein, was created to ensure the sustainability of coffee revenues in Colombia, which in turn ensured the sustainability of CENICAFE (i.e., its activities were definitely market-linked). By contrast, in donor-assisted organizations, donors may have mistakenly given the impression that development assistance funds would be there forever; indeed, the ease with which AID made funding available probably provided little incentive for assisted organizations to be aggressive in identifying and cultivating other potential opportunities for research funding. Adding to this inertia was the donor's typical project cycle which contributed to short-term thinking both on the part of the donor (as director of activities) and the recipient institution.

Thus, donor assistance may have been dysfunctional to the development within the assisted organization of a capacity to be "demand-driven," that is, a capacity to identify income-earning opportunities and be sufficiently agile administratively to qualify for and receive available funding. In the effort to create private sector vehicles to avoid the problems experienced with public sector projects, AID all too frequently created organizations that could not be sustained by the host country and, given available donor funding, did not have an incentive to identify and cultivate local research funding opportunities responsive to the technology needs of farmers and agribusinesses. Unfortunately, the wake up call to AID and the assisted organizations often has come at a late date, with the end of funding under a current project coming within a matter of months or a year or two at most. This has left AID and the assisted organizations relatively little time to shift gears. Available funds that might more productively be allocated to cultivating "new business opportunities" (i.e., new projects) already are "committed" to other project goals. If the process of downsizing has started, the remaining personnel already have increased workloads, since they now must cover the research projects of colleagues already discharged or released to other tasks. So much to do, so little time, and no one really knows what can be done to generate new income to keep the organization going past the end of the donor-funded project.

While AID gave a clear message that these organizations must become sustainable, there has been a dearth of expertise and relevant experience to help these organizations become sustainable. Thus, the affected organizations, in their search for sustainability, have tended to try to identify other donors that could provide the "supply" of funding needed to keep the existing organization going. Rather than going to clients with potential research interests in the private sector, these organizations have continued to turn to outside funding agencies. But developing a sustainable capacity for demand-driven agricultural research requires more than simply a donor providing funding to create a new private sector organization to pass development assistance funding on through to the research implementors.

Indeed, AID-assisted organizations, beyond the project funding received to cover program and operating costs, all too often have experienced only limited progress in attracting non-AID funding. What is needed instead is a "demand-driven" approach in which the organization (1) identifies potential market opportunities for investment in agricultural research, the clients (private sector, public sector, or donor) interested in investing in technology, and those opportunities for which the organization has the greatest comparative advantage; and (2) develops project proposals aimed at capturing available funding. Further, if the potential client or clients are in the private sector, the organization may need to approach an organization representing the client (e.g., a producer association) to explore the possibility of the association approving the allocation of check-off funding to the research organization.⁷

⁷A check-off system is an institution that provides procedures whereby a small percentage of the revenue generated by the sale of a commodity can be withheld and channelled into a fund controlled by an association that represents the producers of that commodity. In turn, the producers association votes on how the generated funds are to be used or this decision is made according to legal arrangement. Where a check-off system or producer association do not exist, the private sector agricultural research organization could allocate funding to the task of assisting producers to establish an association and check-off system.

C. Lesson Learned #3

The sustainability of an organization's agricultural research program is interrelated with the greater problem of the sustainability of the organization itself; hence more attention must be given to developing a market- and client-orientation and improving internal management.

While this study's resources precluded a detailed financial analysis of the private sector organizations reviewed, it is clear that these organizations cannot be sustained at their current levels without a continuing influx of funding. The current level of research in CENICAFE can be sustained only if the earnings from Colombia's share in the international coffee market can be sustained. Fundación Chile cannot be sustained unless its earnings exceed its expenses, this being achieved by continuing to be successful in identifying and developing marketable projects for a variety of commodities. If Fundación Chile does not identify new income streams to fund its research program, that program could be sustained only by drawing down on the foundation's *patrimonio*, that is, by eating into the corpus of the foundation's original endowment. Similarly, the AID-assisted organizations cannot be sustained at their current levels unless they can attract alternative funding to substitute for the AID project funding that has been their primary source of funds. However, absent such alternate funding, these organizations can only be sustainable if they cut costs and operate at a lower level of expenditure that is sustainable based on the resources available.

An EXITOS (PROEXAG II) ongoing evaluation of several AID-assisted private sector export support organizations found that user fees alone have not been sufficient to ensure financial sustainability. Several entities were established with some sort of "endowment"-- e.g., in the case of FHIA, a multinational (United Fruit) donated its La Lima facilities for the establishment of FHIA, while AID and the Government of Honduras have negotiated to contribute PL-480 funds for an endowment (Hansen, 1990). But these entities have not been able to get more than 30% of their annual budgets from contract research and the sale of services or inputs (e.g., seeds) (personal communication, John Lamb). This suggests that these entities, whatever their size, need an endowment "to cover 60% of the annual budget from passive income" (personal communication, John Lamb). Regardless of the accuracy of this figure, establishing such endowments currently is part of the sustainability strategy being implemented by several AID-assisted private sector organizations.

But the experience of organizations like Fundación Chile suggests that the sustainability of the AID-assisted non-profit private sector agricultural research organizations would be enhanced if they were to supplement their endowment and/or user fee revenues by adopting a market-oriented, client-responsive approach. At the same time, these organizations should adopt proven mechanisms for efficient organizational management. Outlined in greater detail in Annex 2, these mechanisms include steps for determining direct vs. indirect costs and calculating a provisional overhead rate; developing systems for budget monitoring, reporting, and projecting; providing oversight; establishing systems for new business development; and developing communication and human resource development systems.

Implementing the mechanisms outlined in Annex 2 would have the expected impact of increasing both the productivity and the sustainability of a private sector agricultural research program. Improvements in productivity would translate as increased cost efficacy, greater attractiveness to potential funding sources and, thereby, greater potential for sustainability.

Fundación Chile has been successful in implementing a rigorous cost accounting system which is monitored closely by the Board of Directors and department managers. This produces several advantages: it provides a clear set of "lessons learned" in regard to unprofitable/profitable activities, allows the managers to have constant scrutiny over budget allocations, provides the basis for developing future budgets, and orients the Foundation toward profitable activities, while pointing the way to eliminate unnecessary budget drains. In short, it is a management tool for making business decisions. Further, as each employee is required to participate in the record keeping for this system, the responsibility and awareness for increasing profitability is disseminated throughout every level of the organization.

A major step toward sustainability in AID-assisted private sector organizations could be taken by establishing procedures to identify the organization's direct costs, defined as the costs specifically related to an output or product (e.g., a research result, an adapted technology, a conference). Indirect costs, by comparison, are those which must be incurred by an organization but which are not specific to producing any particular product or output. Such procedures would include the adoption of a cost accounting system that permits establishing cost codes for the various projects and activities in which the organization's staff are involved, with the appropriate cost codes being assigned to both direct and indirect costs.

For most AID-assisted private organizations in the LAC region, implementation of such a cost accounting system would require a change in the approach followed by these organizations to budget and manage financial resources. Most AID-assisted organizations currently operate under a "cooperative agreement" arrangement, in which the organization invoices AID for costs incurred each month under the various authorized line items established in the organization's cooperative agreement with AID. However, this approach does not require the cooperating organization to link its direct costs to outputs.

Given the pressures to move to self-sufficiency, a sustainability option for such an organization would be to "reinvent" itself into a project-based (rather than line item budget) organization. To make this conversion, the organization would translate its line item-based budget and reporting system into project budgets linked to specific outputs. This conversion can be facilitated by developing a "cross-walk" matrix, that is, a matrix with program and operating line items converted to direct and indirect costs along one axis and project-specific outputs along the other. The process is based on determining as many of the direct costs associated with a project's output as possible so that recovery of or at least the monitoring of these costs approaches a greater level of exactitude.

Indirect costs can be allocated to the various projects on an equal basis (i.e., each project pays a fixed share of the total indirect costs) or on a proportional basis (e.g., a percentage equal to the specific project's direct costs as a percentage of total direct costs for all project-specific outputs). The greater the percentage of total costs that can be documented as direct (i.e., client billable) costs, then the smaller will be the percentage of indirect costs, these costs being the basis for calculating the overhead that the organization must recover or the organization will soon decapitalize and not be sustainable. The lower the percentage of indirect costs, the more efficient the organization as reflected by the calculated overhead rate and the more attractive the organization to potential clients.⁸

AID-assisted private sector organizations (or AID Mission officers) could view establishing such a cost accounting system and applying the overhead rate (as a multiplier on client-billable direct costs to recover the client's share of essential but not directly billable indirect costs) as being "good in principle but not in practice." The perceived immediate constraint would be that most of these organizations' "present and future potential donors don't provide funds to cover indirect and overhead costs." Or the assisted organization's representative might voice the following attitude:

From the academic point of view it would be interesting to find our break-even point, but the hassle of getting all the necessary information is way greater than the benefits of doing so. All the direct costs attributable to a project are charged to that project only, but there are expenditures that fall in a gray area that cannot be charged to a specific project. The guards, the drivers, the accounting personnel [support] the whole institution's activity; where do we draw the line, and is this worth it?

This view, however, fails to recognize that the purpose of developing a cost-tracking system is not to develop a "neat and tidy" accounting system for accounting's sake; rather the purpose is to have at hand a system that will help the organization's managers to do a better job at managing, that is, at making decisions about the allocation of scarce resources.

Further, the attitude voiced in the quote raises the issue of the equity of one donor (e.g., AID) covering the bulk of significant "operational support" costs under a particular project's "cooperative agreement," while other donors "pick and choose" the costs they are willing to cover in conjunction with the project they are supporting, taking the position that they "don't provide funds to cover indirect and overhead costs." In effect, the real (or full) costs of the projects of such donors are being subsidized by the one donor (AID) that is willing to allow these costs under the "cooperative agreement" arrangement.

⁸To facilitate the recuperation of all direct costs, the accountant for the AID-assisted organization would develop a chart of accounts that indicates the cost or billing codes for all billable and non-billable costs, and circulate this chart to all the staff of the organization for their reference when implementing the cost-tracking procedures. Also, the accountant would prepare a spreadsheet template in which all of the project-specific budgets, once prepared by project leaders, would be consolidated. Formulae written into the template would estimate the organization's overhead rate--one that incorporates as many projected or estimated direct costs to be incurred during the coming year (e.g., 1993) as possible.

The problem becomes especially difficult when the one donor becomes unwilling or unable to cover an assisted organization's operating costs, inclusive of overhead. This creates a potential accounting nightmare for AID-assisted private sector agricultural research organizations. On the one hand, to attract AID project funding (e.g., to support the specific direct costs of a program that AID as a donor is interested in funding), the organization will need to be able to demonstrate an attractive indirect and overhead cost structure. To the extent that the organization presents an attractive cost structure, AID likely would be willing to pay its fair share. On the other hand, other donors currently are unwilling to foot a fair share of the full cost that must be covered in order to implement the donor's particular project. The importance of this issue points to the need for AID to encourage other donors to adopt a policy of sharing equitably in the indirect costs that must be covered if these organizations are going to be able to continue to implement each donor's projects.

The exercise of estimating an organization's overhead rate also will be useful in determining whether there will be a gap between the overhead that the organization thinks it can charge and what actually is needed to cover operating costs. Another way of saying this is that, upon completion of the exercise, the organization can examine its projected financial situation to determine the size of the gap, if any, between the overhead the organization believes it can generate on projects (and activities) carried out for the organization's clients and the level of funds actually needed to cover operating costs. Then, after several months of operation under the new accounting system that identifies to the extent possible all direct costs, the organization would recalculate its overhead (OH) rate. At this point, the whole cost accounting system can begin to serve as a management tool useful as a resource in making decisions about the allocation of resources.

At the same time, the organization should estimate the extent to which its operating costs, including both the direct costs and the indirect costs associated with sustaining the organization, can be covered on the basis of grant and/or contract funds. The sustainability experience of other private sector organizations [e.g., the Fundación Hondureña de Investigación Agrícola (FHIA) in Honduras] suggests that, in the case of a not-for-profit private sector agricultural research organization, unrestricted core grants and project overhead revenues may not be sufficient for developing self-sufficiency (Fernández, 1992). To be self-sustaining in the long run, such organizations must cut costs and/or develop independent sources of income such as can be provided by interest earnings on an endowment.

Similarly, an ongoing EXITOS (PROEXAG II) project assessment of the sustainability of several AID-assisted private sector export support and/or agricultural research organizations indicates that user fees have not ensured financial sustainability. Most of these entities were established with some sort of "endowment," often from a multinational (e.g., ITT's contribution of U.S. \$25 M to Fundación Chile and United Fruit's donation of its La Lima facilities for establishing FHIA) and/or A.I.D. (e.g., contribution of PL-480 funds for an endowment) (Hansen, 1990). EXITOS found that most of these entities have not been able to get more than 30% of their annual budgets from contract research and the sale of services or inputs (e.g., seeds) (personal communication, John Lamb). Whatever the entity's size,

there appears to be a strong case that these non-profit private sector organizations need to have an endowment of sufficient size to cover 60% of their annual budgets from passive income. This currently is part of the sustainability strategy being implemented by several AID-assisted private sector agricultural research organizations.

However, it would not be in the interest of an AID-assisted private sector agricultural research organization to assume that it could become self-sufficient solely on the basis of interest earnings from the endowment. Indeed, unless the endowment is of sufficient size, it may well be the case that endowment earnings would not be of sufficient magnitude to cover the scale of operating costs essential for the AID-assisted private sector agricultural research organization to continue to play a dynamic leadership role in the host country's technology generation and transfer system.

All things considered, the continuing or sustainable capacity of these organizations to exercise an agricultural research leadership role will depend on the ability of the organization to be responsive to the demand (market or client) by seeking out, identifying, and responding to the technology needs of potential private, public, and donor funding sources. In so doing, the challenge facing each organization is to develop a clear sense of what kind of operational style the organization is appropriate for ensuring the sustainability of an ongoing agricultural technology generation and transfer (TG&T) program. In name, many of the AID-assisted organizations are "foundations;" however, in terms of the arguments presented herein, the sustainability of these organizations in the long run will depend on their ability to develop a "lean and mean" operational style akin to a profit-oriented private sector consulting firm that "guarantees" its survival by adhering to proven organizational management mechanisms that enhance the organization's prospects of successfully winning one project after another. This holds true even if the AID-assisted organization is partially supported by earnings from an endowment, with the balance of its funding coming from the market--albeit private sector, public sector, and/or donors.

D. Lesson Learned #4

Development of a sustainable capacity for demand-driven technology generation and transfer requires that technology beneficiaries play an active role in setting the research agenda and that they provide at least some of the funding required to support implementation of the research.

The sustainability of AID-assisted private sector agricultural research organizations has become especially important to the extent that the public sector (government) increasingly finds it difficult to allocate resources to the "national agricultural research system." In such an environment technology generation and transfer (TG&T) providers find it increasingly impractical or impossible to depend on the former levels of government and donor support for public sector agricultural TG&T. To be financially sustainable, TG&T service providers must increasingly become oriented to helping the private sector (i.e., agricultural producers and agribusinesses) to acquire more efficient--and environmentally-sustainable--technologies

to address production, post-harvest handling, processing, and marketing constraints. This means that TG&T must become demand-driven, i.e., responsive not only to market opportunities but also to client needs and the client's willingness and ability to pay for TG&T services.

While a detailed financial analysis was not conducted on any of the organizations studied, FUNDAGRO's Executive Director points out that the issue of "sustainability" has been on "our agenda for the last three years" (personal communication, Jorge Chang). On March 10, 1992, FUNDAGRO's "strategic plan" was presented to the General Assembly. The core of the "strategic plan" is the objective of having "a well diversified portfolio of funding inflow in the future. We have been following this direction with success. By now we have over 15 new project proposals on line" (personal communication, Jorge Chang, FUNDAGRO). This, in comparison with the less favorable track record of other AID-assisted organizations, demonstrates the potential for private sector agricultural research organizations to market themselves aggressively in terms of identifying potential funding opportunities and going after available funding through the development of project proposals. An indicator of the aggressiveness of FUNDAGRO in going after potential funding opportunities is provided the organization's system (Box 3) for tracking the status of project proposal initiatives.

Yet TG&T providers cannot rely solely on the private sector as a potential source of funding for agricultural research. They also must be responsive to traditional clients such as the host country government and donors. Only by responding to the market-based needs of private clients and/or the policy-based needs of public sector or donor clients can TG&T providers develop the diversified funding base that is one of the key ingredients for financial sustainability. This potential market for agricultural research funding is depicted by the continuum shown in Box 4.

At the far right of the continuum, the TG&T provider can seek out opportunities with private sector firms to carry out applied research on problems (constraints) of priority concern. Here the research is clearly "demand-driven," i.e., tied to a commodity's performance in the market and the potential contribution research can make to producing technology that will increase the profitability of that commodity to the firm that is paying for the research.

At the continuum's middle, there may be opportunities to contract with producer associations (e.g., commercially traded commodities such as grains) or with private firms or government agencies (e.g., traditional exports) for research to address production, post-harvest handling, or marketing constraints. With commercially traded grains, a producer association can establish a cess (check-off) to capture revenue from the principal commodity grown by the association's members, and use a portion of this revenue to contract research. A traditional export commodity will generate research revenue. In either case, research would be "demand-driven" because it is tied with the relaxation or removal of constraints impeding the earning of a larger profit through the sale of the commodity in the market.

Box 3. The Proposal Pipeline: Potential New FUNDAGRO Projects

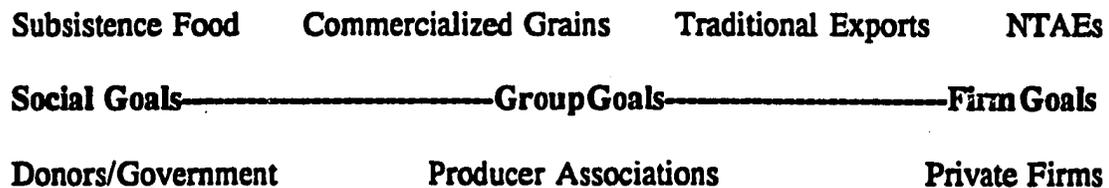
FUNDAGRO has initiated a monitoring system to track the development of potential projects and the status of proposals in the development pipeline. The table below illustrates the information tracked; a sample of the data recorded on each line is provided below the box.

| No. | Project Type | Funding Source | Estimated Funding | Steps Completed | Next Step | Staff Responsible |
|------|--------------|----------------|-------------------|-----------------|-----------|-------------------|
| 1 | | | | | | |
| etc. | | | | | | |

- No. = n = 19 (as of 3/9/92)
- Project Type: e.g., Promotion of Aromatic Cacao
- Funding Source: e.g., European Economic Community (EEC)/France
- Funding Amount: e.g., US\$ 3.3 million
- Steps Completed: e.g., Contacts with MAG and CIRAD (France)
- Next Step: e.g., Sign agreement with MAG and CIRAD (France)
- Staff Responsible: e.g., G. Enriquez

Source: Data provided by FUNDAGRO.

Box 4. The Potential Market for Agricultural Research Funding



At the continuum's left, a TG&T provider can seek out opportunities for the government and/or donors to provide funding to address priority social goals (e.g., food security); here research is "demand-driven" not because the commodity is sold in the market place but rather because of the policy priorities of the government or the donor that is willing to provide funding for research on the particular commodity. In effect, the research is tied to "demand" but the source of the demand is not the commercial market *per se* but rather the government's (or donor's) policy priorities. If either of these potential funding sources is willing to commit funding to research, such funding can contribute to the sustainability of the TG&T provider so long as the provider is able to cover indirect costs and possibly earn a fee for performing a research management or implementation function.

In short, TG&T providers need to identify the potential market for agricultural research and how such research can be organized to be responsive to market opportunities and client needs, recognizing that it is the client who controls the resources that potentially can be allocated to fund an agricultural research program. Continuing capacity to exercise this leadership role will depend on the ability of the organization to be responsive to the demand (market or client) by seeking out, identifying, and responding to the technology priorities of potential private, public, and donor funding sources, as well as by efficiently managing and administering income to the organization and the projects supported by that income.

The sustainability of AID-assisted private sector agricultural research organizations is analogous to a soccer team (Table 4). For a soccer team to succeed (i.e., a winning record), the team needs both good offense and good defense. In a similar vein, the sustainability of an AID-assisted private sector agricultural research organization depends on the organization having a good offense (i.e., aggressive funding diversification) as well as a good defense (i.e., tight internal fiscal management by applying proven organizational management techniques). Like a soccer team, the organization's team (i.e., employees) needs a forward line that is effective in scoring (i.e., cultivating funding opportunities), a back line to defend the organization's financial integrity (i.e., that expenditures do not exceed income), and a middle line to exercise tight internal management control over the organization's overall operation. Obviously, the specific quantity, type, and mix or diversity of funding available (or that can be tapped) will be an important factor in determining at what level (e.g., number of employees) the organization's research program can be sustained.

Obviously, the specific quantity, type, and mix or diversity of funding available (or that can be tapped) will be an important consideration in determining at what level (e.g., number of employees) the organization's research program can be sustained. For example, it is unlikely, without the initial AID grant of \$10 million and the subsequent GOH grant of PL-480 local currency generations for an endowment, that FHIA (Honduras) would be able to sustain its large physical plant and staff size. Even with these resources, FHIA went through a degree of restructuring and downsizing, as also was the experience of other AID-assisted organizations that faced an anticipated reduction of project funding from AID (e.g., CINDE in Costa Rica and FUNDEAGRO in Perú). On the other hand, an organization can support a small research program with a minimum of overhead costs (e.g., Guatemala's ARF). In the final analysis, the nature of the organization (i.e., a small research program vs a large research foundation) must be worked out in the light of the resources that can be brought to bear to sustain the research program and, thereby, the organization itself.

Table 4. Sustaining the Key to a Winning Strategy

OFFENSE: FINANCING AND DIVERSIFICATION

: TIGHT INTERNAL FISCAL MANAGEMENT

FINANCING AND DIVERSIFICATION SOURCES

APPLICATION OF PROVEN ORGANIZATIONAL MANAGEMENT TECHNIQUES

Research Grants and Contracts:

- Private Sector
 - Producer Associations
 - Agribusinesses
 - Large Commercial/High Value Crop Farmers
- Public Sector
- Donors

Income-Generating Activities:

- Sale of Commercial Crop (e.g., Rice)
 - Check-off (Cess) on Crop Produced by Growers
 - Sale of Crop Produced by Organization X
- Sale of Specialized Goods and Services
 - Goods (e.g., Planting Materials)
 - Services (e.g., Tissue Analysis)
 - Consulting
- Joint Venture Projects

Investments:

- Interest Earnings on Savings
- Earnings on an Endowment
- Rent Saved or Earned from Capital Infrastructure (e.g., own a building)

A. Finance and Administration:

1. Determine direct vs. indirect costs and calculate a provisional overhead rate;
2. Develop budget monitoring/reporting/projection systems; and
3. Ensure oversight

B. New Business Development--Create an internal system to manage and support new business development (i.e., capturing new funds for or contracts to administer research):

1. Create a Director of Project Development; and
2. Implement following systems and procedures:
 - a. Develop a standard proposal format;
 - b. Develop a budget template (spreadsheet);
 - c. Establish a filing system;
 - d. Select a team for each proposal effort undertaken;
 - e. Establish a tracking system to monitor the status of potential contract awards;
 - f. Hold a project proposal meeting on a regular basis; and
 - g. Make available a set of promotional materials

C. Communications:

1. Staff Meetings
2. File Circulation
3. Local Area Network (LAN)

D. Human Resources:

1. Bonuses
2. Training

See Annex 2 for detailed presentation of management techniques.

E. Lesson Learned #5

Sustainability must be chosen and achieved by the assisted organization. This is best achieved by allowing responsibility for allocation of resources to reside with the principals of the organization. Micro-management of an assisted organization by the donor or the entity's own Board of Directors can deprive the organization of the opportunity to choose to be sustainable. An organization that is deprived of the freedom to fail will be severely hampered in terms of its chances to succeed (i.e., become sustainable).

Over the years AID in its dealings with the JADF, FUNDAGRO, and other AID-assisted agricultural research organizations has had to make choices about what assistance or support is needed by an organization. This, in turn, often has led the Agency to focus its attention and efforts on inputs to institutional strengthening (i.e., technical assistance, training, computers, etc.) rather than on the outputs to be achieved (i.e., technology generated and transferred, technology adopted, productivity and incomes increased, etc.). What has become increasingly clear is that a donor's orientation to institutional strengthening, that is, the relative emphasis placed on inputs as compared with outputs, has significant implications not only for the design of an institutional strengthening strategy but also for the prospects of the strategy ultimately paying off at the output end of the process. Thus, the specific approach that a donor such as AID takes to the question of how to facilitate institutional strengthening ultimately is critical in determining whether an assisted organization will or will not develop a sustainable capacity for technology generation and transfer, at some point becoming independent of rather than dependent upon continuing donor support.

The question of the appropriate emphasis to place on outputs relative to inputs in an institutional strengthening strategy is sharply defined in the following analogy:

Honduras recently went through a very curious process, a process mirrored in recent developments in other Latin American countries. Much of the debate leading up to the recent Agricultural Modernization Law revolved around what to do about land reform beneficiaries. To the country's credit, both the traditional "productive" sector and *campesino* organizations (representing land reform beneficiaries) participated actively in the formulation of the provisions of the law. Initially, the *campesino* groups argued vociferously for maintenance of the protection they had traditionally enjoyed under land reform legislation. As the negotiations progressed, however, the *campesino* leaders came to realize that many of the protection were in fact a strait jacket. Although no one could evict them from their lands, the state had imposed so many conditions on land use and transfer that, in effect, they lacked the ability not only to fail but also to succeed. In the end, therefore, the *campesino* leaders wound up taking the position that they, too, wanted to be "producers" and, for that purpose, would relinquish the privilege of being treated as a special class. In sum, they concluded that the only way they could succeed was if they had the liberty to fail (personal communication, James T. Riordan).

While this analogy may not apply in all cases, many or most AID-assisted private sector agricultural research organizations often have found themselves in the same position as the Honduran *campesino*. These organizations, under their "cooperative agreements" with AID, all too frequently have required AID approval for many individual expenditures, with AID closely monitoring such expenditures, if not also the supported activities. This is not really a problem when an assisted organization is just getting itself up and running; however, over time, continuing donor involvement in decision making and approval of expenditures will become counterproductive to the goal of the assisted organization maturing into a self-sustaining technology generation and transfer organization. Specifically, for this not to occur, the assisted organization needs to get into the habit of assuming responsibility and accountability for making its own decisions, with the donor holding the assisted organization accountable for producing a desired output or results and not second-guessing how resources would be best spent to achieve the target outcome.

If the objective is to develop sustainable technology generation and transfer capacity--sustainable without continuing subsidization of operating costs by an external donor, decisions about resource use on donor-funded project X must be the assisted organization's decision, not AID's, to make. If the assisted organization is to become a mature, i.e., self-sustaining, institution, it needs the liberty both to succeed and to fail. The practical implication for future dealings between AID and the assisted organization is that AID must lower the profile on inputs, while bringing a performance-oriented approach to the fore. Thus, when an assisted organization faces making decisions about resource allocation, the decision should be one that the organization has the liberty to make. A donor jumping in to force a particular outcome (one way or the other) is analogous to the Honduran government telling *campesinos* they cannot sell or rent their lands. Under previous legislation, the Honduran government told the *campesino*, in essence, "we know better than you do." How often have AID missions come across to assisted organizations in this manner? After establishing a cooperative agreement for an organization to implement project X, how often has AID turned around and told that organization, in essence, "we don't trust you"?

⁹A recent Center for Development Information and Evaluation (CDIE) assessment concluded that "A.I.D.'s in-country presence" tended "toward a paternalistic approach that thwarts recipient governments' ability to handle their own affairs" (CDIE, 1993:3). The assessment team's overarching concern was A.I.D.'s

inadequate planning for transition to self-reliance by countries in the management of their development efforts. . . . A.I.D. is in the business of assisting recipient nations to achieve their development objectives. A.I.D. Missions therefore should be specifically planning, which they are not, for the transition of these nations to self-reliance" (Thompson-Dorman, 1992:3).

Was the pattern followed by A.I.D. in its dealings with host country governments repeated by the Agency in its dealings with assisted non-profit private sector agricultural research organizations? In other words, was AID not specifically planning for the transition of the assisted private sector organizations to self-reliance (i.e., sustainability)?

IV. Programming Implications

Past AID support for non-profit private sector agricultural research organizations in the LAC region generally has been supply-driven; that is to say, AID's assistance has tended to emphasize supply of technology to increase agricultural productivity rather than ensuring that the research focuses on developing market-relevant technology. In the process, AID and the assisted organizations have been more preoccupied with managing and disbursing project funds than with developing a demand-driven approach to agricultural research that would place highest priority on helping assisted organizations to identify and provide marketable services that would enhance organizational sustainability. In effect, this supply-driven approach to technology generation and transfer loses sight of the outputs the assistance was intended to achieve, with both donor and assisted organization becoming bogged down in micro-management of project inputs.

A demand-driven approach, in contrast, requires the donor to focus on the outputs to be achieved, with the assisted organization held accountable to manage its resources so as to achieve the desired output on a sustainable basis. From the outset, attention must be paid to sustainability, that is, to establishing and maintaining: (1) a market- and client-oriented research; and (2) an organizational management capacity that provides the organization with data useful in making business decisions and allocating resources (e.g., see the organizational management mechanisms in Annex 2). At the same time, if the management process fails to ensure that some of the organization's resources are used to identify new business opportunities (e.g., research projects) that are of value to potential clients and to capture the required resources from clients who can provide some of the required funding, then the organization cannot be sustainable. Even endowment earnings, unless from an endowment with a large corpus, will likely be insufficient to ensure coverage of all of an organization's operating costs; the balance of essential operating costs must be covered through other revenue sources or the organization will need to cut costs if it is to be sustainable.

In short, the SPARLAC study points to a demand-driven (market- and client-oriented) approach as the key to sustainability. If an AID Mission chooses to assist in funding a private sector organization in the Mission's host country, the project design process would be well served by taking advantage of this study's lessons learned. These suggest that sustainability--and how to achieve it--should be a target objective in programming donor assistance aimed at strengthening private sector agricultural research organizations. While the study has identified the role that these organizations can play as catalysts for agricultural technology generation and transfer (TG&T), the study also makes the case for a demand-driven (market-led and client-oriented) approach to developing sustainable TG&T capacity. This approach is essential to ensure that agricultural TG&T are organized to respond to demand and that the prospects for attracting research funding support are enhanced.¹⁰ By contrast, if AID's programming and management decisions ensure that an assisted organization does not have the freedom to fail, the probability is increased that the organization will never succeed, that is, become self-sustaining (see Lesson Learned #5).

¹⁰Other opportunities for AID to support demand-driven TG&T are identified in Byrnes (1993).

V. A Final Word

Some could argue that AID funding of private sector agricultural research organizations such as the JADF/JARP and FUNDAGRO actually contributed to the further weakening of public sector research organizations (e.g., by hiring public sector scientists to become foundation administrators); further, it could be argued that AID, instead of "reinventing" public sector agricultural research organizations, could have bypassed them by creating "rich sisters." The actual record, however, as revealed by the case studies of the JADF and FUNDAGRO suggests, to the contrary, that AID-assisted private sector agricultural research organizations have in only a few years played a major role in helping to revitalize the agricultural research, extension, and education systems in these organization's respective host countries, stimulating these systems to higher levels of integration, cooperation, and productivity in technology generation and transfer. Generally, these organizations do not conduct the actual research but play a catalyst role in facilitating the coordination of research carried out by scientists in public sector agricultural research institutes and/or universities. Yet several cautions are in order.

First, these private sector agricultural research organizations have an important role to play in complementing--not substituting for--the research efforts of universities, public institutes, and private firms. To be sure, the private sector agricultural research organizations, with their limited resources, cannot do everything. Indeed, absent public sector and/or donor funding, these private organizations do not and likely will not have the funding needed in order to carry out basic and strategic research, with their comparative advantage lying in the implementation or coordination of the implementation of applied and adaptive, market-driven research. The question remains: Who is going to fund and implement the basic and strategic research required to generate public-good (biological, agronomic) technologies that may require a strictly "non-cost recovery" institution?

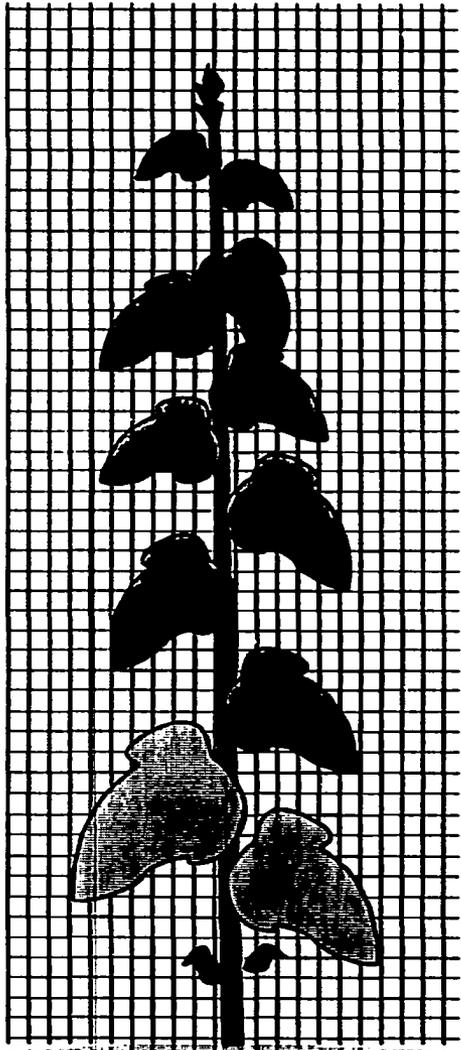
Second, while both FUNDAGRO and JADF have made significant progress in organizing research to respond to the needs of potential clients, much yet remains to be done in terms of (1) getting each donor to pay its fair share of the overhead of the organizations for which AID has been the primary source of operational funding support, and (1) consolidating financial sustainability (e.g., expanding the client-financed project portfolio to include greater private sector participation). Indeed, the experience of organizations not assisted by AID (i.e., FEDERACAFE and Fundación Chile) provides strong evidence that an organization's ability to attract research funding is closely linked with its ability to make its research program demand-driven, that is, its ability to organize its research program so that it is responsive to market opportunities and client needs. In short, establishing a market link (i.e., commercial sales, cess) or at least a market orientation will help to ensure a sustained flow of the funding needed to support the direct and the indirect costs of an organization's research program.

Third, because the AID-assisted LAC countries are only a subset of all LAC countries, one should remember that extrapolations can be hazardous. Yet when it comes to the specific issue of sustainability, it would appear to be fairly safe to conclude that there is much that can be learned from the experience of the four case study organizations reviewed herein, lessons that can be productively taken to heart by other AID-assisted private sector agricultural research organizations in search of improved performance not only in technology generation and transfer but also in attracting the funding support essential for a sustainable financial base. Indeed, the lessons learned probably also could be applied to improve the funding and management of public sector agricultural research organizations.

In 1989, the motion picture "Field of Dreams" made famous the line--"If you build it, he will come." In a parallel vein, this "cross-cutting analysis" suggests that each project proposal written by an AID-assisted private sector agricultural research organization is a recognition by that organization that sustainability depends on the organization's efficacy and efficiency in responding to an identified market opportunity and a potential client's need for technology to exploit that market opportunity. Each proposal is a declaration that the organization can play a role in helping the prospective client to meet the identified technology need. Each proposal is a commitment to the role that the organization can play in helping the host country's agricultural research, extension, and education system to carry out productive technology generation and transfer responsive to the client's technology need(s). In the last analysis, each proposal that is successful, that is, that results in a grant or contract awarded, is a reaffirmation that: "If you organize research to respond to the demand, the funding will come" (Box 5).

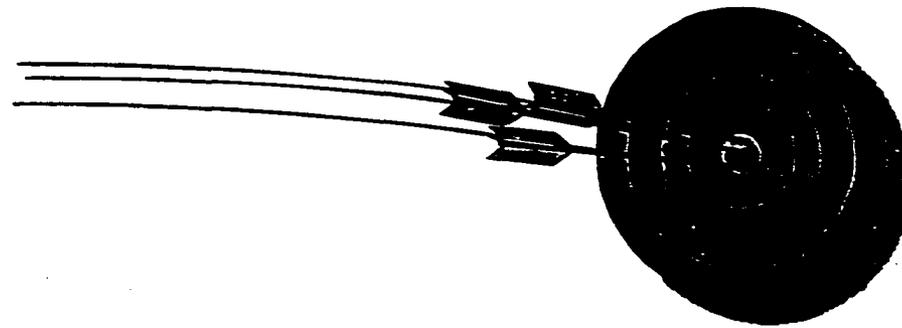
Some AID-assisted organizations are making significant progress toward building their own "Field of Dreams," while others, in their quest to establish endowments as the "magic bullet" for sustainability, may at best be engaged in "flights of delusion." It is hoped that the present "cross-cutting analysis" (and its supporting set of four case studies) provide useful guidance to other AID-assisted private sector agricultural research organizations now seeking their own "Field of Dreams."

Box 5. "If You Build It, He Will Come."



"If you build it, he will come."

Field of Dreams, 1989



**"If you organize research
to respond to the demand,
the funding will come."**

SPARLAC, 1993

Annex 1. Summary of Case Study Findings

This annex provides a summary of the key findings from the four SPARLAC case studies-- FEDERACAFE, Fundación Chile, JADF, and FUNDAGRO (the individual case studies are attached or available from LAC TECH on request). Each case study focused on two broad issues --organizing a demand-driven research program and sustainability of the research program. Within each of these two issues, the case study focused on two more specific questions. Within the first issue (organizing a demand-driven research program), the study looked at two questions: (1) To what extent is each organization's research agenda demand-driven? (2) Looking across the four organizations, is there evidence that one type of private sector institutional model is more effective in technology generation and transfer (TG&T) than another? Within the second issue (sustainability of the research program), the study looked at two questions: (1) What progress has each organization made toward sustainability? (2) What are the determinants of sustainability; in other words, what factors contribute to enhancing sustainability of private sector agricultural research?

A. Organizing the Research Program

1. Progress toward Demand-Driven Research

a. FEDERACAFE

FEDERACAFE's coffee research program, closely linked to the coffee market, is demand-driven. The program's research agenda responds to current and anticipated coffee production and marketing constraints, with coffee growers, through their federation representatives (i.e., the Congress) participating in the process of formulating and approving the research agenda. Further, in coffee diversification research, the federation has done a characterization study of the coffee growing region in order to identify which areas are most ecologically suited (i.e., have comparative advantage) for growing crops for which there is market demand. The research agenda includes solving coffee growers' problems (problem-solving, client-oriented research), anticipating coffee growing problems (as perceived by researchers), and identifying new diversification opportunities to develop the productive capacity of the coffee zone (coffee guild leader's perception). Because FEDERACAFE depends for its income on revenue generated through coffee sales, the coffee market is a predominant factor in the setting of FEDERACAFE's research agenda. In short, FEDERACAFE's research program may be characterized as market-linked.

b. Fundación Chile

Virtually all of Fundación Chile's research is both directly and indirectly linked to perceived market opportunities. Although the foundation was not established as an agricultural research institution *per se*, shortly after inception the research component(s) of the foundation's activities evolved toward agriculture and agro-industry, in recognition of agriculture comprising Chile's comparative advantage in the world marketplace. The foundation's research agenda is demand-driven, largely by market requirements but also by direct consumers (i.e., farmers and processors) of foundation services. The research agenda includes determining global market requirements; solving specific grower agronomic and/or post-harvest problems; adaptive research for specific industries (e.g., berries, aquaculture); developing new products; and implementing quality control programs for Chilean producers of various products. An overriding research priority is to

continue to explore and identify areas in which Chile has comparative advantage for domestic, regional, and global markets. Technological research then follows in these identified areas, either by the Foundation itself, or through contracts with the Chilean entity best suited to do this work (e.g., field trials by agricultural universities). In contrast to FEDERACAFE's research program that is linked closely to the coffee market, Fundación Chile's research program is not linked to any specific commodity but rather is best characterized as market-oriented.

c. Jamaica Agricultural Development Foundation (JADF)

JADF has taken steps to move the Jamaica Agricultural Research Program (JARP) toward being demand-driven. As compared with FEDERACAFE (Colombia) or Fundación Chile that do not have any mandate to address the problem of strengthening agricultural research capacity in either country, JARP was established with a supply-driven mandate "to revive agricultural research in Jamaica and to assist in bringing agricultural productivity in the country to levels comparable to those of other Latin American and Caribbean countries" (Wilson, 1993:1). With this in mind, the JARP supports "the pursuit of agricultural research for improved efficiency and production," with the objectives of (1) increasing agricultural productivity by introducing or developing new methods, techniques, and materials..."

While the JARP focuses on commodities identified as priority commodities, a sustainability assessment (Baird, et al., 1992) of the JARP raised concern about the program's setting of research priorities, noting that Jamaica needs a "soundly conceived prioritization" of research needs. Within the general commodity priorities of the existing research program, the JARP receives proposals from producers and researchers for limited funding under a competitive research grants program. This aspect of the JARP's mandate is considerably more demand-driven, as this competitive research grants program primes the JARP "to focus on the needs of farmers and to respond to them" (Wilson, 1993:1). Indeed, the competitive research grants mechanism points the JARP in the direction of addressing "the constraints that lower...efficiency and prevent...local products from being competitive in the international market place" (Wilson, 1993:1).

Even if the JARP sustainability assessment team questioned JARP's commodity research priorities, it is important to note that these priorities were selected to favor the resource-poor farmers who comprise the majority of the country's agricultural sector, with the priorities established in the following order: local/ethnic foods, forages, fruits, ornamental horticulture, farming systems, and aquaculture. Each year new research areas and targets are selected at the Annual Retreat of the JARP Research Advisory Council (RAC). At these retreats, the RAC reviews

the economy of the country in its relation to agriculture...and attention is directed to areas in which urgent attention seems needed. Among the examples of shifts in focus to accommodate problems needing urgent attention are: ring spot disease of papaya which appeared unexpectedly in 1990 and was brought under control by an eradication operation that seems to have eliminated the disease and saved a major foreign exchange earning enterprise; in efforts to save the anthurium enterprise, a substantial amount of resources have been appropriated for developing technology for controlling bacterial blight disease which has reduced the area under production by 50%; and most rewarding, has been the efforts directed at introducing ornamental production to small farmers through an orchid production experiment (Wilson, 1993:3).

One additional factor also creates an incentive for JADF's agricultural research program (JARP) to be market-oriented. Specifically, the JADF, in its capacity as an agricultural financing institution, is concerned that scarce resources are invested in agricultural ventures that will bring a profitable return. This factor creates pressure for investments in agricultural research to be practical rather than simply academic.

In short, the JADF's JARP is moving toward being demand-driven, as a function of the research priorities defined in light of the country's economic situation, the program's competitive research grants mechanism, and the JADF's concern that investments translate into profits for the borrower as well as the lender. However, the JADF's research program to date has not launched into revenue-generating ventures linked to the income-earning potential of any particular crop (a la FEDERACAFE vis-à-vis coffee) or any particular revenue-generating opportunity (a la Fundación Chile vis-à-vis salmon).

d. Fundación para el Desarrollo Agropecuario (FUNDAGRO)

Compared with the JADF (Jamaica) FUNDAGRO (Ecuador) has moved much further toward developing a demand-driven agricultural research program. First, the commodities that are the focus of FUNDAGRO's agricultural research program were selected on the basis of a commodity prioritization study that took into consideration numerous factors, including market potential. Second, FUNDAGRO manages a competitive research grants program, whereby producers, INIAP, and university researchers submit proposals for research on problems of priority concern in terms of removing or relaxing constraints to increased productivity and income. An important criterion of selection is that the proposals deal with demand-driven issues (market- or farmer-oriented). Third, more so in some of the commodity programs than others, FUNDAGRO emphasizes farmer participatory and system approaches in carrying out on-farm research, thereby enhancing the opportunity for research to be responsive to farm-level production constraints and farmer desire for increased income from associated crops.

The priorities of FUNDAGRO's research program initially were based on an agricultural commodities prioritization study that included, among other factors, market-related considerations. Within identified priority commodities, FUNDAGRO has played a leadership role in establishing research priorities and allocating funding to research implementors. However, experience under AID- and other donor-funded projects (e.g., W.K. Kellogg Foundation and IDRC) has shown that farmers seek not solely to increase income from a particular crop but rather overall income from their production systems.

Both the evaluation of the AID-funded Research, Extension, and Education (REE) project and the recent design work for a proposed Agricultural Sector Development project have recommended that FUNDAGRO's research program place increased emphasis on commodity-based systems (i.e., looking at the income-earning opportunities surrounding a lead commodity as compared with having the research program focus only on a single commodity). At the same time, FUNDAGRO also is considering the possibility of becoming a joint venture partner with private sector entrepreneurs interested in developing agricultural projects that could generate a revenue stream for the foundation, thereby helping the foundation to become more sustainable.

2. Efficacy of the Research Model

The study looked at basically two institutional models. Three organizations--Fundación Chile, JADF, and FUNDAGRO--nominally operate under a "foundation" nomenclature, while the fourth organization (FEDERACAFE) operates as a producer organization. As is explained in greater detail below, Fundación Chile and FEDERACAFE implement research, while also supporting or facilitating the implementation of research by other organizations (e.g., universities). On the other hand, the primary research role of JADF and FUNDAGRO has been to support or facilitate the implementation of research by other organizations, although each on occasion has taken on a direct role of implementing research.

a. FEDERACAFE

Responsibility for implementing FEDERACAFE's coffee research program lies with CENICAFE, an organizational unit within FEDERACAFE, while most coffee diversification research is contracted to other entities (e.g., universities). The success of CENICAFE's research program (e.g., developing a variety resistant to leaf rust) attests to the efficacy of CENICAFE as a model for private sector research.

CENICAFE has achieved a high degree of credibility in FEDERACAFE, credibility that has been strengthened by the organization's readiness to respond to grower needs. For example, the economic payback from CENICAFE developing a coffee variety ("Colombia") that is resistant to leaf rust disease has represented a considerable savings for growers in terms of reduced cost of chemical control and avoided losses.

CENICAFE's procedures to plan, execute, and provide follow up are considered fundamental to decision making on research priorities and, therefore, on resource allocation. This mechanism facilitates the requests for budget and the presentation of proposals to other organizations like COLCIENCIAS or international organizations that have provided funding for research on diversification products. Looking to maintain its credibility, CENICAFE does not give partial results or release technology that has not been validated fully. In short, the FEDERACAFE case clearly supports that establishment and maintenance of technology generation and transfer services will be more viable when these are linked to demand (i.e., the market and client concerns to exploit or protect that market).

b. Fundación Chile

Fundación Chile (FCh) has developed excellent facilities for research in agroindustry, agroprocessing, enology and viticulture, forest products, aquaculture, and market information. Foundation research programs operate on two levels: (1) demand basis, i.e., at the request of clients to solve specific problems; or (2) as a component within a "case." These two scenarios may overlap (e.g., a FCh case manager may decide that the desired research is less expensive and/or more appropriate if obtained from another institution, such as a university experiment station). Thus, the case manager is free to choose where to source the required research. On the other hand, one of foundation's primary research functions is to identify and prove new areas in which Chilean products have comparative advantage in the global market; in this context, the foundation carries out basic, applied, and adaptive research with its own laboratory facilities and staff.

The foundation will not disseminate research results unless they have proven, practical application. If adequate facilities are not available internally but exist elsewhere, the foundation will contract for the research (e.g., seed trials), this being consistent with the foundation's philosophy of not duplicating efforts undertaken elsewhere.

c. Jamaica Agricultural Development Foundation (JADF)

Compared with FEDERACAFE's CENICAFE or Fundación Chile, the mandate of JADF's agricultural research program (JARP) is not to implement (carry out) agricultural research but rather to serve as a catalyst (and supporter) of agricultural research implemented by other technology generation and transfer providers. Specifically, the JARP

does not normally implement or coordinate agricultural research. It serves mainly as a facilitator of research by funnelling ideas and funds into the system. . . . Although JARP devotes a substantial amount of its efforts to highlighting the problems of the agricultural sector and inviting other institutions to participate in the search for solutions it does not regard itself as a coordinating body" (Wilson, 1993:3).

JARP undertakes a "role in research implementation" on a limited basis "only when other institutions are unwilling or are judged incapable of assuming the responsibility effectively" (Wilson, 1993:3).

The JARP also has had an impact on education. "By creating training opportunities in its projects JARP has been improving the human resource base, an essential ingredient for improving research" (Wilson, 1993:3). JARP's activities also have addressed the problem of improving the environment for agricultural research in Jamaica:

JARP has assisted in forming the Jamaican Society for Agricultural Sciences (JSAS) through which a forum is provided for inter-changes between scientists and also between researchers, extensionists and farmers. In addition to seminars and workshops on special topics of interest to the sector the society hosts an annual conference at which scientific papers and posters are presented and discussed. The society also publishes JAGRIST (The Jamaican Agriculturist) and JSASSY, a journal and newsletter respectively (Wilson, 1993:3).

The track record to date indicates that JARP has been effective in carrying out the facilitator role not only in supporting research but also with respect to agricultural extension and education. This effectiveness is enhanced by the JARP's attachment to the Jamaica Agricultural Development Foundation (JADF) which,

through its commitment to improving agriculture and its high regard for efficiency in commercial agriculture which it supports through loan and equity participation, has aligned itself to agricultural research as the means through which the country can acquire the technology required for an agriculture that can become competitive in the international market place (Wilson, 1993:3-4).

d. Fundación para el Desarrollo Agropecuario (FUNDAGRO)

FUNDAGRO's strategy is not to implement agricultural research but rather to serve as a catalyst (and supporter) of agricultural research implemented by others in INIAP and the universities. The evidence indicates that FUNDAGRO has been effective in carrying out this

facilitator role not only in supporting research but also agricultural extension and education. In effect, FUNDAGRO's commodity programs, organized around specific commodities, have proven to be an effective means of providing supplementary resources for energizing and integrating the agricultural research, extension, and education functions. Further, given the deteriorated level of scientific capacity in INIAP (i.e., no Ph.D.s), the nine Ph.D.-level scientists working with FUNDAGRO are in a position to play a leadership role in Ecuador's technology generation and transfer system. Without the financial resources and scientific leadership provided by FUNDAGRO, Ecuador's agricultural REE system would be in danger of becoming non-functional.

FUNDAGRO has exercised its leadership role by assisting the GOE to lay the foundation for INIAP to become a semi-autonomous national agricultural research institute that would be less subject to political influence and, if adequately funded, would have the flexibility to pay more competitive salaries to agricultural researchers in the public sector.

B. Developing a Sustainable Research Program

1. Progress toward Sustainability

a. FEDERACAFE

Compared with AID-assisted private sector agricultural research organizations in the Latin America and Caribbean region (see JADF and FUNDAGRO case studies), FEDERACAFE's agricultural research program has not depended on any single donor project. Nor did any such project play a role in the creation of FEDERACAFE or its dependencies. While FEDERACAFE has obtained grant funding from various sources (e.g., COLCIENCIAS), the federation and its affiliated research dependencies such as CENICAFE primarily depend on the revenue from the sale of coffee to cover program and operating costs. Even though recent coffee markets have been depressed, CENICAFE has ensured continued funding for coffee and diversification research by making sure that research priority-setting is based on demand, that is, on being responsive to the coffee production and marketing problems of highest priority to the growers. This approach has proven to be more efficient than the traditional, supply (production)-oriented approach in terms of satisfying the technological needs of the country's coffee growers.

CENICAFE does not have any independent revenue source (e.g. an endowment) to ensure the availability of funding for its agricultural research program; the sustainability of FEDERACAFE's research program comes from maintaining a technology generation and transfer program that is perceived as credible by coffee growers, coffee industry leaders, other organizations within the industry, and the scientific community. This credibility comes from CENICAFE's total orientation toward the demand. In this regard, a subtle distinction can be made—technology generation and transfer (TG&T) in coffee is linked with the demand for coffee in the coffee market, while TG&T in diversification is oriented to actual and potential demand. The research plans of CENICAFE come out of ample consultation in which four groups participate—coffee growers, extensionists, guild leaders, and researchers. Excellent relations exist between research and extension.

b. Fundación Chile

In the beginning, Fundación Chile received a substantial endowment from ITT and the Government of Chile, albeit in tranches, the receipt of which were linked to "bottom-line" performance benchmarks. The first tranche's corpus was tapped to provide operating funds and, eventually, to purchase capital plant including a building and laboratory facilities. However, in keeping with early management philosophy, nearly all phases of the foundation's activities, including research, are self-financed. This is accomplished by user fees charged to ongoing cases/projects, joint ventures in which the foundation has an equity share, and outside clients (e.g., private producers and companies, the GOC, and regional development entities).

A relatively recent but significant and extremely successful financing source is the creation and subsequent sale of "demonstration" companies (e.g., salmon). Other revenue sources include earnings on investment made with the original corpus of funds. R&D efforts are financed by the foundation's overhead pool; however, research is undertaken only if an ultimate profit has been projected. Basic agricultural research *per se* is not part of the foundation's agenda. A testimony to the sustainability of the foundation's research program is that the entire *patrimonio* has increased over time from an original US\$ 50 M to more than US\$ 56 M currently. While a large portion of this increase came from the sale of companies (e.g., Salmenes Antartica, Procarne), research played a key role in developing the technologies to make these enterprises profitable and commercially attractive.

c. Jamaica Agricultural Development Foundation (JADF)

In the initial years of the JARP, the program depended heavily on USAID/Jamaica project funding, while the JADF itself was heavily dependent on PL-480 commodity sales to capitalize the foundation's investment fund. But the JARP also has been successful in garnering private sector support, mostly in kind (e.g., access to land, provision of inputs, etc.), from the farming community. Yet during the life of the JARP (as an AID-funded project), the JARP

did not seek additional funds mainly because [available] human resource[s were] limiting and many projects could not be handled because suitable qualified scientists were not available. However, the training effort has increased the number of scientists and JARP is now geared for expansion and is now in the process of launching a campaign to secure funds for an endowment that would ensure sustainability. The endowment would seek funds from the government, international and bilateral donors as well as local entities. The proposal has been drafted and negotiations are proceeding with the Government of Jamaica (Wilson, 1993:4).

Compared with other AID-assisted private sector agricultural research organizations in the LAC region (e.g., FHIA in Honduras), the JARP has operated with a small staff within an organization (JADF) that already has achieved sustainability. Thus, the JARP *per se* has not had to face the crisis that other AID-assisted organizations have in terms of cutting costs by restructuring and downsizing (e.g., Costa Rica's CINDE/División Agrícola in Perú's FUNDEAGRO). While the JARP "sustainability assessment" team concluded that "JARP has been a success, it must be pointed out that it was an assistance program and not sustainable" (Baird, et al., 1992:10).

During the past year or so, the JADF has placed increasing emphasis on the problem of ensuring the sustainability of the JARP ("programme"), this being one of the issues examined by both

the mid-term evaluation and sustainability assessment of the JARP. The latter advanced the proposal that organizing the "system under the aegis of a collaborative public-private sector arrangement" (a) would provide a means of addressing the constraint of not being able to provide adequate salary remuneration to high qualified staff; and (b) would encourage donor agencies to provide funds to support the system. Currently there are signs that an impasse resulting from lack of Government of Jamaica (GOJ) concurrence to implement the proposed system may be overcome.

Thus, given that JARP is funded largely by USAID/Jamaica's Agricultural Research Project and the leveraged Ministry of Agriculture (MOA) funding provided by the GOJ, the JARP operates with two disadvantages. First, the GOJ/MOA underfunds the MOA/ARDD; and second, the AID-funded JARP (project) ends in 1993. In view of these conditions, unless the JARP can attract a major influx of funds to support agricultural research, be these funds from the government and/or donors, the JARP will not be sustainable. The problem is aggravated by the small size of Jamaica and that the JARP's target audience is small, resource-poor small farmers. This audience potentially could become an increasingly important source of funding for research, at least for certain crops, if the farmers were organized so as to be able to allocate a portion of their market earnings to agricultural research (e.g., through a check-off system on earnings from non-traditional export crops).

d. Fundación para el Desarrollo Agropecuario (FUNDAGRO)

The USAID/Ecuador-funded REE project has been a significant (but not the sole) source of funds for meeting FUNDAGRO's operating expenses during the foundation's initial years. While this project will end in 1993, FUNDAGRO has made progress in attracting funding from other donor and private resources, as illustrated by the following:

(1) Grower Contributions

In 1991, FUNDAGRO received US\$12,000 from the melon growers (based on a voluntary contribution of a few cents per box of melons exported); also, FUNDAGRO received in-kind contributions from the cassava growers association (UAPPY). During 1992, IDEA and leaders of the rice growers initiated efforts to develop a law for the creation of a National Rice Fund to be capitalized through a 1% checkoff of the total sale price of rice in hull. The fund would be administered by the National Rice Federation (FENARROZ) for support of association-sponsored programs, including "the financing of agricultural technology generation and extension, through public and private national and international scientific organizations." Other farmer groups (e.g., cacao and potato) also are taking steps to establish similar associations and revenue-generating mechanisms. FUNDAGRO has initiated discussions with FENARROZ to identify potential research areas that FENARROZ would be willing to fund.

(2) Joint Venture Earnings

FUNDAGRO has invested in two ventures that are now generating (or are near generating) small levels of income: (1) the organic agriculture project (with produce being sold in Quito supermarkets and exported (baby lettuce); and (2) the demonstration farm (Granja Babahoyo) (with some revenue already having been earned and considerable potential revenues to be earned through the planting of crops such as rice and tomato).

(3) Other

To date, additional funding support for FUNDAGRO has been earned by charging a fee for management of donor projects. Most notably, fees in the amount of US\$150,000 will have been earned on management of projects supported by the Canadean-Ecuadorean Fund. A fee also is charged on the management of PL-480 and IDRC funds. In the future, FUNDAGRO plans to charge a management fee on all projects so that the organization's indirect costs for managing donor-funded projects can be distributed equitably across the donors.

In short, comparison of FUNDAGRO's initially limited mix of funding sources and the steps the foundation is taking to move to a more diversified mix of funding sources by the late 1990s indicates that FUNDAGRO has made significant progress toward reducing dependence on any one donor or funding source.

2. Determinants of Sustainability

a. FEDERACAFE

The FEDERACAFE case brought to light the importance of the credibility factor—that is, the credibility of researchers in the eyes of the coffee growers—as the key for ensuring that CENICAFE's research program will continue to receive funding. This credibility factor was described in the FEDERACAFE case study as follows:

- Credibility of coffee/diversification research in the eyes of the federation is measured by the positive practical consequences of coffee research results (i.e., technology) for coffee growers.
- The credibility of coffee researchers and their research in the eyes of federation members is the major determinant for research to receive financial support; if there is credibility, there is sustainability. To the contrary, if there is no credibility (i.e., if research is not responsive to growers needs for improved coffee technology), funding for the research would disappear.
- Credibility has been strengthened to the point that it may be said that as long as there is credibility with the guild, there will be financing for research; and as long as there is an organized guild, there will be CENICAFE. On the other hand, the day that the guild does not exist, CENICAFE also would cease to exist.

b. Fundación Chile

Fundación Chile is considered by industry and private sector individuals alike as Chile's premier source for certain types of technology and related research. By identifying new business opportunities, and in many cases creating successful demonstration companies replicable in the private sector, the foundation has attracted clients in both the public and private sector of Chile. The main factor for attracting clients is undoubtedly the reputed excellence of the foundation's work. But the foundation is careful to maintain a visible public image. Its public relations efforts have an orientation toward cultivating new business and working to attract clients by informing the public of the depth and breadth of research facilities and services available (e.g., via informative television commercials, newspaper articles, and dissemination of research results through seminars, workshops, and various publications, including specific industry magazines). It is interesting to note, however,

that the main function of the foundation's "marketing department" is to identify new areas for research which fulfill the foundation's project selection criteria (i.e., comparative advantage, profit making potential). Further, FCh considers that adherence to the original mandate of staying on the cutting edge of discovering profit-making activities has been a major factor in the organization's sustainability.

c. Jamaica Agricultural Development Foundation (JADF)

JARP's current director, Dr. George Wilson (1993:4), considering the question of the determinants of sustainability, identified the following factors as contributing to the progress of the JARP:

- The ability to focus on readily identifiable problems of which farmers are aware;
- The ability to pinpoint problems and constraints and direct research energy to their solution or removal;
- The ability to facilitate research action and cooperation among individuals and institutions;
- The emphasis on on-farm conduct of research;
- The training component that improves the human resource; and
- The emphasis on efficiency, especially that which facilitates maximum output from the limited energy available to resource-poor farmers;

The prospects for developing a sustainable JARP will depend, in part, on the outcome of the dialogue currently underway between the JADF and the GOJ on the issue of who should "own" or "be responsible" for Jamaica's agricultural research system.

Presently there are indication[s] of more enthusiasm for JARP in the private sector than in the public sector. Reluctance from the public sector rests with the fear of losing a traditional power basis. This fear is, however, unfounded as the public sector would not lose power in development planning which is essential to economic growth. On the other hand, research should be required only to shift priorities to support national development. Consequently there should be no conflict as research must always remain subordinate to development (Wilson, 1993:4).

In the face of the obstacles to a sustainable agricultural research program, the JADF and JARP are in a position to offer the GOJ, the donors, and Jamaica's private sector an efficient mechanism for coordinating the implementation of agricultural technology generation and transfer responsive to the needs of Jamaican agriculture. Hence the major determinants of sustainability at this point are the confidence that potential funding sources have in capacity of the JADF/JARP to continue to play this important role in support of Jamaican agricultural development and economic growth.

d. Fundación para el Desarrollo Agropecuario (FUNDAGRO)

Key indicators that FUNDAGRO is developing a firm foundation to support an ongoing agricultural research program include:

- **Early establishment of an endowment that continues to grow in size as long as endowment earnings are reinvested in the endowment, with FUNDAGRO currently estimating that it may need to begin drawing on endowment earnings in 1998 to partially cover core operating costs;**
- **Judicious management of project resources, combined with use of a portion of the endowment's corpus, to purchase two office buildings (one each in Quito and Guayaquil), thereby reducing or eliminating the need to use scarce resources for office rent;**
- **Adherence to obtaining "maximum client support" (i.e., in-kind contributions to cover operating costs when projects are designed to meet client needs), with FUNDAGRO providing funds only for program operations (never for salaries of public sector collaborators);**
- **Success in identifying new funding opportunities and in writing proposals to capture donor funding for new research projects or to earn a management fee for administering donor-financed projects;**
- **Exploration of the potential to implement research on behalf of private sector clients having resources to fund research (e.g., rice research funded by FENARROZ through a check-off system); and**
- **Potential to capture income through the commercial operation of the Granja Babahoyo and "joint venture" investments in collaboration with private sector entrepreneurs.**

Annex 2. Some Additional Observations from the Field¹¹

Convergence of various trends in the LAC region spawned the creation of a number of private sector agricultural research organizations (see Table 1), including foundations and other less formal entities or mechanisms that support or facilitate agricultural research. Generally these organizations:

- Focus on the development of horticultural crops rather than grains or livestock;
- Support problem-solving and market-oriented research rather than traditional disciplinary or commodity- and production-oriented research;
- Seek short- to medium- rather than long-term results;
- Focus on applied or adaptive rather than basic research; and
- Implement (or coordinate) research that is co-funded or fully funded by the interested parties (donors and/or the private sector), with the public sector rarely providing any direct funding.

These organizations vary in size from small (e.g. Guatemala's ARF with one senior professional, one junior professional, and one administrative assistant, with a total budget of around \$400,000 per year), to medium (e.g., Jamaica's JADF/JARP or Costa Rica's CINDE with under ten professional and support staff), to large (e.g., Ecuador's FUNDAGRO or Honduras' FHIA with more than ten professional staff and support staff). Research budgets for the medium- to large-sized organizations range from U.S. \$1.5 to \$4 million or more, depending on the size of the organization.

The smaller entities tend to manage the process of priority setting, research design, contracting of researchers, monitoring of research execution, and dissemination of research results, rarely getting directly involved in the actual execution of the research. By contrast, the medium-sized organizations may do some of the research but yet contract out most of it. While some large-sized organizations (e.g., FUNDAGRO) may contract for implementation of most of the research for which they provide funding support, the general pattern is for such organizations (e.g., Colombia's FEDERACAFE/CENICAFE, Honduras' FHIA, and Chile's Fundación Chile) to conduct 75% or more of the research with their own staff.

¹¹Based on conversations with John Lamb of USAID ROCAP's PROEXAG II (EXITOS) project.

FUNDAGRO and JADF/JARP vary in the extent to which their research is market-linked or market-oriented as compared with the research programs of FEDERACAFE or Fundación Chile. Yet a significant portion of their research programs are "grower-directed." In a "grower-directed" research program, growers or grower representatives and commercial agribusiness firms, assisted by the research organization, define a need (e.g., often pest and/or disease control), commission the research organization to refine the problem and design the research protocol, invite pre-selected researchers (in the public sector agricultural research organization and/or agricultural universities) to submit research proposals, evaluate the submitted proposals, evaluate the submitted proposals, and then make a competitive grant to cover a portion of the research costs. While each organization follows pre-determined guidelines, a general rule is to cover 50% of the total cost (defined as direct cost plus 15-20% in administrative overhead), with the private sector (i.e., growers or processors or exporters) being responsible to cover the balance of the research costs.

The most common research topics include: (1) varietal introduction, adaptation, and evaluation; (2) pre- and post-harvest pest and/or disease control; and (3) crop management (especially crop practices). Observations from the field indicate that the most successful projects generally are of relatively short duration (less than 18 months), or at least represent sequences that can be broken into short phases so that interim results can be known. The emphasis is on producing market-relevant results as compared with simply or solely advancing knowledge *per se*.

Annex 3. Management Mechanisms for Improving Productivity in and Sustainability of a Private Sector Agricultural Research Organization: An Example of How to Go About It.

A. Finance and Administration:

1. **Determine direct vs. indirect costs and calculate a provisional overhead rate:**
 - a. **Develop a cost tracking system and procedures based on establishment of a chart of accounts and a list of project/activity codes applied by staff to the following:**
 - (1) **Monthly timesheets, allocating time according to the project/activity codes;**
 - (2) **Expenditure logs (e.g., photocopies, long distance phone calls, long distance fax calls, postage, courier and messenger services, mileage, etc.); and**
 - (3) **Purchase order forms used each time a purchase of materials or services is made, or when a check is to be issued (for travel advances, payment of an item ordered, etc.).**
 - b. **If not already employed by the organization, contract a Finance Director with accounting/C.P.A. credentials to establish, implement, and manage the new financial system; if this person is not needed on a full time basis, he/she could be hired on a half-time basis initially, with the position expanding to three quarters or full time once this is needed.**
 - c. **Apply the overhead rate as a multiplier on client-billable direct costs as a means of recovering the client's share of essential but not directly billable indirect costs.**
2. **Develop Budget Monitoring, Reporting, and Projection Systems:**
 - a. **Monitor each project budget carefully and provide monthly updates to the relevant project, technical, and/or department directors, thereby giving the technical staff greater control over their resources, this being particularly important where external contracts are fixed price in nature.**
 - b. **Assist the technical staff in making budgetary and staff utilization decisions by closely monitoring costs related to the completion of a particular output.**
 - c. **Support efforts to lower the organization's overhead rate and force cost-consciousness by doing systematic budget monitoring and reporting.**
3. **Oversight: Make regular presentations to the Board of Directors (and relevant standing committees) of financial, administrative, and program reports, with the financial reports being based on monthly or quarterly financial reports that give summaries of project activities/billings and overhead expenditures (i.e., indirect costs).**

B. New Business Development—Create an internal system to manage/support the process of new business development (i.e., capturing new funds for or contracts to administer research):

- 1. Create a Director of Project Development who would be responsible for creating and maintaining an internal system to define the new project goals of the organization (both in technical and financial terms), determine potential sources of contracts, identify new project leads through contacts, manage the overall proposal development process, and promote the organization and its services to potential clients.**
- 2. Implement the following systems and procedures (where not already followed):**
 - a. Develop a standard proposal format that can be adapted to client requirements as needed; however, proposals should look similar to create a style and product that is identified with the organization—proposal covers using the organization's logo, standardized formats for C.V.s and budgets;**
 - b. Develop a budget template (spreadsheet) to assist project proposal teams in developing cost estimates and budget proposals;**
 - c. Establish a filing system that is composed of three sections: clients (public, private, donor funding sources), researchers, and new project leads/proposals:**
 - (1) Include in the client files each client's name and contact information, program and funding priorities, and information on previous contracts with the client; and**
 - (2) Organize the researcher files by technical specialization and contain important information such as a current curriculum vitae, salary history, contact information, and employment status;**
 - d. Select a team for each proposal effort undertaken, with a definition of roles and responsibilities for each team member;**
 - e. Establish a tracking system to monitor the status of potential contract awards, particularly important when concurrent proposal efforts are undertaken;**
 - f. Hold a project proposal meeting on a regular basis to provide opportunity for the organization's staff involved in new project development and proposal preparation to exchange information and ideas and to discuss problems; and**
 - g. Make available a set of promotional materials—a capabilities statement or brochure that includes areas of specialization within the organization; a summary of projects and studies completed to date with a brief description of the work; and a publications list, with prices for the purchase of studies/reports. (Promotional materials should be inexpensive to reproduce and distribute—lightweight for international mailings and easy to keep current).**

C. Communications--An environment in which communication and information exchange can facilitate increased efficiency and productivity within the organization can be promoted by:

1. **Staff Meetings**--Establish regularly scheduled staff meetings in which each department can give a report on its activities and staff can review pending issues and identify needed actions;
2. **File Circulation**--Circulate copies of relevant files, memos, reports, and other communications to all departments; and
3. **Local Area Network (LAN)**--Consider establishing a local area network (LAN) that would network all computers and allow staff to share files and make it possible to install an E-Mail system. E-Mail allows staff to forward messages in memo format to each other, copying the same messages to other staff, and responding to messages received. The impact of an E-Mail system can be profound as information and idea exchange can be accomplished with great ease and speed, thereby allowing a greater number of persons to be included in the making of a particular decision or decision making process.

D. Human Resources--Means to motivate staff and, thereby, increase productivity include:

1. **Bonuses**--Create a bonus pool out of the organization's overhead funds; bonuses serve as a means of rewarding employees for outstanding performance over the course of a given year, with the awards being made on the basis of merit (employee's contribution to preparing a winning project proposal). While the size of the bonus pool will vary from year to year, depending on the organization's financial status, its mere existence will send a very positive signal to all staff.
2. **Training**--Provide staff with opportunities for growth via training in computer software, management, and technical skills, reserving a portion of the organization's resources to pay the cost of training and to reimburse x% of the cost of an academic course that is directly related to an employee's position.

Source: Based on review of material prepared by Emilia Roberts, LAC TECH Program Supervisor.

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