

PROJECT STATEMENT
A. PROJECT SUMMARY

February 7, 1972

16p

1. Statistical

Project Title: Agricultural Diversification and Trade (Latin Am.)

Status: Continuing Project, Second Phase

Contractor: North Carolina State University

Principal Investigator: Richard Simmons; collaborators in Latin America

Duration: April 1, 1972 to March 31, 1975

Total Estimated Cost: \$347,041

Funding by Fiscal Year:	1972	\$ 113,544
	1973	116,346
	1974	117,151

49,879 / 12 = 4,156.58

Project Manager: Lawrence Witt, TA/AGR 347,041

2. Narrative

This is the second of three projects on this topic funded for planning in April 1971. The Contractor now has developed collaborative plans with economists in Guatemala, Salvador, Mexico, and probably Honduras, for joint studies of the export market possibilities for selected farm products. For these commodities, the team will collect data on production costs, marketing costs and bottlenecks, export costs, local and foreign demand to capture the current situation, then adjust these data to incorporate possible new technology, changes in market structure, in institutional changes, government policy and possible capital investments.

Such data will be brought together through a spatial equilibrium program, to identify the regions and countries having the greatest potential in each of the crops considered. This type of evaluation is complex since it must consider several countries and products simultaneously. But the results provide to planners a much improved opportunity to identify export promotion alternatives with the greatest promise, and thus to judge more objectively between programs of import substitution and export development.

Agricultural diversification (as explained in the initial proposal) is being sought by many LDCs for several reasons, including (1) finding alternative uses for land resources devoted to food grain production as self-sufficiency needs are met and exceeded, (2) creating higher incomes for farmers as they use their land more intensively, (3) seeking to produce farm commodities which better meet the tastes, demands and needs of their people, and (4) producing more products for international markets and earning more foreign exchange income. The Philippine-ERS project gives much attention to the first and fourth objectives, while this project concentrates more on the fourth and second objectives.

The cooperative work has been planned with economists in the Ministry of Agricultural and other public agencies. Each country is making professional and budgetary inputs.

B. Expanded Narrative Statement

1. Project Description and Background

Decision makers in many LDCs are giving increased attention to possible ways to increase the level of exports. They have already exploited many of the important substitution opportunities or found such policies less effective than they have hoped, yet continue to need an improvement in their foreign exchange position. They also desire to create an increased flow of income with its concomitant stimulation to employment and hopefully to a better distribution of income. At the same time they recognize that other countries too are striving to expand exports and that many countries impose restrictions which limit the inflow of their imports.

This situation calls for careful analysis of the export potential, including comparisons among countries, so as to identify those commodities and geographical regions of a country where efforts to expand exports are most likely to be rewarding. Technically, this suggests the identification of comparative advantage, but only if attention is also given to market demand, including the degree of market access in overseas markets. In addition, comparative advantage must be viewed as a dynamic concept. That is, a nation can, by some combination of research and technical assistance for certain commodities in the production - marketing sector create an enhanced ability to compete for foreign markets. Thus, analysis can suggest types of resource allocation - research, institutional development, capital investment, changes in government policy - which will enhance a nation's export opportunities.

Recent developments in methodology provide procedures for designing a "competitive trading model" capable of incorporating various restraints, such as tariffs, quantitative limitations, or transport bottlenecks. In fact, several quadratic programming algorithms are available, in addition to the standard iterative process.

This project was one of three financed for planning in FY 71 so that the U.S. and host country professionals could jointly develop a work plan and division of labor. One project already has been submitted, for the Economic Research Service, USDA, to work in the Philippines; this one is for work by North Carolina State University in Latin America; the third is being discussed by the East West Center with colleagues and USAID in Thailand.

These three subsector analyses focus on diversification and trade alternatives. Each is expected to follow an approach adjusted to the data base, the choices to be examined, and the relative emphasis on the micro and macro aspects of the problem. To strengthen the several projects, avoid duplication, and to facilitate the extension of this work to other countries and regions, periodic research workshops are planned to include Contractor personnel, LDC collaborators, selected personnel in other countries facing these problems and for whom these approaches may be appropriate. In addition, AID personnel will be invited to appropriately designed workshops, or Contractors invited to appropriate AID conferences and seminars.

The research will examine the export possibilities for selected high labor input crops, particularly vegetables in Central America. It will examine them in comparison with established exporters in Mexico and give attention to possible competitive relationships with Florida, when considering the East Coast markets of the United States. Starting with a few commodities, other products or other Central American countries may be added at a later date, if preliminary results warrant such an extension.

market demand information, for the overall comparisons in the competitive model, as well as working cooperatively in designing the research instruments for the Latin American colleagues, and general project administration and coordination. During the travel which accompanied the planning of this project, the necessary institutional support was obtained in each country (except Honduras where participation is still being developed), the individual economists responsible for the work in each cooperating country were named, and a specific project and workplan has been approved. See Appendix A of the North Carolina State University proposal.

In discussions accompanying the planning, agricultural scientists at CIAT and CIMMYT and from several other countries were very much interested in similar work on other commodities (corn, rice, livestock, oilseeds). This project provides a small budget to enable further discussions to take place with these international centers and the economists in other countries. The importance of this work stems from the need for economists and biological scientists to work together to identify relevant innovations and their characteristic impact upon production inputs and outputs. Such collaboration will occur with scientists in each of the presently participating countries as they work on the likely changes from present production and marketing patterns.

The type of evaluation proposed is complex because the various factors affecting the emerging network of international trade flows do not reside solely within a country or area. The demands of all potential importing countries, the supplies of competing exporters, and the simultaneous interaction of both sets of factors in different areas also affect the picture. The policies pursued by one country will affect the options available to others. Thus, it is important that all countries realize the mutuality of their interests in sharing the benefits of increased trade--both on a regional and world basis.

2. Significance to AID Objectives

This project will identify the economic opportunities for selected countries in Central America to expand exports of vegetable crops, which ones, and suggest whether major emphasis needs to be placed upon increased farm level productivity, institutional development, market export management, or market access and contacts. Thus, the results will be useful to both AID Mission and host country decision-makers. Moreover, these commodities are labor intensive; their expanded production and export can increase employment and flows of income to workers, while bringing in needed foreign exchange. At the same time, this analysis can identify imports that contribute to the welfare of U.S. consumers during periods of short supply, as well as possible adverse effects upon competing producers.

AID has long recognized the necessity of an efficient agricultural sector in a developing country and has tried to encourage investment to increase agricultural productivity. Developing countries have tended to emphasize import substitution as an alternative to exporting primary products. By providing detailed research results which indicate the potential for increasing trade and the welfare implications of increased trade, AID will be providing the incentive for increasing agricultural investments in LDCs, while simultaneously providing guidelines for formulating and implementing development plans in the host countries.

This project also will contribute directly to the increased involvement of economists in LDCs in cooperative research on important international issues. Linkages will be formed between research workers in each of the host countries and the U.S. group; this joint research effort will strengthen the host country capacity to provide objective information for its decision-makers. The provision of research assistantships for graduate study in economics for members of participating institutions will strengthen the general competence of the collaborators.

3. Relation to Existing Knowledge

Several studies have been made in several countries of Central America on the current costs of production, costs and bottlenecks in marketing and transportation, and in the relation of actual costs to prices in U.S. east coast and Western European markets, on the basis of current grades, qualities, costs, and institutional structure. These data will be utilized when and where possible, with modifications as necessary. In addition, the study will go on to consider a variety of dynamic changes, innovations in production, institutional structure, scale of operations, and the effects of larger volumes on markets, prices and costs. Moreover, this project will give special attention to competition among countries and regions, thus providing a basis for avoiding duplicative competitive efforts.

Over the past few years, substantial progress has been made in developing computer programming techniques for spatial equilibrium models. This research has been largely conceptual; however, this project will draw on these techniques and apply them to Central America to provide a better understanding of winter vegetable export potentials.

4. Relation to Other Research

Research workers in the Latin America Bureau have developed an approach for agricultural sector analysis in Columbia. They now seek to develop similar work in Central America. Dr. Simmons has discussed their work, the data desired and the methods of analysis. They have agreed to an exchange of information where suitable, and to obtain primary data in forms that are compatible with the other's procedure, whenever possible. During a series of meetings in early January, it was agreed that the two efforts are largely complementary. This is particularly true of the international comparative analysis, and the accumulation and organization of comparative data for Mexico and Florida, whereby this project will innovate towards identifying ways in which sector analyses for several countries can be integrated and interpreted. Both parties plan for further and frequent correspondance and personal interaction.

Another study, concerned with export marketing, is sponsored by a TA/DA contract with the Harvard Business School. In this study, primary concern is with the development of the training institution in Nicaragua, but utilizing a study project on fruit and vegetable exports as teaching and training materials. Some of the information collected will provide a second year of cost data for Dr. Simmons and his collaborators, and thus check on the validity of the data in another crop year, which the Simmons data on the impact of innovations will strengthen the Harvard group's analysis. Much of this other project's emphasis is on the private sector, in marketing and processing, and will be welcomed by Dr. Simmons and complementary to the relative emphasis on production that is likely from the collaborating economists in the Ministeries of Agriculture. Both groups have agreed to consult, to exploit the complementarity of the two projects, and to eliminate possible areas of duplication.

5. Proposed Work Plan

The work plan provides that Central American, Mexican, and North Carolina economists will work together in carrying this project forward. The host country economists will do country studies on crop production costs, possible innovations and their effects on costs, and assist in obtaining internal market, marketing, and export cost data. They have already helped in selecting the important products that are selected for initial analysis. North Carolina State will assist in this process by stationing one advanced Ph.D. candidate in the area, and through consultant services as needed. It also will provide comparable data for Florida, and take the major responsibility for the marketing and demand analysis data on the interaction of these data. The work has been defined in six stages, as follows.

Stage I (Two months) Specification of zones of production, drawing on previous technical and economic work.

Stage II (Six months) Sample of producers will be interviewed

for current input-output data, and combined with other work to identify innovations.

Stage III (Six months) Through partial budgeting (or linear programming) a variety of alternative prices, input use, yields, etc., will be budgeted and farm plans optimized.

Stage IV (Independently and concurrently with I, II, III) Analysis of market potential in the U.S. and likely changes due to population and income trends. Some work also will be done both on demand and marketing in Central America.

Stage V Analysis of alternative size and types of marketing plants and firms in Central America, and cost implications.

Stage VI Combination of all the above into the competitive spatial equilibrium model, and an analysis of the implications.

It is anticipated that Stages II and III will lead to in-country publications, in advance of the more comprehensive work of Stage VI. See Appendix A of the proposal for an elaboration of each of these stages and the information (benefits) each provides.

6. Research Methodology

The research will develop actual and possible future supply response data in each production area, the level and likely changes in market demand in the U.S. and in each participating country, the import demand in the U.S., primarily along the East Coast, the limitations on this demand by import policy or practises, the transfer costs and possible ways they affect costs could be reduced by investments or institutional changes. These data will be combined into an appropriately specified spatial equilibrium or trading model, which simulates trade flows and relative prices between regions on the basis of alternative production, market and trade strategies. Several quadratic programming algorithms are available.

7. Researcher Competence

The project leader, Dr. Richard Simmons, has about four years

experience in Latin America, and has continued his interest through students at the University. He is proficient in Spanish, and is widely acquainted with economists in Latin America. He also serves on the ADC (Agricultural Development Council) committee on international trade, with a special concern with research methodologies. Six of the other eleven research professors at NCSU who will be participating or interacting with Dr. Simmons and the cooperating C.A. economists also have substantial experience in Latin America. Some thirty students from Latin America have obtained graduate degrees in economics and have drawn on and interacted with these professors. Their research publications are extensive, ranging from commodity studies in specific countries to broad analysis of trade, tariffs, factor analysis, and foreign exchange. They are concerned with problem related research which helps decision makers improve policy and resolve problems.

The collaborators in Central America and Mexico have graduate degrees in economics or agricultural economics from overseas institutions, have responsible positions in or close to the Ministry of Agriculture, and are making current inputs into policy making processes. Research is part of their function and they welcome help in carrying forward these responsibilities.

8. Contribution to Institution Building

The host country cooperators are in Departments of Agricultural Economics working in or closely related to their respective Ministries of Agriculture. Thus, this experience will strengthen the analytical competency of this agency. At the same time the cooperation with North Carolina and with other host country economists will strengthen research linkages among countries.

The training programs and experience that are built into this project will also strengthen the analytical capacity of the cooperating institutions, as participants make their individual research contributions and take roles in the organization, following the completion of training.

Finally, it is anticipated that position papers and policy analyses will be prepared at the end of several stages of this project and will be of particular interest and use for the Ministry and AID decision-makers. This experience and the clarification of the role the professional plays in providing objective data and analyses to the decision-maker will be meaningful in a variety of other problem areas.

9. Utilization Plans

One level of utilization has already been mentioned, that of concern to the local country Ministeries, planning bodies, and the AID Missions. More important, in terms of world wide utilization, the testing and experience in this analysis will demonstrate the usefulness of this technique for other analyses of export possibilities, when several countries are giving attention to further diversification and export promotion. As indicated, in the presentation of the related project on the Economic Research Service, USDA, cooperative work in the Philippines, a series of workshops and seminars are planned to report to a larger audience the results that can be obtained through the several approaches being used, and for the different problems faced. The activities that are planned are listed below.

1. Semi-annual workshops in Central America among the participating economist (The other projects will also have such sessions).
2. Annual (or more frequent) conferences among the three Contractors working in Agricultural Diversification and Trade.
3. Periodic interaction with economists in the LA Bureau working on sector analysis, and with economists working with the Harvard Business School.
4. An annual seminar with AID/W following the submission of the Annual Report. Whether this will be joint or separate will be determined at the appropriate time.

5. An international seminar is scheduled for June or July 1973, at which the three contractors, and others doing similar work will present partial results, problems, and expected accomplishments for review, criticism, and suggestions. This will include professionals in the LDCs potentially interested in similar work. This could become two seminars, one in the U.S. and one overseas, one sponsored by the ADC in the U.S. with foreign participation. In any case an international seminar will be organized by North Carolina State at a suitable location.
6. A second international seminar, in 1974, will draw on more nearly final results and draw heavily on economists and countries that are potential users of one or more of these approaches.
7. Upon invitation, one or more of the contractors will discuss their work at regional conferences of F & A officers, mission economists, or representatives of other international agencies. The purpose is to help such individuals to understand better and to appraise the potentials of such work in other countries.

10. Budget Analysis

The budget provides funds for three man years annually of professional and clerical time from North Carolina State, and for six half time graduate assistantships from Central America. It also provides for consulting time, travel and two workshops annually in Central America. Funds are provided for the equivalent of one international seminar, representing North Carolina's responsibility to aid in this utilization of the results. Funds are also provided to explore further possible collaborative or additional work with CIAT, CIMMYT, and countries in South America. Computer use, publications, supplies and travel complete the direct costs.

The major budget items are:

	<u>1972</u>	<u>1973</u>	<u>1974</u>
Personal services	\$ 36,300	\$ 36,870	\$ 37,440
Graduate research assistants	21,600	21,600	21,600
Workshops, seminars	11,000	11,000	11,000
Domestic & foreign travel	18,000	20,000	20,000
Computer, research publications, & supplies	<u>12,500</u>	<u>12,500</u>	<u>12,500</u>
Direct costs	<u>99,400</u>	<u>101,970</u>	<u>102,540</u>
Indirect costs	<u>14,144</u>	<u>14,376</u>	<u>14,611</u>
<u>TOTAL</u>	\$ 113,544	\$ 116,346	\$ 117,151

In addition, four or five man years annually of professional time will be supplied by Central American countries and Mexico, plus two graduate assistants in Mexico, plus the time and expenses of field enumerators. Enumeration will be a significant amount in the winter of 1972-73.

11. Internal and External Reviews

The original project was presented to the several internal committees of AID in January to March 1971. It was approved by RAC in April 1971 for funding at a planning level, to identify collaborators,

and then to be returned for review.

This planning period included discussions with missions, host country professionals in Latin America and representatives of CIAT, and CIMMYT, starting during the summer, 1971. Frequent discussions have been held in Washington, the latest in January with the LA Bureau, and representatives of the Harvard Business School.

Various specifications and modifications have been discussed; many of them are incorporated in this proposal. Satisfaction with this process has been expressed by the parties participating in these activities, both as a better understanding of the research procedures and objectives, and of the adaptations to make the project more complementary to other activities and more meaningful.

In accordance with RIGC and RAC specification in March - April 1971, this revised project now is returned for discussion and approval.

This project was approved by RIGC on February 3, 1972 for presentation to RAC, along with suggestions for a few editorial changes.

12. Proposing Office General Evaluation

This office believes that this project is closely in accord with proposed new approaches in AID. It began as a TAB proposal, has been discussed intensively with the appropriate regional bureau, and in the field, and it involves cooperation and support in the host countries and with USAID missions.

The work is significant to the participating economists, and the agency they represent, but it also has significance beyond the country and beyond the region, both as a meaningful research study and as a testing of the ways in which the research techniques employed can provide information useful to national and international decision-makers.

AGRICULTURAL DIVERSIFICATION AND TRADE
(Report to RAC)

KPA 1-533
RAC Meeting
March 13-14, 1972
RAC Meeting
KPA 1-533

In approving the first of three projects in this area on December 3, 1971 for forwarding to RAC, the RIGC specified two additional reports, one on the status of the other two projects, and another on plans to extend the results to other countries. These reports follow.

1. Status of other Projects

A. The ERS-Philippines project was approved by RIGC in December for forwarding to RAC. It is on the March agenda.

The North Carolina State University - Latin American project was not fully developed on December 3 when the ERS-Philippines project went to RIGC. Since then the project proposal has been approved by RIGC (on February 3, 1972), and is on the March RAC agenda.

The East West Center/Thailand Project is still being developed. In late October a week long workshop was held in Bangkok with university and government professionals. A project proposal was drafted at that meeting. This draft appeared to be more acceptable to the universities than to the Bureau of Agricultural Economics and the AID Mission. Further discussions in Honolulu and Washington have modified the proposal, particularly to develop the linkages between the universities and the Bureau of Agricultural Economics (BAE) and the linkages with the comprehensive sector analysis project being planned by the BAE with the cooperation of FAO and AID. As of February 4, 1972, two members of the EWC

were again in Thailand to discuss these points, and make other inputs into project development.

2. Plans to Extend the Results of the Research

Both the ERS-Philippines and NCS-Latin America projects include a section on utilization. One level of utilization functions within the countries where the research is conducted, in interactions between the analysts and the decision makers, in using the information in policy formation. The other level of utilization is with other countries where individuals and institutions may find the methodology and the results useful. This statement is concerned only with the latter.

The principal results likely to warrant extension and communication with other missions and other LDCs probably will relate to methodology, but including how specific, substantive results become inputs into agricultural planning, programs and policies. The potential audience thus includes both the analysts and the users of the material, and including those who might support such analyses. As the third project is finalized, and as research experience is gathered further precision in utilization plans will be made. The present plans (at the international level) are as follows.

1. Annual (or more frequent) conferences among the contractors working in this area. Three such conferences have already been held.

2. Periodic interaction in AID/W with economists in the several regional and central bureaus working in this topic, such as the sector analysis group in the LA Bureau.

3. An annual seminar in AID/W at which the sub-sector analyses in each of the research projects will be presented, compared and contrasted in terms of the inputs required, results

obtained, and utilization being made as phases of the work are completed. Present thinking is to have joint seminars among the contractors.

4. An international seminar is scheduled for June or July 1973, where the three contractors and their collaborators (and others doing similar work) will present partial results, problems and expected accomplishments for review, criticism and suggestions. This will include professionals in the LDCs potentially interested in similar work. It probably will include some LDC personnel who are users or potential users of the information. The Agricultural Development Council has indicated an interest in sponsoring this activity.

5. If so, then a second international seminar drawing more heavily upon overseas personnel (research workers and decision makers in the LDCs) would be developed at a somewhat later date to give emphasis to the results and utilization of information, stressing the ways in which this analysis can contribute to the planning of export promotion activities in a multi country setting. This seminar would occur in 1974 if the ADC sponsorship fails to develop.

6. A third international seminar late in 1974 will be considered (particularly if ADC sponsorship takes place) to build on the activity described in 5. This would present final results, compare sector and sub-sector approaches, identify the problem situations appropriate to each, and suggest effective ways to improve the usefulness of the analysis planning process.

7. Upon invitation, one or more of the contractors are prepared to discuss their work at regional conferences of agricultural development officers, mission economists or representatives of other international agencies. The purpose would be to help such individuals better understand and appraise the potentials of such work in other countries.