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AN EVALUATION OF THE PIADIC PROJECT:
AGRICULTURAL RESEARCH AND INFORMATION SYSTEMS
ROCAP PROJECT 596-0048

Report Prepared for
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AN EVALUATION OF THE PIADIC PROJECT

I. Introduction

This document is the final report resulting from an evaluation of ROCAP Project No. 596-0048, Agricultural Research and Information Systems. The evaluation was undertaken by Development Alternatives under Contract No. AID/otr-1383, Work Order No. 33, and was completed in the period from November 1977 through March 1978.

The ROCAP project provides support to the Interamerican Institute for Agricultural Sciences (IICA) in San Jose, Costa Rica, for the development of a regional information system involving agricultural research and planning information. The project is entitled Program for Agricultural Information for the Central American Isthmus (PIADIC) by IICA, and this acronym will be used in this report to refer to the project.

The evaluation study was carried out by a team consisting of Dr. George V. Poynor, team leader; and Donald R. Jackson; with the assistance and cooperation of the following agencies and institutions: (1) ROCAP; (2) IICA, through its central offices in San Jose, its North Zone Office in Guatemala City, and its individual country offices; (3) the national coordinating committees in the six countries, which are responsible for coordination of the PIADIC project with national policies, programs and projects; and (4) AID Missions in the participating countries.

We would like to take this opportunity to thank the many

people who gave of their time and knowledge to assist us in this evaluation. It would not have been possible without their cooperation and assistance. Special thanks are due to Harry Ackerman, Director of ROCAP; Donald Fiester, ROCAP's Rural Development Officer; Robert Hechtman, ROCAP's Evaluation Officer; James Murphrey, PIADIC Project Manager; Rogelio Coto, IICA Project Manager; and Jorge Castillo of IICA,

II. Background

Project Purpose. The purpose of the PIADIC project, as stated in the original project paper, is to forge a cooperative and coordinated effort by the regional and national institutions in Central America to: (1) upgrade the quality of research and orient it to the needs of small farmers; and (2) create a region-wide system for more effectively managing agricultural information.

In general, the project emphasis was on introducing and expanding, within the Central American region, the use of comparable standards, methods and procedures in order that agricultural information could be more effectively exchanged among regional, national and international users, and better directed toward the needs of the small farm sector.

Under the auspices of the project, IICA and ROCAP were to assist regional and national organizations in providing planners, researchers and information managers with information and methods for handling, processing and analyzing information that are needed to plan and develop programs to benefit the low income farm segment of the rural poor; and to develop norms for upgrading the research and information management capability in

Central America.

End-of-project status. The following elements were included in the Project Agreement as end of project status objectives:

1. Improved, standardized methods, specifications and sampling procedures for systematic collection of agricultural information and rural sector data have been developed, reviewed by the Regional Advisory Committees and are being used in the Central American countries.
2. The Regional Agricultural Data Bank has begun the systematic collection of agricultural information, research results and other rural sector data.
3. The Regional Agricultural Data Bank is capable of and is beginning to supply agricultural information, rural sector data and research results to regional and national planning and research institutions.
4. A regional system of market news and crop forecasting has been developed and is beginning operation in the five countries.
5. The Regional Organizations Advisory Committee is meeting at least semi-annually reviewing project progress and annual work plans, and has effective relationships with Ministers of Agriculture and the Permanent Committee on Plant and Animal Research.
6. The Regional Organizations Advisory Committee has reviewed the evaluation of Central American research capabil-

ity and needs, and has made recommendations for upgrading Central American agricultural research and information norms, methodologies and procedures to insure compatibility of the research information produced by regional and national institutions.

7. Guides establishing formats and models have been developed for multi-disciplinary, area-specific technological packages of information for use in increasing employment, income, improving the diet, and other economic benefits of low-income farmers.

8. IICA has established effective working relationships through Ministers of Agriculture, Directors of Research and National Planning Agencies for utilizing improved standards, methodologies and procedures for agricultural research and information management.

9. Regional and national agricultural research institutions in the five Central American countries have begun application of recommended standards, specifications and methodologies for improving research results.

10. Institutions from more than one Central American country are cooperating in special agricultural projects.

Project outputs. The end-of-project status objectives given above were to be accomplished by achieving the following outputs, over the life of the project:

1. Regional advisory and coordination groups have been formed and are advising on project direction and the regional information system's operation,

2. Manuals and guides explaining standards, methodologies and procedures of standardization, compatibility and comparability of agricultural research results and other information have been prepared.

3. Researchers trained in multi-disciplinary research standards, methodologies and techniques are working in research or other agricultural information services supportive to the Central American Agricultural and Research Information System.

4a. A standardized approach to the development of technological packages and systems of production have been prepared and established, and

4b. At least five technological packages that may be used in production systems will have been developed.

5. Regional information system with operational center and data bank will be designed with national and regional memory and transfer systems.

6. Technicians have been trained in principles and techniques of information management and are working in services supportive to the Central American Agricultural and Research Information System.

7a. Design of a market news and crop forecasting system has been accomplished.

7b. Adaptation for its use by mass media has been performed.

8. Information institutions are exchanging information with regional and country institutions in the form and format designed and recommended by the project advisors.

Summary of project development. In 1973 and 1974, ROCAP enlisted the assistance of IICA to undertake a study of agricultural information requirements in the Central American region. Dozens of national, regional and international institutions were canvassed, and the study confirmed what analysts working in Central America had long maintained: that there was a scarcity of reliable information relating to agriculture, and that methods for collecting, processing and analyzing agricultural information were inadequate to informational needs. The ROCAP project on Agricultural Research and Information Systems was proposed in response to the findings of this study.

The AID Project Paper for the proposed project was reviewed and approved by the DAEC of the Latin America Bureau on January 15-22, 1975. The project was approved for a four year period, at a level of funding of \$1.4 million (this was later increased to \$1.7 million when Panama was admitted to the project). The initial Project Agreement with IICA was signed in May of 1975, and project activity was initiated.

Summary of project activity. The first year of the PIADIC project involved a number of kinds of activity. In September of 1975 IICA presented the project to the Ministers of Agriculture of the Central American region, at a meeting in El Salvador, and in the following month the Regional Inter-Institutional Advisory Committee was formed and inaugurated. By January of 1976 three full-time technicians were assigned to the project, under a PASA agreement with the U.S. Department of Agriculture.

A major category of activity during the first year consisted of meetings held in each of the participating countries, with the purpose of explaining the project and its goals and objectives to national planners and technicians, to stimulate interest in having national information system plans coincide with project plans, and to engage national institutions in the preparation of plans at the national level. At the same time, the IICA project staff began preparation of a series of manuals designed to acquaint the national technicians and planners with the details of the project, and to provide guidance in the development of national level projects.

Although Panama had not been included in the original project, interest soon developed among Panamanian planners and information management technicians in the project, and in January of 1976 Panama issued a formal request to be included in the project. The Project Paper was subsequently amended to include Panama, and the budget was amended to \$1.7 million.

At the end of the first year of project activity (May 1976) a meeting of project participants was held in San Jose to review plans for the second phase of the project. These plans placed considerable stress on training national planners and technicians in methods for collecting basic agricultural statistics, and for coding and classifying research information for ease of storage, retrieval and dissemination.

From mid-1976 until the present time, project activity has been of three kinds: (1) continued efforts to develop, through assistance to the national advisory committees, plans at the national level for improving agricultural information;

(2) orientation and training of national technicians, primarily in basic statistical methods, area frame sampling techniques, and methods for codifying and using research information; and (3) research aimed at identifying possible technologies to be included in technological packages (tecpacs).

III. Project Accomplishments

National and Regional Linkages. The establishment of a system of committees, work groups and task forces at both the national and regional levels has taken quite a bit longer than was originally estimated in the project formulation. This is perhaps to be expected, since it has involved literally scores of introductory sessions, follow-up meetings, discussions, and informal seminars, at both national and regional levels. These exchanges have involved the participation of several hundred planners, technicians and decision-makers from the six participating countries and from regional and international organizations.

All of this necessary organizational work has not proceeded at the same pace from country to country. Information is viewed as a matter of national sovereignty in most countries, and for this reason decisions concerning the determination of information system design characteristics and the regional and international exchange of information require considerable time to be worked out. There are also the territorial imperatives of national and regional institutions to be taken into consideration.

It appears that IICA has done an excellent job in organizing the system of committees, work groups and task forces which will form the nervous system of the PIADIC project. While some

countries are farther along others in the development of national agricultural information projects, the national advisory committees are functioning to some degree in all of the six countries, as are the committees at the level of the regional institutions. These accomplishments correspond to Output No. 1 given in Section II. above.

While it is clear that this phase of the project has been well done, it has not been entirely without difficulties. We feel that there are lessons to be learned from some of the problems encountered, which will aid in improving this project in its later phases as well as future projects which involve regional cooperation.

In speaking to national planners we found that there was some criticism of the manner in which the PIADIC project staff went about the organizational phase of the work. Two basic criticisms were voiced: (1) the PIADIC staff came to the national planners with a completely determined approach to the development of agricultural information systems, without involving national planners sufficiently; and (2) the PIADIC staff, at least initially, was somewhat high-handed in dealing with national planners.

It is possible to wave these criticisms away by saying that without some prior organization along methodological lines IICA would not have had much to go to the national planners with, and that some aggressiveness on the part of IICA project staff was necessary in order to break through existing bias and mind-sets concerning the establishment of agricultural information systems. But the fact that the criticisms were

voiced indicates that these factors were responsible to at least some degree for the slowness with which this phase of the project was completed. It appears that most of the problems of this kind have now been worked out.

Manuals and Guides. A set of manuals and guides was produced early in the project by the IICA project staff. These documents deal with various aspects of project activity, from organizational issues to more substantive technical questions. Some of the titles are given below:

- Organization, Planning and Operation of the National Coordination Committees
- Diagnosis of a National Information System
- Natural Resources and Environment
- Establishment of a National Sample Frame
- Preparing Technological Information Packages
- Design of Information Systems for Marketing and Agricultural Predictions
- Integration of the Information Systems Existing in Central America
- Administering Information Flows: A Guide to Understanding and Organizing the Functions of Information Administration
- Improvement in the Use of Agricultural Information
- Procedures for the Coordinating Committees of the Regional Agricultural Information System

These publications have been used by the PIADIC staff to familiarize national and regional planners and technicians with the project's concepts and aims, and to provide a basis for continual guidance for project participation at the national and regional levels.

The actual value of these manuals is rather difficult to

determine. As textbooks for carrying out the development of national or regional information systems development they leave much to be desired, but it is probably impossible to write really good manuals of this kind, given the complexity of developing such systems.

Perhaps the greatest value of the manuals and guides has been realized in the organizational phase of the project, when they provided something concrete about which to center discussions, as well as evidence that the PIADIC project staff had put a great deal of time and effort into preparing an approach to information system development. But because of their generality, the manuals will probably be of less use in later stages of the project.

It should be pointed out that in the cases of market news information and the development of technological packages, manuals were written before the methodologies concerned had been completely worked out. The term "manual" is really a misnomer in such cases, and "concept paper" would be more appropriate.

Training. Training under the PIADIC project has taken place in at least three ways. Much of it has occurred in the course of overall organizational and planning activity for the project, on an informal basis. In addition, the diagnoses and subsequent development of national information plans by national advisory committees with IICA/PIADIC cooperation have had a training impact. We feel that this training has not been so much the PIADIC project training national planners, as a mutual learning experience brought about by the joint explor-

ation of information system issues and concerns. It is clear, for example, that PIADIC staff views concerning what a regional agricultural information system is, and how one goes about developing it, have undergone radical transformation since the beginning of the project.

Finally, there has been a series of short, formal training programs, usually of a very short term nature, concerning technical aspects of the project, such as statistical method or area frame sampling concepts and techniques. This portion of the project has been very well received. It has helped whet the appetites of national planners and technicians for more detailed and substantive information and training. The demand has grown to be so great, in fact, that there is no way that the PIADIC project can satisfy it, given present levels of staff, staff member qualifications, and levels of financing for training.

The biggest drawback to effective use of the PIADIC staff for increased training is the inability of a small technical staff to respond to the broad training needs occasioned by agricultural information system development. Currently the PIADIC staff dedicates only about one month per staff member per year to each of the six project countries. In the past this has meant infrequent and excessively short trips to participating countries.

Technological packages. Our impression is that the development of a methodology for using technological information in tecpac has not progressed very far under the PIADIC project. The concept which underlies the tecpac is an interesting one,

but its viability still must be proven. Thus the PIADCI project is the design and testing ground for the concept. Given the diversity of soils, climates and small farm cropping patterns extant in Central America, it is not clear how the development of these packages will proceed. But one thing is clear: the concept cannot be implemented without having information on soils and cropping patterns which is derived from two other ROCAP projects: (1) the soils fertility project; and (2) the multiple cropping systems project; both being carried out by CATIE. It is difficult for us to see how methods for developing tecpacs can proceed without very close cooperation among these three projects.

Regional Information System. The original concept of the project calls for the development of a regional information system, to be embodied in a regional data bank. We were pleased to find that this idea has diminished in importance in the minds of project officials as the project has progressed. We think that it would be a definite error to concentrate on the development of information systems hardware and data banks at the regional level before the development of even the most rudimentary standardization has taken place at the national level. We feel that the emphasis placed on national information system development by the PIADIC staff is the proper one. A regional data bank appears much less desirable at this time than well-designed and smoothly functioning national information systems. Once this step is accomplished, the task of setting up a regional information system should be much easier,

PIADIC officials indicate that the IICA document center,

IICA/CIDIA, will be the ultimate site for the regional information center for research information. This center is presently linked to several efforts on a larger than regional scale to develop general information transfer for research information, among them AGRINTER and CONOCIT^{1/}. But the actual degree of linkage is not clear to us, CIDIA has played no role in the PIADIC project to date, and it is not clear from information given to us what role it will play in the future.

Market news. The original idea of a market news system proposed to be developed in this project centered around a mass media service which would make available to small producers and others in the agricultural sector information on prices and other rapidly changing market phenomena,

Studies carried out in several of the participating countries under the PIADIC project to determine how best to develop a market news system have contained some surprising results, among them that information on commodity producer prices in various markets is not considered important by many producers. These producers, limited in their alternatives to one market in many cases, are much more concerned about availabilities of transportation and other related questions. This kind of information is difficult to envision being offered by a standardized mass media news service.

As a result of the work done under the project, it is not at all clear now just what direction the development of

^{1/} AGRINTER is the FAO Agricultural information system; CONOCIT is Mexico's information system on research and technology.

a market news service should take, In Panama, which is in the process of developing a proposal for improving its market information system, emphasis has been on improving information used by government agencies in the planning and policy making process, rather than to focus entirely on information to be disseminated to producers.

We rather doubt that the complex conceptual and methodological issues embodied in this component of the project will be answered satisfactorily during the life of the project, even given a project extension. But at the same time the issues are of great importance, and merit study.

Crop forecasting. This is a priority area of work for all of the participating countries, and as a result considerable progress has been made. Emphasis has initially focused on the development of area frame sampling systems for the six countries, on which to base crop surveys which will yield the information necessary for reliable crop forecasting. We hasten to point out that the establishment of a good crop forecasting system takes a number of years to work out. For this reason it is not reasonable to expect crop forecasting systems to be in place during the life of this project in all of the participating countries. Panama and Nicaragua are advanced in the establishment of such systems. Guatemala has only completed its area frame sampling design for one region of the country. Honduras has yet to begin area frame sampling design.

The progress that has been made to date concerns the acceptance of the area frame sampling technique as the basis

for crop forecasting systems, and the initial training of planners and technicians in the underlying principles of area frame sampling methods. In most countries there lies yet ahead the problem of updating aerial photography necessary for the design of the sample frame; field validation of the sample frame once it is designed; training of a cadre of survey technicians who will carry out the various surveys that use the sample frame; and the establishment of a smoothly functioning mechanism for processing and analyzing data from these surveys.

It should also be mentioned that area frame sampling is of much wider use than crop forecasting. The establishment of an area sampling system in Costa Rica has been estimated so productive of resources that it will save the government over \$3 million annually in total survey costs.

IV. Conclusions and Recommendations

1. The PIADIC project as originally conceived was too ambitious. It called for simultaneous attention to a variety of different lines of activity: organization of a region-wide network of planning and advisory groups; conceptualization of regional information needs; development of three distinct and quite unrelated methodologies for specific information components; followed by the installation and operational break-in of the resulting system components; and an abundance of training related to various aspects of the project activities.

The project has been quite successful in its organizational efforts, even though they have taken considerably longer than

originally estimated, It has succeeded in awakening a great deal of interest among national and regional planners in analyzing and planning for improved agricultural information, and in the need for compatible and comparable information concepts and standards. It has provided for more regional interaction and information exchange among planners and technicians concerned with these kinds of problems than has taken place previously in the region. It has been successful in encouraging national planners to move more rapidly to the development of national information plans and implementable information projects.

On the other hand it appears that the project has been less than successful in adequately conceptualizing and specifying information needs, except in a somewhat general way. These two things -- conceptualization and specification -- are quite distinct steps. Without adequate conceptualization precise information needs cannot be specified. And no information system can be designed and constructed without exactitude and painful attention to detail at the level of specification of data requirements.

2. It is difficult to find the connection in this project between the work that has gone on and the small farmer. The market news and techpac components, as originally conceived, were to be directly responsive to the needs of small producers. Subsequent study has shown that this may be very difficult to do for the market news component, and that much more work remains to be done before the techpac conspt becomes a reality. Many of the officials whom we talked to in our study considered the

project to be related to small farmers in only an indirect fashion, in that overall improvements in national information systems can permit governments to deal more effectively with small farm problems.

3. None of the PIADIC manuals and guides deals with the problem of disseminating information to the small farm, nor does any of the technical staff seem to have training or experience in this kind of activity.

4. It cannot be too strongly stressed that it is through national information systems that the project purpose is ultimately to be fulfilled. Although the original project objectives include the establishment of a regional information center, this should not take precedence over upgrading of national information systems. The PIADIC project has awakened considerable interest in the six countries of the region concerning the improvement of national systems.

A regional system cannot really exist before the corresponding national systems have been set up and are functioning well. It therefore seems that the proper order of priorities should be to concentrate first on national information system development. This does not imply that there should be no regional focus. To the contrary, if national systems are developed completely independently of one another, they are not likely to share enough commonality of definition and concept to permit regional information systems to be developed in a meaningful way. The PIADIC project plays a very useful role in: (1) providing a common conceptual framework (or at least the beginnings of one) which each country can adapt to its

own needs and priorities, while at the same time preserving enough standardization to enable meaningful regional integration of information; (2) assuring communication on a regional level among country decision makers and planners concerning information needs for decisions in agriculture; and (3) in providing technical assistance to national planners in the development of national information systems.

5. The PIADIC project has awakened a demand for such elevated levels of technical assistance that the project staff itself can in no way satisfy them. The most pressing need for technical assistance over the next year or two will probably be in area frame sampling. All six of the countries are assigning this a high priority in their national plans. Panama has had a functioning system for some time, but it is in need of updating, since the demographic and land use patterns upon which it is based are badly out of date. All of the other countries are in the early stages of establishing their systems, with Nicaragua most advanced, and Guatemala, Costa Rica and Honduras just beginning work on theirs.

A commonly heard complaint during our evaluation study from national planners was that PIADIC technical assistance personnel are not available often enough, and that when they do appear it is usually for only a day or two. The feeling is that not only is this pattern of delivery of assistance not efficient, but in some cases actually counterproductive. It may well be that these frequent, short visits functioned well in the early stages of the project, when promotional, organizational, and informal training activities were being

carried out. But it seems to us that for the tasks ahead this kind of involvement is too superficial to be successful.

6. There is one project component which can be extended to the regional level without waiting for the development of national information systems: the adoption and use of a method for coding research information. The PIADIC project has achieved acceptance of the THERMATREX method for indexing research information by the national and regional advisory committees to the project. This activity has not been assigned a high priority in national plans, although it is looked on more favorably by some of the regional organizations. There is a recognition by everyone we discussed the matter with that this kind of concern is of eventual importance. Furthermore, there seems to be little hesitation among the countries of the region to exchange research information at the regional level.

7. To summarize our conclusions, we feel that the PIADIC project has been a useful effort, in spite of a number of shortcomings. We feel that more attention should be paid in the future to the development of the national information systems, and that this will in turn pay dividends at the regional level. We think that it is too early to think of developing a large, comprehensive information system at the regional level.

We feel that specific attention should be paid to the problem of addressing the needs of small farmers through the project, even though the project may be able to do this in only a limited way.

We think that it is a real accomplishment that the PIADIC project has been accepted by all of the six participating countries, and that each of the six national advisory committees has produced a national information plan. We hope that in the future the project can correct some of the present problems, in order that progress can continue at an acceptable rate.

Annex I

Scope of Work

The Contractor shall provide personnel to evaluate ROCAP Project 596-0048, Agricultural Research and Information Systems.

1. The evaluation shall focus on degree of acceptance of methods, procedures, and standards promulgated in training materials prepared by and used in the project. A significant proportion of the evaluation shall be devoted to determining the extent to which information is being managed in a uniform fashion within and between the participating agencies and countries and whether information is presently being processed in a timely fashion and is reaching those institutions responsible for its dissemination. The evaluation shall also address project progress on:

a. Quality of agricultural statistics including rural sector data collection using the area frame sample.

b. Organization and functions of the national advisory committees and their constituent agencies including uniform data collection, processing, storage/retrieval, and dissemination.

c. Status of market news including systematic, uniform collection and exchange of price information.

d. Crop forecasting including production and dissemination of forecasting information by participating agencies.

2. Contractor personnel shall work out of San Jose, Costa Rica, and shall travel to all Central American countries and Panama. An initial briefing will be provided at ROCAP, Guatemala.

The evaluation will touch on other ROCAP agricultural projects insofar as they relate to Project 0048. Contractor personnel shall contact appropriate personnel of ROCAP, the Central American USAID's, IICA, CATIE, participating regional and national agencies, and project staff including U.S. contractors.

Annex II,

Acronyms

- CABEI - Central American Bank for Economic Integration
- CATIE - Central American Research and Training Center
- CIDIA - IICA Center for Information and Documentation
- DAEC - Development Assistance Executive Committee
- IICA - Interamerican Institute for Agricultural Sciences
- PASA - Participating Agency Service Agreement
- PIADIC - Program for Agricultural Information for the Central American Isthmus
- ROCAP - Regional Office for Central America and Panama
- SIECA - Permanent Secretariat for Central American Integration