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9. ABSTRACT

This report evaluates the USAID multiple cropping project being implemented through a grant to the Centro Nacional de Tecnologia Agricola (CENTA) in the form of a contract with the University of Florida. A secondary purpose is an analysis of CENTA per se, since this has so many implications for the project. CENTA was established in 1942 and is a conventional research and extension organization. It emphasizes basic grains and genetics and relies heavily on modern inputs such as credit, fertilizer, herbicides, pesticides and certified hybrid seed. Operating style consists in the development of a commercial technology and in the persuading of farmers to adapt it with whatever material assistance the public sector can provide. The research division is divided into departments including agriculture, home economics and youth work. Multiple Cropping (MC) has an inter-disciplinary group attached to it, but places almost all of its emphasis on crops and closely related disciplines. It appears that MC has not yet been made relevant to specific groups of small farmers. The major obstacle in making MC relevant is the style of operation that emphasizes commodities and modern biological and chemical technologies surrounding those commodities. Inadequate attention is given to the farmer and to economic technology and perhaps other social factors. Short-term alternatives recommended are: re-designing the project to better meet the needs, current technology and resource endowment of the farmer and forming a Center extension

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service within CENTA. It is also necessary to address the problem of material support to the field extension workers and to form linkages with those entities that grant authority and allocate resources. A long term expansion plan is recommended for CENTA, with special attention given to livestock and manpower development.

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~~Dr Peterson~~

TRIP REPORT

K McDermott
Enjoyed reviewing
September 16, 1977
JHP

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PERIOD OF TRAVEL: August 8 - 19, 1977

ITINERARY: El Salvador

PURPOSE: Primary purpose of this trip was to provide an input for the annual evaluation of the USAID multiple cropping project being implemented through a grant to CENTA in the form of a contract with the University of Florida. Given the critical role of national technology innovation systems, CENTA's rather long history in the field, and its relevance to the U.F. project, it seemed expedient to achieve a second purpose, an analysis of CENTA per se.

In this report, the study of CENTA will be presented first, since it has so many implications for the project. Persons contacted are listed at end of report.

JM

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Background

CENTA is a relatively mature organization, dating from 1942. It is a conventional, old-line type of research and extension organization. It deals in modern technology, emphasizing basic grains and genetics, and relies heavily on modern inputs, such as credit, fertilizer, herbicides, pesticides, and certified hybrid seed. Operating style consists in the development of a commercial technology, guided heavily by agronomic criteria, and in the persuading of farmers to adapt it with whatever material assistance the public sector can provide. The research division is divided into departments, and extension includes the three conventional activities of agriculture, home economics, and youth work.

CENTA has a respectable record of achievement, particularly in seed with emphasis on corn. It has done good work in genetics and breeding and has made the seed widely available to farmers through its own efforts and through its support to the seed industry. It is estimated that roughly half of El Salvador's corn acreage is planted to certified seed. CENTO sells about a million pounds of seed a year, through extension and cooperatives, and is responsible for quality control of the private trade. CENTA prices are some 25 percent below those of the private seed trade, but given the supply-demand situation its commercial operations do not seem to cause disincentives to the private trade. CENTA seeds have a good reputation in the export market which can handle any gluts experienced up until now. Since my interest was stronger in research and extension I did not give the seed technology division the attention it deserves.

Organization

CENTA is organized into four groups--a management and administration group and three divisions of research, extension, and seed technology. This three-division organization dates from 1972, when research, extension, and teaching were organized into CENTA. The National Agricultural School, at sub-university level, provided the teaching arm, but it has since re-established its autonomy as ENA and was replaced in the CENTA structure by the elevation of seed technology from the status of a department.

The management and administration group is made up of the office of experiment station operations, information and documentation, legal counsel, external assistance, planning, administration, personnel, audit, shops and maintenance, and the CENTA-AID loan project (for physical plant construction.)

Extension also has a small headquarters group, consisting of the division chief and a regional operations chief, plus one national program leader-specialist in home improvement, small animals, small industries, 4-C (4-H) clubs, human nutrition, and two in crop demonstration plot packages.

CENTA has six extension regions. Ministry of Agriculture has four, and CENTA maintains compatibility with that organization by simply dividing the two largest into two and avoiding conflicting lines. The six regions are divided into 12 zones which are responsible for some 72 extension agencies. Each zone has a chief and an agriculture and home economics supervisor.

An extension agency has a core staff of agriculturists, the agency chief and three to four others, plus a 4-C agent, and one or two home agents, and occasionally another representing one of the home economics programs.

The Division of Research is constituted by the eight departments of field crops and horticulture, soils, parasitology, animal science, agricultural chemistry, agricultural engineering, agricultural economics, and biometrics.

Seed technology has three departments--production, certification, and processing plants.

Research

CENTA is making some significant changes in its research program. Starting in 1976 it has organized R and D efforts through interdisciplinary groups (IDG) into programs, projects, sub-projects, and experiments. The basic grains program has four projects, each with an IDG, 74 subprojects and 162 experiments. The industrial crops program has three projects, each with an IDG, 20 subprojects and 36 experiments. In the four other cases the IDG is organized at the program level--vegetable crops, fruit crops, multi-crops, and animal science--but these "programs" skip the "project" level and go to subprojects. IDG's are commodity-oriented, all but one in crops. The other departments do research and almost all are represented on all IDG's.

The size of the IDG's averages 20, ranging from 11 to 38. An individual proposes a subproject to one of the IDG's. If it passes this group it goes to the Technical Committee (TC), formed of department heads and division chiefs. If it passes there, the proposer can work it up. The IDG organization and TC provide for monitoring subproject design and implementation and for evaluation.

There is some fretting under the discipline imposed by the IDG, and it is more cumbersome than the earlier way, but it is strongly defended by CENTA leaders and appears to have more positive factors than negative. Some bugs have been eliminated in its second year. The system not only brings resources of several disciplines to a problem, it imposes a discipline to finish work and maintain program stability. There is some indication that CENTA has too many subprojects and in attempting to do too much simply can't do all of it well.

The research program is undergoing other innovations. From a traditional orientation to modern technology, CENTA seems to be moderating its doctrine by a greater consciousness of the farmer. Two things are happening. It has begun a systematic screening of the farmer varieties of corn and beans, finding they conduct themselves quite well in specific ecologies. Some traditional germ plasm may be introduced into the breeding program.

CENTA has also begun a systematic study of the farmer. It has completed what it calls a "Study of Cases," literally a survey of 95 farmers in such detail as to constitute virtually 95 case studies. Over a year these farmers were visited two or three times a week to collect data. Some analysis has been done, but much data remain. CENTA has the problem now knowing how to make the best use of this data and of economists in its program.

The animal science research is also an innovation. El Salvador, as do many LA countries, divides crops and livestock. CENTA is a crops organization, beginning its livestock activity in the 1970's after merger with the National Agricultural School. When the School separated itself from CENTA, some of the livestock staff remained. Animal science research is done on farms and does not make use of CENTA facilities. CENTA extension is crops oriented and does little work in livestock, other than some small species work for improved family nutrition. Another agency in the Ministry does livestock promotion work, but I was not able to determine the collaboration between it and CENTA's livestock group. Owing to its short history, the group has not felt the need of a strong extension operation.

The traditional program seems to be doing well. A new hybrid corn will be released soon, a varietal hybrid, with ETO and Tuxpeno Planta Baja (Short Plant), to be called H-8. This is the same parentage as ICTA Tropical in Guatemala. CENTA has demonstrated the viability of hybrids in a small-farm agriculture, but is enthusiastic about some new synthetic corns. Its S-1 sorghum is having some difficulties in the market, although it's proving popular in Guatemala's eastern area because of its value in tortillas for home consumption. The country's first hybrid sorghum is expected to be released soon. The private trade deals mainly in corn. CENTA aims to build a demand for sorghum that would justify entry of the private industry.

Other countries want to take advantage of CENTA's experience with the seed trade and of its improved germ plasm, but CENTA has something of a proprietary attitude and wants to recuperate the investment it has made in genetic research. I don't know the size of the investment, but my observations lead me to the hypothesis that the returns to El Salvador on its investment in R and D would compare favorably with the 40 percent plus average reported for other R and D experiences.

Extension Operations

Extension is a structured, formalistic program, depending heavily on the demonstration technique. Demonstration kits are designed by research and checked out in some way with extension. Extension has two persons who prepare and distribute the kits. They are the only non-administrative agricultural personnel in the headquarters staff.

Extension formally enrolls cooperators for the crop season and has forms for collecting data on the farm, extension inputs, and crop performance. Records are not complete, however, and I could discover no system for analyzing the data. The technology is selected by researchers. The planning office gives each agency a quota based on land area crop by crop. Extension works with small farmers, many of them tenants, but must enroll larger farmers in order to meet acreage quotas.

The demonstration plot is used both for method and result, and farmers visit it as the extensionist plants, weeds, fertilizes, and harvests. Meetings, on-farm visits and tours are popular methods, and some agencies use the circular letter to announce events. Mass media are used little if at all.

Extensionists are concerned chiefly with structured tasks with the enrolled clients. They manifest little concern for the mass of farm families, and their knowledge of farmers other than clients appears to be incomplete.

Traditional though it is in many ways, extension also is undergoing change. The service has been regionalized. This shifts the status of the national project leader-specialists more toward the specialist role, but leaving them a little uncertain of their role. Extensionists have changed from specialists working in only one crop to generalists who concentrate in an area and handle many crops, plus some organizational tasks. Some have complained about the change but still say that extension is a good career.

Problem the agency workers feel most sharply is the lack of supporting materials--signs for demonstrations, office equipment and supplies, visual aids materials, and supplies. All male workers have wheels, none of the female workers do. Gasoline is rationed, and repairs are slow.

It took a specific question to elicit them, but there were some complaints on technical support from headquarters, especially from the former specialists who now operate as generalists. In one agency the extensionists had not attended the so-called annual field days put on by the research service or the training courses provided by CENTA and CENCAP.

The home economics program, having no research backstop, deals largely in intermediate technology, in contrast to the modern technology of the

agricultural program. There are only three national level specialists (project leaders before regionalization), in nutrition, small industries, and home improvement, plus the former leader who still acts in a general leadership capacity, although authority has transferred to the regional chiefs.

In addition to the three specialties listed above, home economics also works in family planning and clothing and sewing. Nutrition includes work in home gardens and production of rabbits, chickens, and ducks. This project reports a new and growing interest in the soybean, especially for milk. Home improvement emphasizes the building of partitions for privacy in the campesino house along with home beautification. Small industries teach the making of articles from native materials for sale.

Home economics works through homemaker clubs which meet weekly. The home agent makes home visits in the community in the morning and meets with the club in the afternoon. With some 100 agents, the home ec programs work with about 9,000 families a year.

Extension works with 4-C clubs (corazon, cabeza, conocimientos, and capacidades), but I did not find out much about their operation.

Linkages

CENTA seems to be improving both internal and external linkages, but needs to do more.

Internally, it has strengthened linkages among the persons and departments of the research division through the interdisciplinary groups. That division in turn depends on both the seed and extension divisions for delivery of its product to the farmer. Extension-research linkages have been strengthened with the presence of an extension person on the interdisciplinary group and with the initiation in 1976 of the annual field days for extension. Technical support of extension still seems weak. There is no one person in either the extension or research service who has the responsibility to keep agents up to date in technology. The two demonstration plot workers apparently perform no technical support role except as the demonstration plots themselves inform the extension workers. Personnel of the field crops department do have a requirement to produce a publication each year.

Extension is linked with the seed division by its efforts in seed distribution.

External linkages are numerous and vary in degree of formality and probably effectiveness.

CENTA depends on linkages with others to provide inputs--funds, technology support, personnel, training, and information about the farmer. Much of this

analysis must be made on inference. Judging from the flight of personnel caused by low salaries and from El Salvador's relatively low investment in technology innovation in spite of CENTA's performance, linkage with funding sources needs improvement.

Linkages with international centers seem to be good, especially those sited in Latin America. One way to link to world technology is through training, and within the last few years 46 of CENTA personnel have studied in 15 foreign countries. These linkages were probably developed on the initiatives of the others, not by CENTA. The University of Florida linkage probably is less effective than would be expected since only one person on the team is a regular university staff member. Study in the U.S. is less than expected, largely because of language problems, which may be an impediment to linkage in general.

The National School of Agriculture (ENA) provides personnel at sub-university level. The Faculty of Agronomy provides B.S. level people. ENA is located on CENTA's central experiment station, contiguous to the new physical facilities CENTA will occupy soon. Relationships with these two manpower sources were not analyzed.

Knowledge and understanding of the farmer as an input has been provided on an informal basis up until now and has not been considered a critical input. Specific efforts are now underway to provide this input by linkages directly with the small farmer system.

CENTA has developed a reasonable number of linkages for product delivery that appear to be productive. However, there is opportunity for improvement, chiefly through structuring some of the current informal relationships.

Some of the most productive linkages are with the private seed trade which apparently is working well for that technology which can be packaged in a seed. CENTA sells some seed directly through extension and cooperatives, at subsidized prices. CENTA also links to the seed industry by field and laboratory inspection services that help maintain quality.

Other laboratory facilities provide for linkages with various elements of the economy. Chemical residues constitute a major problem for El Salvador, especially in export, and one section of the Department of Parasitology is working on that problem. Another section contributes to quality control of inputs by performing the laboratory work on which another agency of government bases its regulatory actions. Anyone with a complaint can use this service, either directly or through the extension service. Finally, CENTA laboratories provide soil analysis to anyone who requests it.

The Department of Parasitology links directly to agriculture through its trouble shooting service connected with disease or insect outbreaks. This

leads to on-farm experimentation in localized areas of the country, which tends to keep the agency in touch with the farmers.

Through extension agencies, CENTA has linkages with field operations of other national agencies. The most important of these is with the Development Bank which depends on extension to organize groups for credit guarantee and to provide technical assistance. Extension also works closely with the community development service, FOCCO, which provides 40 percent of the funds for community projects. Extension has informal, ad hoc relationships with various other agencies, both from the Ministry of Agriculture and other ministries. Linkages at other eschelons were not noted.

There is no formal, structured activity within CENTA to transfer technology at the wholesale level to the field or retail entities. There is frequent informal contact, and many of the employees of the other agencies are former CENTA people, which facilitates contact.

Linkages have also been developed with CENCAP (Centro de Capacitacion) in activities to provide technical training to others as well as to CENTA staff.

Personnel, the Human Resource

One of the most curious aspects of CENTA is the human resource aspect. CENTA has done a creditable job. The evidence is clear. Yet this performance has been achieved with what appears to be a relatively low level of investment in the human resource. The Department of Field Crops and Horticulture, for example, has only one person with a graduate degree and has roughly two persons with a less than B.S. training for each one with B.S.-level training. Since early 1974 only 12 people have been sent for study for more than 12 months and some of them are working on a B.S. degree. Few from CENTA have been sent for graduate work under the Florida contract, chiefly because of the problem of learning English, but also because their absence would upset the CENTA programs. There is no indication that over the last few years there has been in-country training that would compensate this seemingly low personnel training.

In the meantime, CENTA with an AID loan, has made a substantial investment in a complete new physical facility which will soon be occupied.

This is a puzzling phenomenon. According to the conventional wisdom the CENTA level of performance is not to be expected with so few graduate degrees. One needs to search for the explanation. It is likely that CENTA could invest profitably in the human resource, but it very well may be that this investment should not follow the conventional M.S.-Ph.D. pattern and that much of it could be done nationally.

There is a discouraging element in the El Salvador manpower situation, important not only to CENTA but to all other agencies. The Faculty of Agronomy has placed additional requirements for the Ingeniero Agronomo (B.S.) degree that is almost sure to choke down the already small stream of graduates. Raising salaries to bid for this scarce item is not an adequate solution.

Budget

CENTA has two kinds of budget problems. The allocation to its total program is low, and the salaries it is allowed to pay are sometimes low. It lost many of its personnel in 1976 but received salary adjustment authority and funds for 1977 which stemmed the personnel flight somewhat.

The 1975 estimated figure for the gross value of agricultural production comes to \$975 million for those commodities in which CENTA has the technological responsibility. CENTA's 1977 budget is less than one percent of that figure, \$8.5 million. The R and D allocation is less than half a percent, about \$3.7 million. The best guideline we have indicates that two percent of the gross value of agricultural product could reasonably be spent on R and D, a level which would allow a quadrupling of the budget.

The Multiple Cropping Project

Multiple Cropping (MC) is listed in the 1977 operational plan as a program but is handled as a project. An interdisciplinary group attaches to it, although it places almost all of its emphasis on crops and closely related disciplines. I could discover no evidence that MC has had a significant impact in the country. Perhaps there has not been time enough, but my expectations were that there would be some specific sites in which it had caught on. None was found.

Ignoring the time factor--which may be the main non-impact explanation--my study was oriented to identifying the "trouble." For the most part, the study turned up conflicting data, regarding farm size, farm size of CENTA clientele, rural unemployment, and MC labor requirements. My conclusions result from attempts to reconcile conflicting data and from inference and at this stage are useful more as hypotheses than as definitive assertions.

My hypotheses are:

1. That MC has not yet been made relevant to specific groups of small farmers.
2. Major obstacle in making MC relevant is the style of operation that emphasizes (a) commodities and (b) modern biological and chemical technology

surrounding those commodities at the expense of giving adequate attention to the farmer and to economic technology (and perhaps other social factors).

In a sense this may be saying that the MC project has exposed basic weaknesses in the CENTA operational style that is oriented by modern technology, relies on purchased inputs, and is restricted to individual commodities, even though it has served reasonably well. It needs to be pointed out that steps already taken (the study of cases and the employment of an economist on the University of Florida contract) may well lead to a solution of the problem.

MC in CENTA is very tightly defined. The term applies only to two crops being produced on the land at the same time. Beans or sorghum planted in mature corn is not considered MC. Further, now that CENTA has settled on a few basic crop combinations, other combinations are not really considered MC. There are two sets of combinations. The basic grain set is corn and beans the first cycle (of the rainy season) and pole beans (growing on corn stalks) and either sorghum or sweet potato the second cycle. Cowpeas are substituted for beans below 300 meters. The perishable set consist of corn and beans, with radishes optional, the first cycle, and cucumbers or tomatoes (growing on corn stalk trellises) in the second, with cabbage in the dry season if there is irrigation. One CENTA staffer stated that the system is set and all that was needed was to find better varieties to fit it. And indeed most conversation is around varieties and species already listed. Labor requirements are noted, but the only way they have entered R and D efforts is through the decision to test herbicides to reduce labor needs. The orientation is still largely by commodity (modified to combination of commodities) and still largely to modern technology.

In the field, two problems with the MC project were voiced. In the Ahuachapan agency, it was said that the farms are too big for the farmers to be interested in more intensive land use. In Suchitoto, there was complaint that weeds cannot be kept out of the double rowed corn and that the mixture of species made it difficult to use herbicides.

The sector analysis study being done by the USAID mission finds that of the 270,000 farms in the country, 190,000 of them have less than two hectares. On these small farms there is considerably less than ten percent expansion potential in land under crops. The analysis shows a 46 percent underemployment in El Salvador, the highest rate in Latin America. The study states, "The non-intensive nature of the commodity mix on the smallest farms (under three ha) in El Salvador is probably the most important income and employment constraint. Almost half of the value of production on farms under three ha comes from non-intensive annual crops while on 5-10 ha farms it drops to one-third."

The central rationale for work in MC, or any intensive production system, is to enable farmers to sell more labor. R. and D efforts must develop the technology that will enable farmers to economize on the use of their relatively scarce resource (land, and for many, capital) by using more of their relatively abundant resource (labor). Technologies that require increased use of purchased inputs are essentially substituting one scarce resource for another.

Recommendations

(or Alternatives for Consideration)

These alternatives for consideration will be presented under two headings-- short run and long run, depending on when the impacts will be felt, not necessarily when actions should be taken. All need immediate consideration.

Short-run alternatives and opportunities

1. The multiple cropping program needs immediate attention, and the need is urgent. Two actions have been identified for the project, but which can have beneficial impacts on CENTA as a whole. In fact, it would be useful to evaluate any alternative for the project in terms of its impact on CENTA. The project can be used as a means to test ideas for CENTA-wide application and for general strengthening of CENTA.

a. One action needed is to re-design the project so that it is oriented in large part to the farmer, his needs, his current technology, and his resource endowment rather than simply to the criteria of good crops technology. This action will require greater reliance on agricultural economists and perhaps a strengthening of that department. The input needed from agricultural economists can be roughly described as working with other specialists in accomplishing the following tasks.

-- Delineation of functionally homogeneous farming areas.

This determines the range (or area of relevance) of a farming system or a combination of crop enterprises along with associated technologies.

-- Analysis of the farmers' relative resource endowment and of his current technological and managerial practices in relation to his resources.

-- Identification and analysis of alternatives to current practices in technology and management.

b. The other action needed is to provide a Center extension service (as contrasted to a Field extension service) within CENTA, and the multiple cropping project could be used as a testing ground. Center extension is that function performed by the Extension Specialist in the U.S. system. The function consists of synthesizing information, preparing materials for technical support to field extension workers, training field extension workers, and counselling field extension workers on special problems. It is a service to field workers (extension workers and other agency field personnel), a sort of "wholesaling" of technology to the field worker who in turn "retails" to the farmer. Center extension, from its work in synthesizing materials and its contacts with field workers and farmers, can also play a major role in the identification of problems for R and D. If this function is not provided for in the structure, field workers will not be provided adequate technical support beyond what individuals will provide each according to his own criteria.

If assigned to a single project, a Center extension worker may not be employed full time and thus could do some R and D work. The U.F. project could add a person in this area, or the project could provide a consultant on a continuing basis who would work with CENTA personnel and U.F. personnel to install the function.

There is nothing to be gained by the adding of U.F. personnel in extension to help out in some way with current CENTA extension activities.

The first action listed is more urgently needed in terms of the MC project alone. Unless the technology fits the farmer, no amount of extension will achieve significant adoption. In terms of CENTA in the long run, both actions have a high payoff potential.

Neither of these actions is costly. Either could be achieved by a modest realignment of CENTA personnel and by consultant services available through the U.F. contract.

2. The mission and CENTA need to address the problem of material support to the field extension workers. A few hundred dollars per agency in equipment and supplies could increase productivity of the extension worker substantially. At the same time, the problem of delays in vehicle maintenance and repair need to be addressed. Training of drivers in preventive maintenance and an improved inventory of parts could help keep the extension worker mobile and help him get more miles out of his gasoline ration.

3. CENTA needs to give some attention to its enabling linkages with those entities that grant authority and allocate resources. With its achievement record, it merits easier access to resources and more authority to compensate personnel than it now enjoys.

Long-Term alternatives and opportunities

1. CENTA needs a long range development strategy. Given El Salvador's population pressure on its land, CENTA's demonstrated performance, the potential returns to R and D in agriculture, and the country's current low expenditure on R and D, El Salvador's national purpose would be well served by a substantial expansion in CENTA.

Such expansion needs to be orderly and strategically. It cannot be rapid because of the manpower constraint, the supply of which is highly inelastic. A growth rate of ten percent a year for the next 15 to 20 years seems reasonable. This would allow for a doubling every seven years, and a CENTA eight times its current size by the year 2,000 is probably reasonable. Certainly one twice its size in 1985 and four times its current size by 1992 is reasonable, certainly not oversized.

A series of five-year plans updated every two to three years would be useful.

Special attention needs to be called to two factors in such a plan. One deals with livestock and one with manpower development.

In El Salvador, R and D attention to livestock development has been very small, dating back less than five years. Two facts need to be faced. One is that livestock is a major component of the country's farm income, and the second is that livestock is important in the small farm sector. Its contribution to the small farm has been realized with no R and D input. If the small farmer is better understood (as suggested above) and if R and D attention were to be paid livestock, livestock could make a substantially greater contribution to the small farm economy. The strategy and plans need to face the issue of whether livestock R and D will remain in CENTA or be transferred to another R and D program. If attention to the small farm as a unit replaces the single commodity as CENTA's orientation, livestock should stay with CENTA.

Manpower perhaps is the most critical issue facing CENTA at present. Any significant expansion in its operation in the short run is almost certainly precluded by the small stock and output of ingeniero agronomos. Even current operations are threatened. This factor has implications throughout the sector, but yet cannot be solved in the sector, since another ministry has responsibility for much of the training.

Another important aspect in human resource development is post-graduate training, either for agronomos or for ingeniero agronomos. CENTA's experience is evidence (if not proof) that an agency can be effective with minimum reliance on personnel trained through the M.S. and Ph.D. This experience cannot be ignored. However, there may be a middle ground between virtually no postgraduate training and the costly MS-PhD syndrome. In-service training in selected technology for the agronomo (less than B.S.) who plays and will play an important role in CENTA's operations also needs attention.

A joint El Salvador-United States commission (longer lasting than a team) could be organized to develop and monitor the long-range strategy and plan. Such a commission was used by Frank Parker in the 1950's with what appear two decades later to be excellent results in India.

Development of this strategy and long-range plan would not be costly in terms of money. It would require a considerable input of time from well-qualified (and thus busy) personnel of CENTA and other government agencies. There would be no serious problem in mobilizing U.S. talent for the commission.

Persons contacted:

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