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REVIEW OF THE RURAL DEVELOPMENT MANAGEMENT

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Project No. 517-0125

(ISA/CADER)

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Naturally, all errors are the sole responsibility of the present writers.

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## I. Executive Summary

- (1) The Rural Development Management Project was designed to create a Center to provide in-service, in-country training opportunities which improve management skills of public and private sector administrators who work in agricultural production and/or rural development. USAID has provided building funds, staff training and technical assistance in addition to support for operating costs. The Center for Rural Development Administration (CADER) presently offers seminars, workshops and a five week administrative training course. More than 2,200 public and private sector employees have participated, exceeding targets in several areas.
  
- (2) We review CADER's activities, focusing on the effectiveness of measures proposed in the Project Amendment, which were designed to correct program deficiencies identified in the Jacome, et.al. (1984) evaluation. The principal deficiencies were high staff turnover and uncertain long-term financial viability.
  
- (3) Resident staff members at CADER have continued to decline, going from 11 in 1985 to 4 Dominicans and 1 foreign advisor (who is not teaching) in 1987. Measures taken to reduce staff loss have been ineffective, and CADER staff still do not intend to make a career at CADER. Morale is low, largely because of inadequate salaries and limited faculty participation in decision-making. Attempts to assure

higher incomes for CADER's staff created resentment among other ISA staff, for whom no immediate income increases were envisaged. Yet, in practice, CADER salary improvements fell far short of what CADER staff believed they had been promised.

- (4) ISA has unequivocally stated that it wishes to keep CADER as an integral part of its program. We believe that staff retention must be addressed within the broader institutional context of ISA.
- (5) Although ISA formally satisfied the conditions precedent regarding CADER decision-making authority, the changes have not in fact been fully implemented. ISA is also behind schedule in raising counterpart funds for its endowment, although it has gotten off to a good start in recent weeks. ISA has also recently pursued other promising sources of revenues, such as increased production on its school farm.
- (6) USAID should elaborate both a short-run strategy and a long-run strategy for supporting CADER and ISA. In the short-run it should investigate placing PL-480 funds that have been designated for the endowment into an interest-bearing account and allowing ISA/CADER to use the interest for salary improvement in order to ensure retention of trained, experienced staff. ISA could also be asked to use interest from the RD \$1,200,000 already disbursed for this purpose. Salary increases may be calculated in several ways, but a minimum 'catch up' would be about 40% for faculty who have earned a foreign

M.S. or M.B.A. degree. That would bring them to around RD\$2,500/month in salary. Sufficient funds should remain to allow ISA/CADER to cover other operational costs.

- (7) ISA should be encouraged to provide greater autonomy to its major ISA programs, including CADER. USAID should also consider providing additional training opportunities and technical assistance to rebuild CADER's staff capability. In the short-run, USAID should encourage ISA's Board of Directors, Rector and staff to initiate an aggressive marketing and publicity campaign. This would include more activity in Santo Domingo.
- (8) ISA presence in Santo Domingo could vary from merely having a resident representative, to establishing an office with full-time staff in order to interact with constituencies, to increasing the number of seminars, workshops, etc. held in Santo Domingo, to moving CADER to Santo Domingo as an extension of ISA's program.
- (9) In the long-run, USAID might consider support for a broad-based institutional development program that would promote movement toward national and regional leadership in ISA's fields of interest. Success would require both staff upgrading (and retention) and (a) increased decentralization of program and financial decision-making, plus (b) increased development capabilities, including aggressive marketing and income generation. This program could address the problem of financial viability by continuing to encourage creation of

an endowment, innovative program income generation strategies, and more secure government support.

- (10) This program could also provide support for the three year "agronomía" degree program, which is intended to train technicians and middle level managers, in addition to providing support to CADER, and other areas of emphasis, such as forestry, animal production and aquaculture. Despite its remaining deficiencies, ISA is a proven performer, with the facilities, prestige and experience to implement projects and programs effectively, and to achieve solid impacts in agricultural productivity and diversification and in the national policy dialogue.

## II. Background for Review

- (1) ISA was created in 1961, shortly after assassination ended the dictatorship of Rafael Trujillo. The Santiago Development Association, a group of far-sighted businessmen, was concerned about lack of trained manpower in agriculture and created an institution to provide it. ISA has since evolved from a three year technical/vocational high school to an institution offering undergraduate degrees and post-graduate training. Its evolution responded in part to the funding imperative. ISA receives some support from the Secretariat of Education. However, it must continuously innovate, launching new teaching, research and outreach programs in order to secure additional outside funding to cover operating expenses and to grow.
- (2) The creation of the Center for Rural Development Administration (CADER) was consistent with major AID program emphases in the early 1980's: institution building, policy dialogue, and private sector support. ISA created CADER in order to address major development constraints in the areas of management and policy. Meanwhile, student demand for its secondary school vocational program decreased because of the creation of similar programs elsewhere.
- (3) CADER provides valuable services to the GODR and donor agencies in the areas of policy dialogue and improved administration of rural

development. The case study method has enhanced these services, enabling ISA staff, students and alumni to identify problems and sharpen their skills in finding practical solutions.

- (4) ISA, like many Dominican institutions, recently labored under severe financial constraints. At times, CADER funds helped shore up other aspects of ISA's program. However, the reverse occurred in 1986, when disbursement of CADER funds was delayed. The financial stringency often meant that disbursements of budgeted funds were delayed for unpredictable periods, even when funds had been given to ISA for specific purposes. As a result, donor agencies sometimes sought ways to fund specific projects directly rather than through ISA's financial administration.
- (5) CADER administrators and staff believed that the then-Director of ISA had an overly-centralized administrative style, which made it hard for them and other ISA faculty to get prompt decisions and to participate in making them. Whether or not it was true, CADER staff also believed that he was able, but simply unwilling, to align their salaries with those available in the private sector. As a result, staff approached their jobs at CADER as a kind of apprenticeship. They did not identify fully with ISA because they were already looking for long-term positions elsewhere.
- (6) The Director of ISA left in 1986, to accept the post of Secretary of Agriculture, and the Board promoted the deputy director for

administration to the Directorship. (Now That ISA has legal status as a University, the Director is now called a "Rector.") Under the new Rector's leadership, many faculty members feel that they are better informed, and that they have more opportunity to participate in the design and planning of ISA programs.

- (7) ISA's Board of Directors was recently renewed, under a new generation of leaders. There is a new spirit of optimism regarding ISA's future. The present Board appears to be more open to financial and programmatic innovations which would favor staff retention and provide greater financial security for ISA.
- (8) The new Rector has been authorized to approve salary increases for faculty members, as long as there are permanent resources to support the higher levels. Some progress has already been made, although it is insufficient to attract and retain the quality staff needed for ISA to be "at the cutting edge of innovative research and teaching." This goal was stated by the new Rector and the new Board Chairman; we believe it is attainable if the recent improvements continue and if well-trained faculty are recruited and retained.

ITEMS FROM THE STATEMENT OF WORK:

III. Describe and analyze in greater detail than previously those elements within the CADER program which have elicited the greatest positive effect upon the a) agribusiness curriculum and b) national agricultural policy dialogue.

(1) ISA's faculty teaches the agribusiness curriculum in the agricultural program of the Catholic University "Madre y Maestra" (UCAMAYMA). They use many case studies as teaching materials. As a result, UCAMAYMA graduates receive more training in problem solving than do the graduates of more traditional agricultural courses at other Dominican universities. Employers know this, and tend to seek out "ISA products" when hiring. Some former ISA faculty have moved to Santo Domingo, where they have taken leading jobs. They have introduced ISA/CADER cases into courses they teach at other universities, such as INTEC, UASD and UNPHU. Case preparation, and practice in teaching by the case method, have thus helped improve agribusiness teaching in general, although there is still much room for improvement.

(2) During the first five years of its existence, the greatest impact of CADER's program has been on the national agricultural policy dialogue. There are several good illustrations of this which are listed below. This activity has been consistent with A.I.D.'s programmatic emphasis on influencing policy.

- (3) Impact on agricultural policy has been especially facilitated by involving key legislators and top-level decision makers in policy dialogue at CADER-led seminars using CADER case studies.
- (4) An ISA founder and businessman, don Luis Crouch, then a Board member, and Dr. Norberto Quezada, who was then Director of ISA, were able to persuade top level decision makers to attend the seminars. ISA's leaders accomplished this in part through their personal relationships with these individuals and in part because they had established reputations as authorities.
- (5) The extent to which members of the current Board of Directors and the current Rector of ISA can persuade present decision makers to participate in future seminars is useless. According to ISA's current Rector, Ing. Ferreiras, various high-level executives will be attending seminars programmed for the rest of 1987. However, the creation of an Advisory Council to the current Board of Directors, which is composed of individuals in key government positions, may help ISA attract these individuals.
- (6) Seminars are successful largely because they are based on case studies which incorporate real problems confronting Dominican decision makers. These case studies include data on the current situation surrounding each of the problems. Seminar participants

assume decision making roles.' Didactic materials are relevant and easily understandable.

(7) CADER seminars have helped change national agricultural policy by inducing changes in existing legislation and in government agency programs. Several examples follow:

(8) Redistributing Coffee Export Quotas.

This seminar was attended by coffee growers and exporters, public officials and private sector representatives. It led to an administrative redistribution of coffee export quotas, increasing the role of associations of coffee growers. This broke the tight control of exports and profits, previously held by a handful of urban intermediaries. ISA/CADER thus helped Dominican agribusinessmen gain equal access to markets for their coffee, which has reduced their costs and encouraged investment. The CADER case studies on which this Seminar was based are:

- (i) Coffee Production in the Dominican Republic (4/24/84)
- (ii) The Coffee Marketing and Export System in the Dominican Republic (4/18/84)
- (iii) The Coffee Cooperative Jaide Arriba (4/22/84)
- (iv) Villa Trina Coffee Grower's Association (4/22/84)

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\* Professor Strasse, who happened to be watching from a back row, recalls one great moment in the 1985 discussion of whether and how to use white sorghum as an extender for (imported) wheat flour. Dr. Gabriel Guzman, then Director of CADER, who was leading the case method seminar, spoke to President Salvador Jorge Blanco, sitting in the front row: "Now, Sir, ~~suppose~~ you are the President of the Republic. How would you proceed?"

(9) Production Incentives in Agrarian Reform projects.

ISA organized this seminar with co-sponsorship by the Instituto Agrario Dominicano (IAD). It brought together legislators, high-ranking executives of the public and private sectors, and representatives of campesino organizations. It led to a consensus for changes in the agrarian reform laws, which was followed by the enactment of reforms with bipartisan support, just a few months later. As a result, rice growers could legally agree to divide their profits according to the costs and harvests of each parcel, whereas previously the law and the reform agency required them to work collectively and share the proceeds equally. One key element in the success was the discussion of a CADER case, based on the discovery, in the field, that some campesinos were already (illegally) dividing profits according to individual production, with very favorable impacts in rice production and productivity.

The case studies on which this Seminar was based are:

- (i) Agrarian Reform Settlement Vasquez Quintero  
(1/2/83)
- (ii) Agrarian Reform Settlement Sergio Abigail  
Cabrera (1/2/83)
- (iii) Agrarian Reform Settlement Rio Limpio (6/27/84)
- (iv) Agrarian Reform Settlement Puerto Grande (2/14/84)
- (v) Agrarian Reform Settlement Puerto Escondido (6/14/84)

IV. Describe and analyze the relationship which has evolved among CADER, ISA and the agribusiness sector and the effect of USAID's assistance upon this relationship.

- (1) ISA is part of the private sector, and USAID's assistance made ISA more valuable to the private sector.

ISA was created by the Santiago Development Association, an organization of business and civic leaders in Santiago. The Association perceived a need to train young people in agricultural production to increase productivity.

Association leaders also perceived a need for a center for agricultural training that was compatible with the interests of the private sector. The only other center for training in existence at that time was the Facultad de Agronomia at the Autonomous University of Santo Domingo (UASD). Its program was initiated at about the same time as ISA's high school program was initiated. At that time, the faculty at UASD were not very receptive to the idea of accepting U.S. money.

ISA was conceived as a more positive setting, in which to educate individuals for work in both the public and the private sectors. The graduates were to have hands-on, problem-solving training, as well as training in the techniques needed for increased agricultural production and productivity.

(a) Research Impact - Most of ISA's research has been commodity-oriented and of direct benefit to agricultural producers. Research began shortly after ISA's creation, at ISA's SCAD (Scientific Center for Agricultural Development). Both ISA and SCAD were supported by the Ford Foundation and received technical assistance from Texas A&M from 1964 to 1968. Early research was supported by non-earmarked funds. Texas A&M researchers focused on increasing the productivity of crops of direct interest to the region. For example, they introduced industrial tomato production to the country. The Dominican Republic now grows enough tomatoes to meet domestic market demand. Various processing industries have appeared in the private sector, and small quantities are even exported.

ISA's interest in rice culminated in subsequent adaptive research which produced two successful varieties known as ISA-21 and ISA-40. They are widely used in the Cibao Valley, and are among the most productive varieties available to this day. Much of this research was supported by a USAID-funded program for small farmers with the Secretariat of Agriculture.

With the termination of the original Ford Foundation unrestricted funding, ISA became almost totally dependent on outside sources of funding to promote research. The research was not supported by direct funding from the Secretariat of Agriculture. The facilities constructed for the SCAD were eventually turned over to the

Secretariat of Agriculture, which operates them quite independently under the acronym of CENDA, although they are on ISA's campus.

ISA staff did continue to carry out important low-budget research of interest to local agricultural producers. An example of this was the identification in the Dominican Republic of the Blue Mold fungus which had previously wiped out Cuba's tobacco crop. ISA researchers discovered its presence, and helped local producers and the Secretariat of Agriculture design and carry out a program to control the fungus.

The focus of ISA's research has evolved over time in response to the need to secure outside funding. Recent research has been of direct benefit to the private sector, which has helped fund it. This includes adaptation of the African oil palm to the island, the introduction of white sorghum, and the production of wood for fuel. Both oil palm and sorghum are now being grown by private sector interests. ISA experimented with different tree varieties as sources of wood fuel; this work promises to lead to the growth of energy farms in the private sector. The Brugal family, for example, has already followed up on ISA research by planting fast-growing trees for charcoal production.

USAID's impact on the general research program is modest. Funding for the second Small Farmer project with the Secretariat of Agriculture provided some research support. However, USAID has never

directly supported agricultural research at ISA, except for the energy farms. The private sector is buying into energy farms, as indicated by recent plantings of trees and the commitment by the GODR and private banks to provide credit for this activity. Some USAID funding to the Secretariat of Agriculture has been used to support certain ISA research, such as the adaptation of improved rice varieties.

USAID support to ISA for staff training abroad also facilitated ISA research. For example, Dr. Wilfredo Moscoso, who was trained at Cornell, introduced white sorghum to the Dominican Republic from the Sudan. Dr. Federico Cuevas Perez returned from his training abroad and introduced CIAT rice varieties, among which he found two highly successful strains, that are now known as ISA-21 and ISA-40.

Agronomic research is different from research conducted by CADER. Agronomic research has focused on increasing crops for export and for import substitution. CADER's research, on the other hand, is represented by case studies. Only some of these include primary data obtained through field research (for example, those on land reform and on coffee export marketing). Some CADER cases are based on secondary or simulated data. Other cases were obtained from INCAE, in Central America, and are based on data from that region.

- (c) Training Impact - USAID funding for ISA/CADER staff training has helped the private sector in several ways not all of which were

foreseen. To date, almost over 2,200 persons have participated in CADER's workshops, seminars and short courses. Some are employees of the private sector, and far more will be in the future as the public sector cuts back. CADER trains manpower from the private sector through short courses and seminars. Short courses are specifically designed to provide management and administrative techniques. The 1985 Project Paper amendment stipulates that CADER should focus on providing services to the agribusiness sector. ISA/CADER conducted an analysis which found there is substantial potential demand. However, until now, most of the individuals trained have come from the public sector, as indicated in CADER's reports. Apparently there is greater public sector demand for this training. In part this may reflect the emphasis given to changing policy through seminars. Government decision-makers have greater inherent interest in policy seminars, because they must design and implement public policies.

(2) Some other impacts:

- (1) CADER/Other ISA Program Teaching Relationship - CADER staff regularly teach in ISA's B.S. degree program in Agriculture. This reduces the time available to them to discharge their functions in CADER. This is caused in part by the understaffing of CADER, currently at just half of the staff it had two years ago.

Over 20% of ISA's B.S. graduates are employed in the private sector with agribusiness firms. Typically, ISA graduates first

seek government jobs to gain experience, after which they find jobs at better pay in the private sector. However, around 10% directly enter jobs with agribusiness upon graduation. Many other ISA B.S. graduates eventually gravitate to business jobs that are not directly involved with agriculture -- banking, commerce, etc.

- (ii) CADER as a Manpower Pool for the Private Sector - Because ISA staff salaries are low, USAID staff training for CADER has actually provided well-trained manpower to the private sector. Typically, staff have returned from M.S. training to ISA for several years, and then sought employment in the private sector. Most have obtained salaries in the range of RD\$2,500 to RD\$3,000 per month, over twice as much as they received at ISA.

Like CADER, other ISA programs also contribute trained manpower to agribusinesses that raid the ISA staff for mid-level managers. Fortunately for ISA, there are fewer opportunities in Santiago for ISA staff to privately augment their salaries than for comparably trained individuals in Santo Domingo. Until now, ISA has not considered the possibility of facilitating second jobs for its faculty. However, ISA hires persons employed elsewhere, on a part-time or consulting basis, to help prepare and conduct CADER seminars.

(c) Public Service Impact - USAID's impact on ISA's contributions through public service has largely been through CADER.

(1) CADER/Other ISA Program Relationship - Until recently, there was little relationship between CADER's outreach activities and those of other ISA programs. Recently, ISA began fostering consulting arrangements which jointly incorporate CADER and other ISA staff. Several projects have thus increased intra-ISA communication and provided sharing of the fruits of consulting between CADER and other ISA staff.

(11) CADEP/Agribusiness Sector Relationship - CADER organized its program in order to influence public policy dialogue. It has had a major impact on public policy in several important areas (refer to pp. 10-13), including the drafting and promulgation of new laws and rules. In the process, CADER has assisted small farmers as well as agribusiness firms.

Another major aspect of CADER's program is training in management techniques for managers of agribusiness and governmental agricultural support agencies. A five-week short course designed to achieve this has already been offered over a dozen times.

Policy dialogue and management training are two separate dimensions of CADER's program. To achieve an impact in both requires that CADER retain a staff of from 8 to 10 professionals. It has been unable to do so since funding terminated for USAID-paid expatriates. They were originally brought in to write Dominican cases and staff CADER's program, while Dominican staff were being trained.

CADER also planned to assist the private sector through a data information bank. This has not yet been initiated. It was also envisioned that ISA would update its library with relevant material. This aspect of the present USAID project has moved slowly. Contracts for the acquisition of computers and books are awaiting final approval by USAID.

(iii) ISA (non CADER)/Agribusiness Sector Relationship - To date, ISA has sponsored little outreach activity with small farmers. In part, this is because ISA's faculty are fully committed to other work deemed to be of higher priority.

ISA was involved in the planning of Plan Sierra, a major rural development program in the region. It was conceived that ISA would participate significantly in this outreach activity, training students in the process. This never occurred for lack of funds to support field work and because of time conflicts between cropping cycles and

classroom study. Recently, the Kellogg Foundation donated funds to Plan Sierra, specifically to incorporate students from ISA into its program. These funds are being used slowly. However, the recent election to ISA's Board of a person deeply involved with Plan Sierra may result in higher priority being given to this work.

ISA does not have important ties with the national extension program that relates to part of the small farm sector. However, recently ISA has worked closely with agribusiness firms such as PROSEDOCA, CARCISA, and Peralta Limited. These activities were not the result of direct USAID funding, since USAID has not progressed funds in this area.

- (iv) CADER/Agribusiness Sector Relationship - A major funding component of the current USAID-funded CADER program is the endowment. USAID agreed to provide monies if ISA/CADER raised counterpart funds in private donations, presumably from agribusinesses. Thus far, few counterpart funds have been raised.

University development programs may be less successful in the Dominican Republic than in the U.S., because they are less suited to the culture. Dominican entrepreneurs and

bankers are reluctant even to talk to someone hired specifically to solicit donations.

Successful fund raising in the private sector will probably require that the solicitation be done by members of established wealthy families. Even a former Secretary of Agriculture, or someone of comparable status, might have little success if he were not of this social class. Thus, some, but not all members of ISA's Board of Directors could be enlisted to carry out this function. One Board member told us that "who one played with as a child" was the critical factor governing success in raising money or private donations.

This interpretation suggests that if private sector gifts are vital to the future of ISA, the Board may need to enlist more services of the rich, seeking persons who are well-born and well-committed, who yet know ISA and its programs, and believe in their values.

V. Project the array of possible outcomes for the CADER/ISA agribusiness relationship as a result of ISA's newly adopted strategy to strengthen its academic program while diminishing the vocational agricultural role it formerly pursued.

(1) The shift in emphasis between ISA's academic program and its vocational/technical program is a consequence of the evolution of ISA. USAID, through its direct and indirect assistance to ISA, has contributed to this evolution. USAID funding interest went through three stages:

- (1) 1965 to 1973: emphasized vocational training and basic research/extension under the SEA/TAMU program;
- (2) 1974 to 1979: emphasized specialized undergraduate training and policy research; and
- (3) 1980 to Present: emphasized post-graduate training and advanced research capability.

The ISA Board of Directors correctly perceived that international assistance was easier to obtain if ISA raised the academic level of the training and research, even though its original fame was based on its hands-on practical vocational training, which employers appreciated.

(2) There are several reasons for the decreased emphasis of the 'hands-on' training at ISA. First, student demand for vocational training at ISA has decreased, in part because other secondary schools opened in other provinces. ISA always tried to recruit nationally, visiting lower level schools throughout the country. However, the new secondary schools are easier and less expensive to

attend because students can live at home. there are several dozen new 'universities' throughout the country, which make college education more accessible, even when secondary school training is deficient by ISA standards. Today, most graduates of the vocational agriculture program themselves are less inclined to go directly to work on a farm. In recent years about half of the graduates of the ISA secondary program went straight into the B.S. program, seeking a professional degree and the higher prestige and remuneration it would bring.

The second major reason for a decline in vocational education is the increased cost of providing it. Cost for the student increased as ISA lost external funding and transferred increased costs to the students. Reduced student demand was reflected in lower enrollments, which in turn reduced receipts, thereby reducing ISA's budget even more. ISA had great difficulty financing this training without substantial outside support, which was not available. Also, the school farm, on which secondary school students gained practical experience, has lost money in recent years. The real costs of this kind of training are high, in part because student labor is more inefficient than hired labor.

A third reason is associated with changes in the composition of the staff at ISA. On return from the U.S. with graduate degrees, they prefer to teach at the university level and to conduct more sophisticated research.

- (3) ISA proposes to initiate a three year "agronomo" program in place of the high school program. This program will be modeled after the program at Zamorano in Honduras. ISA personnel anticipate that this program will also incorporate substantial "hands-on" components.

Potential employers in the public and private sectors will probably find that graduates of the "agronomo" program are better employees than those of the vocational technical program. Graduates of the "agronomo" program will be more mature, having completed high school prior to entering the "agronomo" program. Many former high school graduates were older because they chose to repeat years in high school in order to attend ISA. However, this has not occurred in recent years.

- (4) The "agronomo" program has the potential to provide considerable applied, "hands-on" training. In part, this will depend on the resources available to ISA, and in part, on the design of the curriculum. Opportunities exist for an international donor to heavily influence the design of this program by providing funding specifically for outreach training which could be incorporated into the curriculum. Without additional funding, ISA may not be able to provide outreach training, simply because of its cost. A specially funded program could provide internships with agribusiness firms, government agencies, and small farmer organizations.

- (5) Although the CADER program is a post-graduate program, much of its training is analogous to "hands-on" agronomic training. Students are encouraged to grapple with real life decision-making problems. Many of the case studies are based on real life situations in the Dominican Republic and use primary data. However, this training is quite different from that of manual labor on the school's farm. It signifies training business administrators rather than farm managers, who require practical production experience.
6. At present, the real market demand for the "agronomo" graduates is unknown. This degree program does not currently exist in the Dominican Republic. However, various Zamorano graduates are employed in the country and are rated by employees as excellent field technicians.
7. It is likely that there will be considerable student demand for admission to this program. Because of the high cost of university training and the low salary differential between "agronomos" and "ingeniero agronomos."

VI. Develop a menu of strategies from which CADER and ISA may select those most appropriate to sustain and expand the positive impact which they have had on agribusiness and policy dialogue.

A. Assumptions.

There are several important assumptions which underlie our presentation of alternative strategies. These assumptions are based on discussion of ISA/CADER programs with expert informants.

- (1) ISA's Board of Directors has recently changed in composition. The new Board desires that all of ISA's programs be in the vanguard. The Board is committed to seeing this happen. The new Chairman has relevant institution-building experience (as a hospital director); he is aware that program excellence will require substantial salary increases for most faculty and staff.
- (2) ISA's Board of Directors has made it clear that it intends to maintain CADER as an integral part of ISA. Therefore, any support for CADER's program must be provided within the broader institutional context of ISA, in a way that strengthens the whole organization.
- (3) Past USAID attempts to solve the salary problem for CADER staff created internal tensions resulting from resentment by other ISA staff, who also considered themselves to be underpaid.
- (4) Greater autonomy for CADER is probably a good idea, but this is also true for all other ISA programs. Decentralization of program and

financial decision-making is and should continue to be a tendency for all program areas. ISA's present Rector has encouraged more openness and communication among the ISA faculty, although he has stressed his intention to keep a firm control over all hiring, and over the budget, at least for now.

- (5) Until salaries and benefits comparable to those offered by the private sector are offered to ISA staff, they will continue to leave for the private sector. The concept of a professional university career is nascent and will take time to evolve. Current staff view graduate training as an opportunity to acquire skills more marketable in the private sector. They accept inferior pay at ISA as an investment in their own future. They do not intend to remain at ISA and help build it into a regional or world-class institution. Most faculty take jobs in the private sector at the end of their two year commitment to ISA in exchange for their M.S. training abroad.

#### B. Problems and Strategies.

ISA/CADER is currently dealing with several major institutional bottlenecks to further development. There are several ways to design strategies to address them. We propose alternative strategies to redress discrete constraints rather than proposing general alternative institutional designs. We assume that specific constraints lend themselves more easily to programmatic intervention by ISA and by institutions interested in assisting ISA in this process. These strategies are by no means mutually exclusive.

- (1) Constraint #1: Inadequate Salaries Due to Inadequate Financial Resources - The 1984 CADER evaluation highlighted the problem of inadequate staff remuneration. It predicted that inadequate salaries would lead to loss of staff to agribusiness firms and government agencies. ISA did not have the money to pay better salaries in the vocational agriculture and B.S. level programs, and ISA's former Director and Board Chairman refused to use the money USAID and the GODR provided to pay significantly better salaries in the CADER program. Since CADER salaries were not significantly increased, the Dominican staff level fell from 11 to 4. Inadequate salaries also led to staff loss in other ISA programs. Low salaries generally result from an ISA stated policy of "entry level" remuneration and discouragement of supplemental income opportunities. Agribusiness firms looking for employees with experience and a foreign M.S. degree have benefitted from this policy.

ISA/CADER could pursue several strategies to increase resources available for its programs:

- (a) Government Core Funding - ISA currently receives core funding from the Secretariat of Education to pay staff salaries associated with the vocational technical program. This funding will pay the salaries of staff associated with the new "agronomo" program. ISA is currently exploring the possibility of securing further funding through an International Development Bank (IDB) loan to the Dominican government. Once ISA's funding is an item of the federal

government's budget, it becomes easier to continue it from other Dominican government sources, after a given loan program terminates. The government may be more inclined to do so to the extent that it receives valuable products from ISA/CADER attributable to the IDB-funded programs.

Other ISA areas, such as forestry, animal production, and aquaculture, could be encouraged to follow a similar tactic.

(b) Endowment - An adequate endowment would ease the financial constraints faced by ISA, achieving competitive salaries, in addition to financing programmatic activities. The general goal would be to secure an endowment sufficiently large to cover all major facets of the program. However, strategically, it is more viable to seek funds for discrete program activities. Thus, one endowment could be established specifically for CADER, another specifically for the new 'agronomo' program, and others for target programs, such as forestry. Within each of these program areas, components should be identified which would again be the object of endowment fund raising, such as chairs, research programs, or internship programs. Conceptualizing and directing the procurement of funds in this way may make it easier to obtain funds. For instance, an agribusiness may be willing to provide funding for a chair which would carry its name. Similarly, a foundation may be more willing to provide a partial endowment for a specific functional component of a program, such as student internships with small farmer cooperatives, as part of the 'agronomo'

program. A local foundation such as NATURA may be more willing to fund or partially support a "chair" in Forestry or resource management.

c. Other Funding Sources - ISA has already identified other major funding sources which are consistent with its general mandate, such as charging for short courses and seminars, consulting services, and use of its school farm for crop production by agribusiness firms. The distribution of this income among faculty and general institutional accounts merits continued refinement.

(2) Constraint #2: Poor Staff Retention and Development - Dramatic improvement here is essential if ISA is to achieve an adequate program, let alone develop one of national and regional status. The Jacome, et.al. evaluation of CADER indicated that salaries paid to CADER staff were not competitive with those being offered in the private sector for professionals of similar levels of training and competence. They predicted that the staff would leave if salaries were not increased substantially. The Dominican resident staff has indeed fallen 11 to 4.

Clearly, CADER staff do not consider teaching to be a viable career alternative. They speak of employment at ISA as an intermediate step between graduate training and private sector employment. This also occurs with staff in other ISA programs. Most ISA staff members are new, trained at best to the M.S. level, have limited academic

experience, and lack dedicated mentors and role models on ISA's staff, such as are found at leading universities elsewhere. Some possible options are:

a. Off-Campus Employment - Most professionals with comparable skills and levels of training in Santo Domingo hold more than one job. Many teaching staff at UNPHU, UASD and other universities work full-time for the government or in the private sector from 7:30 to 2:30, after which they teach and/or conduct research. Universities are unable to provide adequate compensation for full-time, exclusive employment. They accommodate by arranging classes in order for their faculty to find additional employment. ISA's program currently does not facilitate supplemental employment. Officially, ISA expects staff to work full-time at ISA, although an ISA Board member told us that he hires an ISA professor to work in his agribusiness on Saturdays and on two afternoons a week. He added that this costs him very little, because ISA salaries are so low that even a small extra income is a large percentage increase in the professor's income.

b. Competitive Salaries - Obviously we would prefer that ISA itself pay competitive salaries rather than encourage moonlighting as a means of staff retention. There are several ways in which ISA could increase salaries. All are premised on the availability of additional funding.

The first alternative would guarantee funding through an endowment such as that proposed in the current USAID-funded CADER project. A second alternative would be to pay bonuses out of funds generated by seminars, workshops and other services provided by ISA. Staff could be guaranteed a fixed percentage of these revenues. This would directly stimulate staff productivity. A third alternative would encourage staff to seek contract research, a fixed proportion of revenues from which would go to the staff member. University foundations in Brazil have found this to be an excellent way to supplement salaries.

Changing the attitudes of staff toward a university career is more difficult. In part this would occur automatically if staff were paid competitive salaries. A major factor is the absence of role models at ISA. To the extent that CADER staff are retained, they can serve as role models for the younger staff. Provision of salaries and fringe benefits comparable to those of other professions would make a university career alternative more attractive.

- (3) Constraint (2): Effective Program Leadership - Dynamic, responsible leadership is essential for a successful, growing institution. This leadership must facilitate institutional interaction with its environment, including funding sources and clientele. It must also provide effective administration of activities within the institution.

ISA/CADER has three major groups with which it interacts: they are government agencies, private sector institutions, and international agencies. These provide resources and use ISA/CADER's products. There are two levels on which interaction necessarily occurs, namely, the executive level and the technical/administrative level.

a. Government - ISA has had fairly good relations with the national government, from the President to Cabinet members and Heads of major agencies such as IAD, SEA, INDRMI, and BAGRICOLA. Members of ISA's Board of Directors have provided this interface, intervening both to secure funding for specific programs and to place ISA graduates. It is important that Board Members continue to assume this mentorship role.

It is also important that ISA's operational leaders provide an effective interface with government agencies at the technical/administrative level. ISA's Rector, CADER's Manager, the Vice-Rector for Research, etc. need constant interaction with government officials and technicians to guarantee an adequate market for ISA's research, teaching and outreach products. This calls for frequent visits to the capital, perhaps one day a week and increased national visibility for ISA's program.

There are several ways to increase ISA's visibility. First, the teaching and outreach activities promoted by CADER need to be conducted more regularly in Santo Domingo, near funding agencies and

government participants. Second, ISA needs to raise its visibility by elaborating and disseminating materials which describe its products; and possibly by advertising in newspapers. Third, ISA should promote more joint activities with governmental agencies, giving these agencies a proactive role in seminars, workshops, etc.

b. Private Sector - The second major group in the external environment is the private sector. ISA's Board of Directors has a major role to play in the private sector, from which its members come. They can be influential in promoting ISA's program by recommending to agribusinesses and related industries they use ISA's services. Equally important, they can advise ISA regarding the types of programs and activities of greatest interest to the private sector. Ideally, the Board would name a sub-committee charged with routinely providing these inputs to ISA's program.

ISA's Director and staff are the key to successful program implementation; they should embrace strategies similar to those proposed for the government sector in dealing with the private sector. These would include greater publicity through preparation of descriptive materials designed specifically to inform agribusinesses, periodic visits to private enterprises, and holding short courses, seminars, etc. at locations more accessible to mid-level employees of agribusiness and other firms. ISA might consider offering the seminars, workshops, etc. after normal work hours.

Likewise, as ISA grows and diversifies, the Board Chairman and ISA's Rector cannot be everywhere at once, nor should they try to centralize all Board-Program committees. Each ISA project or program should have a Board member, designated by the Chairman and Rector as the "Padrino" or mentor to express the Board's interest and support for that project or program.

c. International Agencies - International agencies form the third major group with which ISA must be in close contact. This contact should not be limited to one or two persons, although official relations will of course be the responsibility of the Chair and Rector. Informal contact can be extremely rewarding for both ISA and the international agencies; it should involve various members of the Board of Directors, the Rector, and program and project leaders at ISA.

(4) Constraint #5: The lack of active involvement of persons of international stature. One way to facilitate positive interaction with entities in the public and private sectors is to contract with an international institution to work with ISA. Provided that it is a quality institution and provides quality technical assistance, the institutional presence could contribute to the overall positive image projected by ISA.

A second strategy would be to continue to contract with individuals from non-Dominican institutions, as has been done in recent years. However, most individuals do not impart the full charisma and

attraction of an institution. Having someone at ISA from the Harvard Business School, or CATIE or INCAE, is different than having a person backed by the full institutional resources of the HBS, CATIE or INCAE. However, this alternative is more expensive than that of hiring individuals as short-term consultants or visiting professors. Also, some of the best institutions may not be willing to commit their prestige and resources through a contract with Third World institutions.)

(5) Constraint #5: Incomplete Communication and Overly-centralized Budget

Execution - ISA staff recognize recent improvements, but still feel inadequately informed and consulted on ISA's site plan. They still report small but unnecessary problems in getting reimbursed. They argue that things have improved during the last year, but they believe that a private sector institution, which teaches problem-solving, ought to delegate authority along with improvements in program execution. Effective administration of resources within ISA is necessary for its success.

A major element of administration is leadership style. Formal organizations, as they mature, tend to evolve from monolithic personalities and highly centralized structures toward pluralistic, decentralized structures. This is mainly a consequence of increasing organizational size, differentiation, specialization, and complexity. It simply is not possible for large, highly differentiated and specialized organizations to be efficient, or for that matter, effective, if they do not decentralize. ISA has evolved from a vocational technical high school

to an institute that provides secondary level (now phasing out), university level and post-graduate training, and aspires to an even more significant research program.

A traditional approach in Latin America is to centralize programmatic and financial planning and implementation at the top administrative level. However, this strategy has not been efficient. At ISA, cash flow problems may have made it unavoidable in the past. Though often at small institutions, national, regional and world class programs seldom arise if they limit themselves to the range and number of activities any one person, however brilliant, can supervise directly.

Accountability would be assured by reporting all expenditures through a centralized accounting system, requiring periodic verbal and written reports to the Rector, and internal audits (a posteriori).

A different strategy would be to delegate total responsibility for individual activities to each staff member. Each would be in charge of planning, administering and implementing an individual program of work, again subject to a budget approved by the Rector and Board. Each individual would be responsible for promoting a specific program with client groups. This would include partial responsibility for obtaining financial resources.

ISA, particularly under its current Rector, decentralized its program somewhat. Further decentralization should be encouraged. Each major

program component should be planned with participation by ISA staff and ISA leadership. However, once planned and approved, day to day implementation should be the job of an individual with full responsibility for routine implementation, within a budget approved by higher authority.

VII. Describe Programmatic Options for USAID which Parallel These Strategies and that Would Enable the Mission to Strengthen CADER and/or ISA's Development as Contributors to the Nation's Agribusiness Development and Policy Dialogue in the Agricultural Sector.

- (1) The major constraints to CADER's development, which are discussed in the previous section, were mentioned in the Jacome, et.al. (1984) evaluation of CADER and the Norvell report of 1986. Obviously, they have not yet been adequately addressed. This has resulted in a marked decline in the quantity and quality of progress activities in CADER. The options delineated here build on those suggested by Jacome, et.al., but they also address constraints within the broader institutional context of ISA. In retrospect, some of the Jacome, et.al. options were not viable, primarily because they did not take the institutional context sufficiently into account. The consultants, like USAID, looked only at CADER and solutions to its problems. Yet, to ISA's Director and Board Chairman, CADER was a part of ISA and CADER's problems were not unique. Logically, they resisted efforts to address the problems only for CADER.
- (2) It may be appropriate for USAID to analyze future assistance for CADER in both short-run and long-run terms. Long-run thinking will necessarily need to include consideration of a broader institutional support program for ISA. There are several reasons why this is appropriate.
  - (a) It will be impossible to solve the principal constraints faced by CADER without solving them for ISA generally; and

- (b) ISA has provided valuable services to the Republic, which are consistent with A.I.D. policies. ISA has, through its research, provided important contributions to crop production and marketing in the private sector. Crops include rice, white sorghum, tobacco, African oil palm and tomatoes. In addition, many of ISA's graduates are employed by the private sector, which considers them superior to graduates from other agricultural programs.
- (c) Initiating a project that would help solidify ISA's general teaching, research and public service functions would be consistent with A.I.D.'s institution building concern.
- (d) Leadership of ISA's Board of Directors has recently changed. There is a new dynamism present in the Board. The Chairman is anxious to initiate new activities and to reestablish ISA's prominence among institutions of higher agricultural education in the Dominican Republic and in the Caribbean region. The Chairman recognizes that this cannot be done without substantial increases in present salaries.
- (3) Short-run options can be exercised largely through use of funds which remain unexpended in the current CADER project. Only some of the strategies proposed in the preceding section can be addressed with these funds. Therefore, our options focus on them.

(a) Inadequate financing constraint. - The primary tool available to USAID to address this constraint is the endowment fund. The new Board of Directors is serious about collecting funds; One hundred thousand pesos in pledges and contributions were collected among Board members at the August 21 Board meeting. Fund raising for the new agricultural research foundation is a successful recent precedent. However, ISA may find some potential donors unable to give in the short run, precisely because they have pledged support for the research agency. Given the very real problem of a limited pool of resources in the private sector for ISA's endowment, we recommend that USAID "reward" recent efforts and stimulate additional contributions by reducing the amount of required counterpart funds.

PL-480 funds have been encumbered for use as part of the endowment. Most of them still have not been disbursed. However, neither have they earned interest to offset inflation. We recommend that, if the remaining funds are not disbursed soon to ISA, they be placed in an interest bearing account until final disbursement. Pertinent rules may not allow this. Furthermore, we realize that the monetary authorities would prefer that the funds remain sterilized and undisbursed as long as possible.)

A second option, although not related directly to the existing CADER project, would be to rearrange funding associated with other

USAID-funded projects to ISA. This would in effect guarantee additional sources of income, although on an irregular basis. Care should be exercised to earmark funding only for those projects which ISA can reasonably undertake.

A third option would be for USAID to pay overhead to ISA for activities which it requests ISA to undertake. This was also mentioned in the Jacome, et.al. evaluation. ISA has considerable real fixed costs associated with these activities. A 25% indirect cost rate was suggested in the Jacome, et.al. report.

- (b) Staff retention and development constraint. - The key cause of staff loss is the noncompetitive salary paid to ISA's staff. It must be addressed directly if CADER is to have a strong, lasting program. We recommend reprogramming of the remaining PL-480 funds to increase salary compensation. USAID may also consider requesting that ISA use the interest accruing to the RD\$1,200,000 already disbursed, precisely for their purpose.

CADER's staff salaries and benefits were increased somewhat in response to the conditions precedent of the project amendment. However, these increases fostered considerable resentment among non-CADER staff. Salary catch-up adjustments should be implemented for the entire ISA staff. Salaries competitive with the private sector would range from RD\$2,500 to RD\$4,000/month

for experienced M.S. or Ph.D. level staff, to RD\$1,000/month for newly trained teachers with limited experience.

PL-480 funds remaining in the account could be earmarked specifically for salary catch-up. Since ISA is able to pay its current salaries with other funds, earnings on the endowment funds could be used each year to provide "catch-up" and "keep-up" portions of staff salaries. There is sufficient money in this account to guarantee salary differentials and still provide additional flexible funding to pay other operational costs.

There are at least three strategies which could be used to address the salary problem. The first would be to adjust existing salaries by a fixed factor, such as 25%. This would recognize and maintain existing salary differentials, but place most salaries almost within an acceptable range. It could help greatly in faculty retention if it were coupled with the implementation of an updated version of the salary and advancement plan approved in 1985, but never implemented.

The second strategy would be to provide a differential adjustment, depending on current salary level. To move almost all present staff close to present private sector offers for their skills, training, and experience, it appears that one might increase all salaries now below RD\$1,000/month by 30%; all

salaries between RD\$1,000 and \$2,000/month by 40%; and salaries above RD\$2,000/month by 30%. Of course, USAID cannot propose individual salaries. However, USAID would want to see the list of new salaries which ISA's Rector and Board Chairmen propose to put into effect before approving the reprogramming as adequate to solve the retention problem.

The third strategy would be to establish endowed chairs for the major program areas; namely, CADER, the "agronomo" program, and the B.S. degree program. This was recommended by Jacome, et.al. in their report. ISA might even be able, in this way, to retire former ISA and CADER staff members. These individuals could give ISA the recognition and dynamism that would help attract further private sector support and demand for ISA products.

An endowed chair could be created for about RD\$600,000. At 16% interest, the current earnings on this sum would permit "star" salaries and benefits costing about RD\$8,000/month. However, ISA would have to allocate some added funds from year to year to monitor the real value of the endowment in the face of inflation.

While this approach would guarantee the permanence of several able staff, it would not solve the problem of staff retention among the majority, and could produce internal tensions similar to those produced by the limited adjustments made for CADER staff. If all

ISA salaries were first increased to levels approximating real market demand, then the establishment of preferential endowed chairs for a few truly outstanding persons, brought in from outside ISA, should not result in resentment and jealousy.

Given the recent staff departures, it will be necessary to train additional staff to return to the desired level of 8-10 resident staff for the CADER program alone. Additional training should be provided to promising young professionals, but with the usual requirement that they return to ISA for a stipulated period upon termination of training. If adequate salary incentives are in place, they may be less inclined to leave than their predecessors.

(c) Program leadership constraint. - Many of the suggested strategies were directly related to promotion of ISA's interests by members of the Board of Directors. These strategies cannot be directly stimulated or abetted by selective USAID funding. However, USAID can promote other strategies directly:

(1) The lack of an established presence in Santo Domingo has been identified as a major bottleneck in dealing with government agencies and private sector interests in the capital. ISA believes that it has solved this problem by appointing Luis Crouch as its representative in Santo Domingo. However, ISA requires a presence at the operational level. It is recommended that USAID consider funding an office for ISA

in Santo Domingo for a limited period to let ISA demonstrate its utility and importance. The individual assigned to this office would be responsible for:

- (i) promoting ISA's programs in government agencies and among agribusinesses;
- (ii) assisting in the preparation of seminars, workshops and other ISA program activities which are carried out in Santo Domingo.
- (iii) ISA never formally responded to conditions precedent concerning delegation of increased authority to the CADER Coordinator. However, ISA provided the CADER Manager with greater flexibility in decision-making. A major issue appears to be the rapidity of delivery of funding for program activities. USAID should again address the management issue. However, it should also be made clear that ISA should treat this action as simply a part of a broader plan to decentralize program and finance decision-making for the entire institute.

As an immediate step in the right direction, all ISA program managers might be given a larger petty cash fund. This should be sufficient to last at least a week longer than it normally takes ISA to replenish the fund, once the respective program presents receipts and a request for replenishment. A program which teaches problem-solving and management must be

a role model; it should not have delays and unpredictability in its own disbursements of budgeted funds for routine expenses.

- (iv) USAID should consider contracting with an institution for continued technical assistance to the staff in CADER in the short-run, and for the entire ISA program in the long-run. The technical assistance would be for strengthening the teaching, research and outreach functions at ISA. Ideally, CADER would have two new long-term resident advisors in place by January, 1987, when the present long-term advisor departs. These advisors would help project CADER's image nationally, provide contacts with other funding agencies, and provide support to other CADER staff. Contracting through an institution helps project ISA's image nationally, provides contacts with other funding agencies, and gives a sense of security to ISA staff.

## Appendix A

## CADER's Program Targets and Accomplishments through May, 1987

<u>Program Category</u>	<u>December, 1984</u>		<u>May, 1987</u>		<u>Difference</u>	
	<u>Activi- ties</u>	<u>Partici- pents</u>	<u>Activi- ties</u>	<u>Partici- pents</u>	<u>Activi- ties</u>	<u>Partici- pents</u>
Workshops and Seminars	23	1,443	41	1,762	18*	319
5 Week Administra- tion Course	6	222	13	500	7*	278*
Technical Assis- tance/Courses	--	-----	6	200	6*	200*
Case Studies Written	104		185		81	
Consulting As- signments	--		9		9	

\* Data taken from Project Paper Supplement and ISA/CADER Informe "Progresos y Logros," May 20, 1987.

EL FUTURO DEL INSTITUTO SUPERIOR DE AGRICULTURA  
 Discusion de Alternativas Estrategicas  
 de Organizacion, y el Papel de la Ayuda Externa

Profesores David Hansen y John Strasse

1. Introduccion.
  2. Antecedentes de apoyo externo al ISA
  3. Los Programas del ISA; Quienes son los clientes?
  4. Alternativas Organizativa para Implementar los Programas
    - a. Fuertemente Centralizada?
    - b. Fuertemente Decentralizada?
    - c. Decentralizada en implementacion, sujeto a un presupuesto y una auditoria a posteriori?
  5. El Papel de los Profesores
    - a. Hacer las clases conforme a un plan aprobado?
    - b. Realizar investigaciones?; Cuales?
    - c. Comercializar los servicios del ISA?; Proporcionarlos?
    - d. Participar en la planificacion?
    - e. Deliberar y determinar las normas del ISA?
    - f. Grado de participacion en la asignacion de recursos?
  6. El Papel del Consejo Directivo
    - a. Nombrar el Director del ISA?; Aprobar el presupuesto?
    - b. Conocer la marcha de los programas?
    - c. Apoyar a los programas activamente?
    - d. Buscar recursos para los programas?
  7. El Liderazgo del ISA en el Ambito Nacional
    - a. Puede destacarse el ISA sin "Estrellas" y "Lideres"?
  8. La Remuneracion, los Incentivos, y la Carrera Profesional
  9. La Seleccion, Retencion y Evaluacion de los Profesores
    - a. Dominicanos?; Egresados del ISA?; El caso del INCAE?
    - b. Los mentores externos?
    - c. El cargo del trabajo y las consultorias?
- Universidad Estatal de Ohio y la Universidad de Wisconsin; Consultores de USAID, hablando estrictamente a titulo personal.

## Appendix C

List of Individuals Interviewed

## I. Current and Past Board Members

- (1) Dr. Frank Joseph Thomen, Board Chairman
- (2) Don Victor Espaillet
- (3) Don Luis Crouch
- (4) Sr. Miguel Jose Luna
- (5) Sr. Emilio Olivo

## II. Government and Private Sector Employees

- (1) Luis Ernesto Perez Curvas, Undersecretary for Planning, Secretariat of Agriculture
- (2) Hector Leger, Undersecretary for Agricultural Economics, Statistics, Secretariat of Agriculture
- (3) Pablo Rodriguez, Technical Studies Unit, Policy Analysis Unit, Secretariat of Agriculture
- (4) Omer Benitez, Council for Consulting and Joint Agribusiness Ventures (JACC)
- (5) Teofilo Gomez, Council for Consulting and Joint Agribusiness Ventures (JACC)
- (6) Marisela Mendez, USAID Population/Health Contractor

## III. ISA/CADER Staff

- (1) Benito Ferreiras, ISA Director
- (2) Angel Castillo, CADER Manager
- (3) Jose Luis Rojas, OSA Vice-Director for Administration
- (4) Ramon Martinez Mota, ISA Library Director
- (5) George Thomas, CADER Advisor
- (6) Jesus de los Santos, CADER Staff Member
- (7) Rolf Minhorst, Animal Production
- (8) Joaquin Zarzuela, CADER Staff Member
- (9) Christian Strutz, Animal Production
- (10) Franklin Reynoso, Forestry
- (11) Alberto Rodriguez, Plant Production
- (12) Wilfredo Moscoso, ISA Vice-Director for Research
- (13) Domingo Carrasco, Agricultural Mechanization
- (14) Interaction with various other staff at staff seminar

**IV. U.S.A.I.D. Staff**

- (1) Thomas Stukel, USAID Director
- (2) Pirie Gell, Project Development Officer
- (3) Larry Armstrong, Project Development Office
- (4) Dwight Steen, ARDO Chief
- (5) Kenneth Wiegand, ARDO Deputy Chief
- (6) Emilio Martinez, CADER Project Manager
- (7) Delbert McCluskey, ARDO Staff
- (8) David Gardella, ARDO Staff
- (9) Cesar Cruz, ARDO Staff

## Appendix D: ISA Teaching and Research Staff, August 1987

<u>Name</u>	<u>Degree</u>	<u>Area</u>	<u>University</u>
Rafael Balbuena	Lic.	Mathematics	UCM
Pedro Benoit	MS	Horticulture	McGill, CANADA
Margarita Betances	MS	Recursos Forestales	Merida, VENEZUELA
Domingo Carrasco	MS	Mecanizacion Agricola	Nebraska
Rafael Cruz Robles	MS	Extension Agricola	Mayaguez, PUERTO R.
Angel Castillo	MAE	Administracion	INCAE
Bienvenido Castro	MPA	Administracion Publica	Pittsburgh
Humberto Checo	Ing. Agr.	Recursos Forestales	ISA-UCM
Jesus De Los Santos	MS	Economica Agricola	Texas A & M
Prospero De Leon	MS	Riego y Drenaje	Idaho
Jose Miguel Espaillet	Agron.	Produccion Animal	Zamorano, HONDURAS
Raquel Fernandez	MS	Ciencias de Cultivos	Oregon
Benito A. Ferreiras	MS	Reforma Agraria	Wisconsin
Rigoberto Garcia	Tecnico	Recursos Forestales	HONDURAS
Lucio Grassia	MS	Biologia	ITALY
Maximo Leon	MS	Fitomejoramiento	?
Ramon Martinez	MS	Bibliotecario	?
Francisco Mendez	Ing. Agr.	Asistente Investigacion	ISA-UCM
Manuel M. Michel	BA	Practicas Agricolas	ISA
Rolf Minorat	Dr.	Produccion Animal	Germany
Wilfredo Moscoso	Dr.	Tecnologia Alimentos	Cornell
Bob Nilson	BS	Recursos Forestales	USA?
Antonio Munoz	Tecnico	Recursos Forestales	?
Jose Cacer Payero	MS	Suelos	Idaho
Carlos Pucheu	MS	Produccion Animal	UNPHU
Franklin Reynoso	MS	Recursos Forestales	Gainesville, FLOR.
Alberto Rodriguez	Dr.	Fitomejoramiento	Ohio State
Manuel Rodriguez	Ing. Agr.	Horticulture	ISA-UCM
Victor Rodriguez	Ing. Agr.	Conversion de Madera	UASD
Jesus Rodriguez	Lic.	Literatura	UCM
Jose Luis Rojas C.	MS	Economia Agricola	Nebraska
Amerely Santana	MS	Bionalisis	?
Adolfo Serrate	Ing. Agr.	Recursos Forestales	ISA-UCM
Christian Strutz	Dr.	Genetica	Germany
Mario Tejada	Ing. Agr.	Produccion Animal	ISA-UCM
George Thomas	MS	Comunicacion Publica	?
Victor Vasquez	MS	Riego y Drenaje	Texas A & M
Hans Verner Rauen	Dr.	Avicultura	Germany
Joaquin Zerzuela	MS	Administracion de Empresas	INCAE