

PD-ABC-595  
23

UNCLASSIFIED

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
Washington, D. C. 20523

Guatemala

PROJECT PAPER

Highlands Agricultural Development III

AID/LAC/P-586  
CR-147-147/1-466-471

Project Number: 520-0274  
Loan Number: 520-T-037

UNCLASSIFIED

**PROJECT DATA SHEET**

1. TRANSACTION CODE

A = Add  
 C = Change  
 D = Delete

Amendment Number

4

DOCUMENT CODE

3

2. COUNTRY/ENTITY  
Guatemala

3. PROJECT NUMBER

520-0274

4. BUREAU/OFFICE  
ORD

5. PROJECT TITLE (maximum 40 characters)

HIGHLANDS AGRICULTURAL DEVELOPMENT III

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)

MM DD YY  
09 30 93

7. ESTIMATED DATE OF OBLIGATION  
(Under 'B.' below, enter 1, 2, 3, or 4)

A. Initial FY 90

B. Quarter 1

C. Final FY 93

8. COSTS (\$000 OR EQUIVALENT \$1 = 2.78)

A. FUNDING SOURCE	FIRST FY 83			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	C. Total
All Appropriated Total						
(Grant)	( 1,300 )	( 200 )	( 1,500 )	( 13,586 )	( 10,514 )	( 24,100 )
(Loan)	( 3,664 )	( 6,836 )	( 10,500 )	( 4,760 )	( 8,740 )	( 13,500 )
Other U.S.						
1. Peace Corps				381		381
2.						
Host Country		6,311	6,311			
Other Donor(s)					24,710	24,710
<b>TOTALS</b>	4,964	13,347	18,311	129	1,472	1,601
				18,856	45,436	64,292

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) FN	220	690	260	11,400	13,500	7,000	-	24,100	13,500
(2)									
(3)									
(4)									
<b>TOTALS</b>				11,400	13,500	7,000	-	24,100	13,500

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

210 213 221 232 750

11. SECONDARY PURPOSE CODE

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code BF BS  
 B. Amount 18,600 19,000

13. PROJECT PURPOSE (maximum 480 characters)

To enhance the sustainability of rural agricultural productivity and commercial crop diversification.

14. SCHEDULED EVALUATIONS

Interim MM YY MM YY Final MM YY

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000  941  Local  Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a page PP Amendment)

I have reviewed the methods of implementation and financing of this project and certify that they are in agreement with Payment Verification Policy.

*Joe O. Hill, Jr.*  
 Joe O. Hill, Jr.  
 Controller

12/26/89  
 Date

17. APPROVED BY

Signature  
 Anthony J. Geronzi  
 Title  
 Director USAID

Date Signed  
 MM DD YY  
 12 26 89

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY

**PROJECT AUTHORIZATION AMENDMENT**

**Name of Country:** Guatemala  
**Name of Project:** Highlands Agricultural Development  
Phase III  
**Number of Project:** 520-0274

Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, the Highlands Agricultural Development Project for Guatemala was authorized on July 27, 1983. The authorization is hereby amended as follows:

1. Section 1 is deleted in its entirety and the following is substituted therefor:

"1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Highland Agricultural Development Project Phase III for Guatemala involving total planned obligations of not to exceed Thirteen Million Five Hundred Thousand United States Dollars (\$13,500,000) in loan funds and Twenty Four Million One Hundred Thousand United States Dollars (\$24,100,000) in grant funds, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the Project. The Project Assistance Completion Date is September 30, 1993."

2. Section 2 is deleted in its entirety and the following is substituted therefor:

"2. The Project consists of assisting the Government of Guatemala to expand the role of commercial, diversified agriculture in the Highlands by:

- a. expanding small-scale irrigation activities and programs in watershed management, including agro-forestry and soil and water conservation;
- b. strengthening the research and extension programs in development and dissemination of production technologies;
- c. improving a credit delivery system to serve small-scale farmers and/or farmer groups;
- d. developing a commercially based agricultural marketing and processing system."

e. strengthening the Plant Protection Division of the general directorate of agriculture (DIGESA) to enhance its ability to guarantee the safety and compliance with pesticide regulations of all agricultural produce in Guatemala.

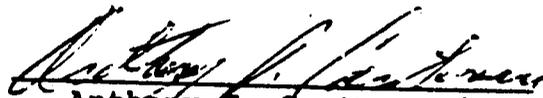
3. Section 3 is amended to add the following:

"g. Covenants (Grant)

The Grantee hereby covenants that, except as the Parties may otherwise agree in writing:

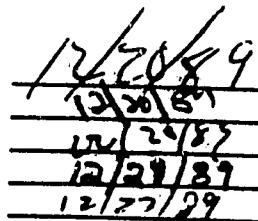
"1) No disbursement will be made to any participating entity without AID's prior approval of that entity's annual implementation plan.

7. The authorization cited above and subsequent Project amendments remain in force except as hereby amended.

  
Anthony J. Gaucherucci  
Director USAID/Guatemala

Clearances:

PDSO, DBoyd \_\_\_\_\_  
ORD, GStraub \_\_\_\_\_  
PRM, DAdams \_\_\_\_\_  
CONT, JOHill \_\_\_\_\_  
DDIR, SWingert \_\_\_\_\_



4708C

PROJECT AMENDMENT No. 4  
HIGHLANDS AGRICULTURAL DEVELOPMENT  
PHASE III

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- G. Institutional Analysis of the Gremial
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- J. IEE

## LIST OF ABBREVIATIONS

AID	U.S. Agency for International Development
BANDESA	Banco Nacional de Desarrollo Agrícola (National Agricultural Development Bank)
CABEI	Central American Bank for Economic Integration
CBI	Caribbean Basin Initiative
COGAAT	German Food Assistance Program
COREDA	Comité Regional de Desarrollo Agrícola (Regional Committee for Agricultural Development)
CORSEPE	Comité Regional Sectoral de Producción para la Exportación (Regional Sectoral Committee of Production for Export), composed of representatives from BANDESA, DIGESA, DIGESEPE, ICTA, INDECA, DIGEBOS and INACOP
COSUCO	Comisión Superior de Coordinación (Superior Coordinating Commission), composed of the heads of all MAGA General Directorates and Institutes
DIGEBOS	Dirección General de Bosques y Vida Silvestre (General Directorate of Forests and Wildlife)
DIGESA	Dirección General de Servicios Agrícolas (General Directorate of Agricultural Services)
DIGESEPE	Dirección General de Servicios Pecuarios (General Directorate of Livestock Services)
EAP	Escuela Agrícola Panamericana (Panamerican Agriculture School)
EEC	European Economic Community
EEE	Educación Extra Escolar (Non-formal Education)
EIA	Environmental Impact Assessment
E/NR	Environment and Natural Resources

**EPA** United States Environmental Protection Agency

**FAA** Foreign Assistance Act

**FAO** United Nations Food and Agriculture Organization

**FDA** United States Food and Drug Administration

**FSR/E** Farming systems research and extension

**FX** Foreign Exchange

**GDP** Gross Domestic Product

**GOG** Government of Guatemala

**HAD** Highlands Agriculture Development Project (520-0274)

**ICAITI** Instituto Centroamericano de Investigación y Tecnología Industrial (Central American Institute for Technological and Industrial Research)

**ICTA** Instituto de Ciencia y Tecnología Agrícola (Institute of Agricultural Science and Technology)

**IDB** Inter-American Development Bank

**IFPRI** International Food Policy Research Institute

**IICA** Interamerican Institute for Cooperation in Agriculture

**INACOP** Instituto Nacional de Cooperativas (National Institute for Cooperatives)

**INAFOR** Instituto Nacional Forestal (National Forestry Institute), now defunct

**INAP** Instituto Nacional de Administración Pública (National Public Administration Institute)

**INCAP** Instituto de Nutrición de Centro América y Panamá (Central America and Panama Nutrition Institute)

**INDECA** Instituto Nacional de Comercialización Agrícola (National Institute of Agricultural Marketing)

**INE** Instituto Nacional de Estadística (National Statistics Institute of the Ministry of Economy)

IQC	Indefinite Quantity Contract
IRR	Internal rate of return
LAC	Latin American and Caribbean Bureau of A.I.D.
LC	Local Currency
MAGA	Ministerio de Agricultura, Ganadería y Alimentación (Ministry of Agriculture, Livestock and Food)
NTAE	Non-Traditional Agricultural Exports
OAS	Organization of American States
OPG	Operational Project Grant
ORD	Office of Rural Development, USAID/Guatemala
PACD	Project Assistance Completion Date
PASA	Participating Agency Service Agreement
PAU	Project Administration Unit
PP, PPS	Project Paper, Project Paper Supplement
ProAg	Project Agreement
PROGETTAPS	Proyecto para la Generación y Transferencia de Tecnología Agropecuaria y Producción de Semillas (Project for Generation and Transfer of Agricultural Technology and for Seed Multiplication)
PSC	Personnel Service Contract
RFP	Request for Proposal
ROCAP	Regional Office for Central America and Panama of A.I.D.
TA	Technical Assistance
TCS	Technical and Coordinating Secretariat (Project Implementation Unit at COSUCO)

UCPRODA    Unidad de Coordinación para el Proyecto de  
Diversificación Agrícola (Coordination Unit for  
Project 520-0255)

UNDP        United Nations Development Programme

URPA        Unidad Regional de Planificación Agrícola (Regional  
Agricultural Planning Unit)

USAID       A.I.D. Mission in Guatemala

USDA        United States Department of Agriculture

USPADA     Unidad Sectoral de Planificación para la Alimentación  
y el Desarrollo Agrícola (Sector Planning Unit for  
Food and Agricultural Development)

WFP        World Food Programme

## SUMMARY AND RECOMMENDATIONS

### Recommendations

The following recommendations are submitted for approval:

1. \$7,000,000 in grant funds be authorized in FY90 for the Highlands Agriculture Development Phase III (HAD III) Project Amendment No. 4.
2. The Government of Guatemala (GOG) will provide an equivalent \$1.121 million as contribution to the Project. Non-government institutions will provide an additional \$1.601 in counterpart contributions. (Exchange rate based on \$US1.00 to Q.2.78). In addition, other USG input in the form of Peace Corps support to the watershed management component is valued at US\$381,000.
3. Goods and services financed by A.I.D. under this Project Amendment shall have their source and origin in the United States, Guatemala or in countries that are members of the Central American Common Market, except as A.I.D. may otherwise agree in writing.
4. The principal Grantee will be the Government of the Republic of Guatemala acting through the Ministry of Public Finance. The Ministry of Agriculture, Livestock and Food (MAGA), chief implementing agency for the Project, will also be a signatory to the Grant Agreement Amendment. In addition, Cooperative Agreements are to be signed with CARE and the Non-Traditional Products Exporter's Guild (Gremial de Exportadores de Productos No-Tradicionales).

### Summary Project Description

The HAD III Amendment will provide technical assistance, training and commodities which will lead to the institutional strengthening of the Dirección Técnica de Sanidad Vegetal (the GOG's Plant Protection Agency), implementation of watershed protection and agro-forestry activities upstream from HAD small-scale irrigation farmers, execution of research directed towards crop-specific management problems, and a continuation of export marketing activities conducted by the Gremial de Exportadores de Productos No-Tradicionales (Non-Traditional Products Exporters Guild), initiated under the Agribusiness Project (520-0276).

This design of this Amendment responds directly to environmental issues raised by the CY88 Environmental Impact Assessment (EIA) of HAD II and constraints identified in the

1989 Cross-cutting Evaluation (CCE) of USAID projects in the Guatemala Highlands. The Amendment also seeks to consolidate a series of activities jointly financed by USAID and the GOG during the past 15 years to address development problems of small farmers in the Highlands. The Mission and the GOG envision this four-year amendment as part of a strategy to enhance the long-term sustainability of the HAD Project activities.

#### Goal and Purpose

The goal of the overall HAD Project is to enable the rural sector to make a greater contribution to national economic growth. The purpose of this Project Amendment is to enhance the sustainability of rural agricultural productivity and commercial crop diversification through the improvement of pest and pesticide management, watershed conservation, directed research and continued support for export-oriented marketing services.

#### Rationale

The agriculture sector has long been dominant in the Guatemalan economy, and continues to be a critical sector to the country's economic development, accounting for over 25% of the country's Gross Domestic Product (GDP). It assumes even greater importance in other aspects of the economy: almost six of every ten people in the workforce are employed in this sector, and agricultural exports generate two-thirds of the country's total foreign exchange earnings.

The sector is comprised of two broad systems: the "commercial" and the "subsistence". The USAID/Guatemala Agriculture Sector Development Strategy for 1988- 1992 addresses this duality by proposing to move increasing numbers of subsistence farmers into commercial operations while improving investment, efficiency and income-generating opportunities for already existing commercial enterprises. In broad terms, the strategy contains two qualitative targets:

- Fuller use of existing productive capacity in the commercial groups
- The expansion of productive capacity by enabling the populous subsistence group to produce efficiently and competitively through improved knowledge, skills, infrastructure and resources, thereby permitting this group to make the transition to commercial agriculture.

The Mission focuses a large portion of its rural development portfolio on the expansion of opportunities related to irrigation, marketing, and crop diversification in the Highlands. These are areas in which employment, income and production pay-offs are relatively quick. The agricultural development portfolio also supports the promotion of commercial export production through both policy reform and institutional strengthening activities. The need has become increasingly clear, however, to address both the sustainability of increased agricultural production through the protection of the country's natural resource base, as well as export market information and infrastructure development. The proposed amendment has been designed to strengthen both public and private capabilities in this regard.

#### Summary Findings

This Amendment is ready for implementation and is judged to be socially, financially and environmentally sound, and technically and administratively feasible.

#### Statutory Criteria and Mission Director Certification

1. The Project meets all applicable statutory criteria. Appropriate checklists are included in Annex A.
2. A certification by the USAID/Guatemala Mission Director that the GOG has the capability to implement and maintain the Project is included in Annex B.

#### Project Beneficiaries

The Amendment will benefit small subsistence and commercial farmers in the Highlands by assisting them in the transition to viable commercial operations. The HAD Project is being implemented in Regions I, V, VI and VII, comprising most of the Highlands agricultural areas of the country. (See map on following page).

The rural population in the Project area is about 3.4 million. The Amendment will directly benefit about 6,000 small farmers and their families, or an estimated 36,000 Highlands inhabitants.

Summary Project Amendment Budget\*\*

Description	Grant	GOG*	Other (non GOG)	Total
Watershed Management	\$2,500,000	\$118,744	\$631,013	\$3,249,757
Institutional Strengthening of Plant Pro- tection Divi- sion	\$1,500,000	\$1,002,068	\$124,316	\$2,626,384
Research Fund	\$1,000,000		\$715,000	\$1,715,000
Institutional Strengthening of Non-Trad- itional Export- er's Gremial	\$2,000,000		511,829	\$2,511,829
TOTAL	\$7,000,000	\$1,120,812	\$1,982,158	\$10,102,970

\* In-kind contribution (personnel support, office space and equipment maintenance). Quetzal equivalent at \$1:Q2.78

\*\* Please see Table 1 of Financial Analysis for USG and other non GOG-counterpart.

Response to NPD Guidance Cable

The AID/Washington review of the HAD Phase III New Project Description recommended that the following information be included in the Project Paper Supplement:

1. Analysis of the effect of an additional \$7.0 million on the feasibility of reaching HAD expenditure targets by PACD.
2. Discussion of potential overlap of the proposed E/NR component with the Mission's proposed new \$10.5 million FY90 Natural Resources Management Project.
3. Discussion of how the \$1,000,000 research and \$2.0 million marketing activities with the Gremial tie in with the Mission's current portfolio in these areas.
4. Discussion of the relationship of the proposed pesticide activities with those supported by ROCAP's RENARM Project and the LAC Bureau's DEMS Project.

5. Is an initial environmental examination and/or assessment required for the proposed \$7.0 million add-on?

These five issues are addressed in the PPS in the following manner (Annex L contains the fax replying fully to these issues):

1. HAD Project expenditure rates in the next four years will have to double those achieved under the original Project. Mechanisms will be in place in January 1990, including technical assistance contractors and a Procurement Services Agent (PSA), which will significantly increase the rate of disbursement of Project funds. Phase Two of this project, obligated in August 1988 has been spend preparing the personnel of four new implementing agencies to assure expeditious project implementation. The training is completed and Phase II's activities are coming on line. This will result in greatly increased expenditures. Furthermore, the proposed amendment adds two more implementing agencies (CARE and the Gremial), both of which will have funds obligated directly. Their track records have been very satisfactory, and their extensive experience conducting the proposed activities will require a minimum start-up period.
2. The Maya Resource Management (MAYAREMA) Project will undertake new and innovative activities directly addressing Amendments 118 and 119 of the FAA, the Mission's current Action Plan and CDSS, and the Central America Regional Strategy on Environmental and Natural Resource Management. The two Projects will address different types of natural resource problems, and will be focused in different regions of the country. The MAYAREMA Project will mainly address the loss of biodiversity and tropical forest issues, and will not directly address pesticide or watershed problems as the HAD amendment does. MAYAREMA will have a geographical focus in the lowland tropical forested areas (i.e., the Petin), whereas the HAD amendment will continue the Project focus in the Highlands on enhancing the sustainability of agricultural interventions through soil and water conservation and pesticide management activities.
3. The decision to provide continued support to the Gremial through its incorporation into the HAD Phase III Project was based upon a growing recognition that, if the Mission's program of agricultural

diversification was to be institutionally sustainable, additional support in the area of marketing was needed. The recently conducted Cross-cutting Evaluation of USAID's efforts in the Highlands, in particular, underscored the need to strengthen marketing within the Mission's overall program. The HAD Phase II addressed marketing of produce from agricultural diversification efforts only within a domestic market framework, but did not provide support for international export market development. The Mission determined that the most efficient and effective approach to the continued development of international markets was to incorporate AID's assistance to the Gremial, originally provided under the Agribusiness Development Project, within the existing HAD Phase II Marketing component.

The proposed applied research fund provides a mechanism for joint private sector/AID funded research to address specific constraints in Non-traditional Agricultural Exports in the areas of production, post-harvest handling, and marketing. It permits private sector input into the establishment of research priorities that will promote growth in NTAE's and permit better compliance of Guatemalan produce with U.S. EPA and FDA regulations for product entered into the U.S. The matching-grant mechanism ensures that research will be directed towards practical issues and that results will be made widely available. The research fund will complement but not overlap with that supported by the HAD Project with ICTA.

4. The ROCAP RENARM Project will deal with pesticide issues from a private sector perspective, and thus will complement HAD Project efforts with the GOG Plant Protection Agency (Sanidad Vegetal). Although not a buy-in to the RENARM Project, a portion of HAD training funds will be used to participate in the ROCAP development of a pesticide recommenders training course. As the private sector component of the ROCAP Project is developed, a joint effort will be made to develop a Memorandum of Understanding between the U.S. FDA and the Ministry of Agriculture, involving both the public and private sectors. The RENARM Project will assist in the development and carrying out of this agreement.
5. The Mission will conduct an IEE for the activities to be conducted under this HAD Phase III Amendment. Two of the activities to be undertaken during the Project,

Adaptive Research and Marketing, are categorically exempt from an IEE under Regulation 216.2.(c). Thus, the IEE will be focused on the watershed management and pest/pesticide management activities of the Environment and Natural Resources component of the amendment, which are activities that directly respond to the recommendations contained in the HAD Environmental Impact Assessment completed in November 1988, and fully incorporate the mitigative actions called for therein.

## BACKGROUND

### Project Setting

The agriculture sector has long been dominant in the Guatemalan economy, and continues to be a critical sector to the country's economic development, accounting for over 25% of the country's Gross Domestic Product (GDP). It assumes even greater importance in other aspects of the economy. Almost six of every ten people in the workforce are employed in this sector, and agricultural exports generate two-thirds of the country's total foreign exchange earnings.

The sector is comprised of two broad systems: the "commercial" and the "subsistence". This concept is expanded on in the Summary of the USAID/Guatemala Agriculture Sector Development Strategy for 1988-1992. This strategy addresses the duality by proposing to move increasing numbers of subsistence farmers into commercial operations while improving investment, efficiency and income-generating opportunities for already existing commercial enterprises. In broad terms, the strategy contains two qualitative targets:

- Fuller use of existing productive capacity in the commercial groups
- The expansion of productive capacity by enabling the populous subsistence group to produce efficiently and competitively through improved knowledge, skills, infrastructure and resources, thereby permitting this group to make the transition to commercial agriculture

Recent A.I.D. experiences in Guatemala through diversification and infrastructure projects in the Highlands substantiate the view that subsistence farmers can break the persistent cycle of poverty they are caught in. Thus, the Mission focuses a large portion of its rural development portfolio on the expansion of opportunities related to irrigation, marketing, and crop diversification in the Highlands. These are areas in which employment, income and production pay-offs are relatively quick. The agricultural development portfolio also supports the promotion of commercial export production through both policy reform and institutional strengthening activities. A number of A.I.D. documents (Highlands Cross-cutting Evaluation, HAD Project Environmental Impact Assessment, the CDSS Update, A.I.D. Food and Agricultural Development and Natural Resources Policy Papers, etc.) have indicated the need to address both the sustainability of increased agricultural production by expanding the focus of the HAD Project to include the protection of the country's natural

resource base, as well as export market information and infrastructure development.

#### GOG Plan/Strategy

The Government of Guatemala (GOG) has adopted four broad goals for the agriculture sector: maximization of income, generation of greater rural employment, distribution of economic gains to poorer sector of the rural population, and achievement of a stable and balanced development process. Specifically, the GOG intends to:

- guarantee domestic food security through expanded area planted, productivity improvements, and increased on-farm storage capacity for basic grains
- increase foreign exchange earnings through expanded non-traditional agricultural exports
- assure rational management and use of the country's natural resource base through increased irrigation, and improved watershed protection, including expanded soil and conservation, planned forest management and reforestation
- expand agricultural diversification and agro-industrial development through improved incentives and investment
- promote active participation of small farmers in the development process through technical assistance and expanded support to farmer organizations

A series of agriculture sector project evaluations and analyses have reinforced the importance of many of these GOG priorities. The HAD Phase II Project responds to these issues, specifically addressing concerns of the GOG for increasing small farmer incomes by introducing improved technologies to enhance productivity and the marketability of production. The proposed amendment (HAD III) to the HAD Phase II Project responds directly to natural resource protection issues, while addressing the increasingly complex needs of the export-oriented agricultural producers.

#### Sector/Program Constraints

The principal constraints to revitalized growth in Guatemalan agriculture can be grouped into three categories: (1) structural deficiencies; (2) institutional inadequacies; and, (3) inappropriate policies. The HAD Amendment will alleviate natural resource and marketing constraints, strengthen

GOG and private sector institutions involved in the agricultural export sector, disseminate important technological information, and develop an improved coordination and linkage between the GOG and private sector regarding agrochemical use, conservation of natural resources and phytosanitary and pesticide management certification and related issues.

#### Structural Deficiencies

Physical and structural constraints in the agriculture sector are closely linked to longstanding economic and political conditions in rural areas. These include such factors as the political turmoil of recent years; a perception of insecure land tenure which has been a deterrent to investment; population pressure and an unstable work force; low per capita and highly uneven income distribution; and malnutrition among low-income groups. Perhaps more critical is the situation of low rural employment. The principal physical and structural constraints include the following:

- a. Land distribution and use
- b. Marketing/storage/processing
- c. Rural roads
- d. Natural resource management
- e. Water accessibility
- f. Energy distribution

#### Institutional Inadequacies

The institutional constraints facing the agriculture sector are the result of a combination of factors caused by an over-extended public sector service network, insufficient budget allocations, declining private sector investment, low levels of trained and educated agriculturalists, and struggling farmer associations. These conditions are manifested in low farm productivity. Principal institutional constraints include inadequate:

- a. Technology development and dissemination
- b. Input supply
- c. Credit delivery
- d. Farmer associations
- e. Agricultural education and training

#### Non-Supportive Policy Environment

Policy impediments are among the most serious obstacles to improved growth, efficiency, and investment in the agriculture sector. These include general macroeconomic policies (monetary, fiscal, exchange, trade), specific sectoral policies (land

distribution, water use, pricing, research, budgetary allocations) and general bureaucratic obstacles to a dynamic export market capability.

#### Current Project Status

##### Highlands Agricultural Development Project (520-0274)

The Highlands Agricultural Development Project (HAD) was a forerunner of the FY88 HAD Phase II Amendment. Its purpose was to improve the productive resource base of the rural poor, primarily through rural infrastructure development. Project Agreements were signed on September 30, 1983 between A.I.D. and the GOG for \$7.5 million in loan funds and \$1.5 million in grant funds. Subsequent amendments in 1985 and 1986 added \$6.0 million to bring total loan funding to \$13.5 million, and added \$600,000 to bring grant funding to \$2.1 million.

The FY88 Amendment ("Phase II", Amendment No. 3) added \$15.0 million in grant funding to the HAD Project, and extended the PACD to September 30, 1993. The Phase II Amendment responded to detailed evaluations of both the Small Farmer Diversification Systems Project and the HAD Project, and created four technical components in order to:

- / expand small-scale irrigation activities and programs in watershed management, including agro-forestry and soil and water conservation
- / strengthen the research and extension programs in the development and dissemination of production technologies
- / improve the credit delivery system to serve small-scale farmers and/or farmer groups
- / develop a commercially-based agricultural and marketing system

Two recent studies - The Analysis of Survey Data from the USAID/Guatemala Small Farmer Diversification Systems Project and the Irrigation Sector Assessment for Guatemala, have provided additional arguments for the approach taken by the HAD Phase II. Small scale irrigation (mini-riego) systems are designed, constructed and financed by the GOG, but are owned, operated and maintained by water users. Performance of the systems has proven financially and socially beneficial to participating farm families. It is estimated that the 2,000 hectares developed through 1988 generate incremental production values of Q.5.1 million and some 250,000 days of employment. Approximately 6,000 small farmer families have benefitted from the 250

projects constructed to date. The average annual percentage returned on investment is 29.3%. A very important social benefit derives from the additional employment at home, mitigating the need for seasonal migration. One of the strongest visual impacts found by the studies was the presence of television sets and cars or trucks owned by farmers who, through mini-riego, have made the transition to irrigated farming. That this transformation from small, seasonally migrating farmers to private entrepreneurs took place in less than ten years, makes the change all the more remarkable.

Besides augmenting per-hectare yields of traditional crops, mini-riego supports significant crop diversification which, in many cases, has led to the production of high-value non-traditional export crops. The technologies demonstrated by the small-scale irrigation farmer have been adopted and financed by some non-participants, and thus the impact of mini-riego has gone beyond HAD Project beneficiaries. Given this increase in small-scale irrigation practices, the HAD Phase II activities were designed to support this process through improved agricultural research, and technical assistance in pest/pesticide management, watershed management, marketing and credit.

The Phase II Amendment was approved subject to the performance of an Environmental Impact Assessment of Project activities. The EIA was completed on November 30, 1988, and presented a series of mitigative actions required in order to protect wildlife and biodiversity in Project areas, to control pesticide effects caused by increased use for high value commercial crops, and to ensure the sustainability of agricultural yields in irrigated areas. The current Amendment directly responds to the EIA through a new Environment and Natural Resources component, comprised of pest/pesticide and watershed management subcomponents. The existing Adaptive Research component will be strengthened with the creation of a matching fund for private sector agricultural research, administered by the Gremial de Exportadores de Productos No-tradicionales, to develop new alternatives in crop production, processing and export.

The CY89 Cross-cutting Evaluation of USAID Projects in the Highlands underscored the need to improve market information and promotion services. The proposed Amendment strengthens the existing Marketing component of the HAD Project through substantial support to the leading private sector agricultural export promotion group, the Gremial, to continue their activities in market information, promotion, training of agricultural entrepreneurs, and policy analysis.

### Other Donor Assistance

The Inter-American Development Bank (IDB) is the largest international donor in Guatemala, and focuses its resources mainly on providing support to the Guatemalan agriculture sector. Presently, the IDB is implementing agriculture sector projects in animal health, wholesale marketing, private sector agriculture credit, seed multiplication, agricultural technology development and transfer, and rural roads. Project interventions in irrigation, agricultural credit through BANDESA, fisheries, livestock development, watershed management, and sector restructuring and/or strengthening are currently being discussed. USAID and IDB have been collaborating closely on agricultural sector initiatives, and it is expected that the Bank's efforts will continue to complement those already being implemented by the Mission.

The Mission's Office of Rural Development (ORD) also maintains frequent coordination with several other donors and their agriculture-oriented activities. Some of these include:

The activities of Central American Bank for Economic Integration (CABEI) in Guatemala are oriented principally toward the restructuring of credit policies with a concentration in rural agro-enterprises. The Bank currently provides financing for re-orienting credit policies, establishing the Regional Fund for Development Cooperation, rural access roads, plant protection and maintenance of irrigation and drainage systems.

Through its Central American food security program, the European Economic Community (EEC) finances pre-investment studies which are developed into project proposals to be funded by other international donors. This organization is presently sponsoring region-wide programs in:

- food and nutrition surveillance through INCAP
- systems for estimating crop production, yields and costs
- marketing, especially for basic grains
- credit to small agricultural producers
- agricultural research, extension and training

In the agriculture sector, the Interamerican Institute for Cooperation in Agriculture (IICA) supports activities in technology development and transfer, marketing and agroindustry, plant and animal health, and planning and analysis for agricultural policies. Technical support is provided to

projects related to cattle, farmer organizations, agricultural policy, animal health, coffee, plant protection and public sector support.

Relationship to A.I.D. Policy, A.I.D. Strategy and other A.I.D. Projects

The goals and objectives of the HAD Project are in conformance with and support the four Agency priority areas (the four pillars), the USAID/Guatemala FY 1990- 1991 Action Plan, the LAC Regional Plan, the Food and Agricultural Development and the Environment and Natural Resources Policy Papers, and NBCCA objectives in Central America. The Phase III Amendment directly responds to the recommendations presented in the Mission's Agriculture Sector Strategy document approved in March 1988.

One of the key objectives of the USAID/Guatemala updated Country Development Strategy Statement (CDSS) over the current planning period is to increase and diversify agricultural production. USAID's current agricultural project portfolio addresses this objective. The Phase III Amendment directly relates to, and expands upon, USAID's emphasis on supporting sustainable technological innovation and infrastructure to raise agricultural productivity on small farms. The underlying strategy of the Phase III Amendment is to intensify agricultural diversification through the development of physical resources such as soil and water, combined with a well-directed marketing infrastructure and training program.

The HAD Phase III activities are closely linked to the following USAID projects and/or components:

1. Highlands Agricultural Development Project Phase I Access Roads Component (520-0274) and the Farm-to-Market Access Roads Project (520-0332)

The HAD Access Roads Component is essentially directed to the maintenance of farm-to-market roads built under previous USAID-financed activities, and is being continued through the HAD Project Phase I PACD. Under the HAD Phase II Amendment, the Roads Division of the Ministry of Public Works will provide DIGESA with a list of on-going and planned roads construction. DIGESA, in turn, will develop criteria for the selection of small-scale irrigation projects which takes into account proximity of these access roads. Once the criteria is developed it will be incorporated into the roads selection process to more closely coordinate road construction and agricultural activities. The Farm-to-Market Access Roads Project, dedicated

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to the rehabilitation of access roads, the upgrading of tertiary roads and the construction of new roads, has recently received an additional \$15 million in funding.

2. Agribusiness Development Project (520-0276)

The Guild of Non-Traditional Products Exporters (Gremial) was supported under the Agribusiness Development Project to strengthen the export market orientation of agricultural enterprises. An extensive market information base has been developed for non-traditional agricultural export (NTAE) crops, investment and export promotion and training of producers and exporters. Although the Mission has decided not to extend the Agribusiness Development Project past the current PACD of March 21, 1990, support to the Gremial will be continued under the existing HAD Phase II Marketing component with additional funding through the proposed Phase III Amendment. This decision to incorporate the Gremial activities into the HAD Project was based upon a recognition that, for agricultural diversification to be institutionally sustainable, support for international export market development is necessary.

Details of the expanded role which the Gremial will play in the HAD Project are found in the Detailed Project Description section of this Project Paper Supplement.

3. Cooperative Strengthening Project (520-0286)

This Project is exclusively dedicated to improving Guatemalan cooperative federations. Project resources are being dedicated to administrative and financial systems improvements in BANDESA and the debt restructuring of BANDESA's clients. Also, individual federation-affiliated cooperatives are eligible for production-oriented technical and financial assistance under HAD Phase II, and will participate in market information activities.

4. Private Enterprise Development (520-0341)

Under this Project, a large grant has been made to the Gremial for four principal activities:

- Prioritization and development of export crops, as well as adaptive field research of such crops
- Policy reform to create incentives for exports of non-traditional products
- Negotiation of improved shipping rates for export products

- Institutional strengthening, including administration and commercially oriented services, such as pricing information for products, packaging, transportation, etc.

The support of the Gremial under HAD III and the Private Enterprise Development Project is complementary in nature. The HAD III project provides core support to the Gremial, enabling it to carry out its basic functions. The bulk of the funding provided to the Gremial by PED goes for technical assistance to promote product development and feasibility studies. The successful implementation of the PED project with the Gremial is predicated upon the continued core support provided by the HAD III project.

To date, the Agribusiness and PED project officers have continuously and closely coordinated activities between the two offices. The ORD Agribusiness and PED project officer meet regularly, and often jointly attend meetings at the Gremial. The ORD Agribusiness project officer sits on the PED Project Implementation Committee. This close coordination will continue under the HAD Phase III support to the Gremial."

#### 5. Non-Formal Education Project (520-0281)

The Non-Formal Education Project comprises three radio stations and a newspaper, El Informador Rural, which is distributed in the Western Highlands. These media could be invaluable for the dissemination of marketing and extension information. Coordination with the USAID Human Resources Division is being developed to this end.

#### Conformity with the HAD Environmental Impact Assessment (EIA)

The HAD EIA was carried out in November 1988 and laid out a series of recommended mitigative actions for Project small-scale irrigation activities, for protecting wildlands and biodiversity, and for minimizing pesticide effects (see Annex F). Some of the recommended actions have already been carried out, some are being implemented through adjustments in current HAD efforts, and some will be implemented through actions supported directly by this amendment.

To comply with the recommended mitigative actions for the activities related to small-scale irrigation, the Mission has included in the HAD Phase II long-term technical assistance contract a position for a Watershed Management Advisor to oversee all Project-related watershed management activities.

The \$2.5 million grant to CARE proposed under the Phase III amendment will specifically implement the EIA recommendation to develop model small irrigation watersheds and integrated watershed management schemes. The long-term Watershed Management Advisor will closely coordinate with the CARE technical staff, as well as ensure that small-scale irrigation systems not assisted directly by CARE will employ minimum watershed management criteria.

Recommended actions for wildlands/biodiversity protection will be directly managed by the Environmental Advisor PSC, presently being contracted by the Mission. This individual will help establish a system whereby environmental criteria will be applied to all new proposed systems to ensure that they do not negatively impact on critical or unique habitats and/or protected areas.

The EIA-recommended mitigative actions for pesticide effects are much more complex, and are divided into short-, medium- and long-term actions. Many of the short- term and medium-term recommendations have been implemented under HAD Phase II. The long-term Pest/Pesticide Management Advisor, included in the Phase II technical assistance contract, will assist in the implementation of the remainder of these recommendations, such as the development of a video film on pesticide use and safety.

The long-term mitigative actions recommended in the EIA will be implemented through a series of mechanisms involving the Phase III Amendment, existing HAD activities, and ROCAP's RENARM Project. The primary response supported by the Phase III Amendment will be the institutional strengthening of Sanidad Vegetal, which will be guided by the Pest/Pesticide Management Advisor. In addition, funds for agricultural research under the current HAD Project will be reoriented towards the Integrated Pest Management (IPM) activities recommended by the EIA. ICTA will be the principal agency involved with such IPM research, and will work closely with CATIE on IPM activities supported by the ROCAP RENARM Project.

The RENARM Project will also address pesticide issues from a private sector perspective, and thus will complement the HAD Phase III Amendment activities with Sanidad Vegetal. A research fund to be established with the Gremial under this amendment will further private sector involvement with pest and pesticide research issues in Guatemala. A portion of the HAD training funds will also be used to participate in the ROCAP development of a "pesticide recommender" training course. Finally, as the private sector component of the RENARM Project

develops, a joint effort will be conducted with the HAD Project to formulate a Memorandum of Understanding (MOU) between the US FDA and the Guatemalan Ministry of Agriculture. This activity will involve both public and private sectors in Guatemala.

## DETAILED PROJECT DESCRIPTION

### Project Goal and Purpose

The goal of the overall HAD Project is to enable the rural sector to make a greater contribution to national economic growth. The purpose of the Phase III Amendment is to enhance the sustainability of rural agricultural productivity and commercial crop diversification. This will be achieved through the improvement of pest and pesticide management, watershed conservation, directed research and continued support for export-oriented marketing services.

The Phase III Amendment will provide technical assistance, training and commodities which will lead to: a) the institutional strengthening of the Dirección Técnica de Sanidad Vegetal (the GOG's Plant Protection Agency), b) implementation of watershed protection and agro-forestry activities upstream from HAD small-scale irrigation farmers, c) execution of research directed towards crop-specific management problems, and d) a continuation of export marketing activities conducted by the Gremial de Exportadores de Productos No-Tradicionales (Non-Traditional Products Exporter's Guild), initiated under the Agribusiness Project (520-0276).

This design of the Phase III Amendment responds directly to environmental issues raised by the CY88 Environmental Impact Assessment (EIA) and constraints identified in the 1989 Cross-cutting Evaluation (CCE) of USAID projects in the Guatemala Highlands. The Amendment seeks to consolidate a series of activities jointly financed by USAID and the GOG during the past 15 years to address development problems of small farmers in the Highlands. The Mission and the GOG envision this four-year Amendment as part of a strategy to enhance the long-term sustainability of the HAD Project activities.

### Project Strategy

The strategy of the overall HAD Project is to enable small- and medium-sized farmers in the Highland areas of Guatemala to increase their productivity through irrigation, marketing and crop diversification, thereby facilitating their transformation into small- and medium-scale commercial farmers.

Successful commercial agriculture depends upon an interplay of production and marketing opportunities and options, and the capacity to make rational choices among them in a market system where the principal decision criterion is profitability. With

this orientation, the HAD Project is directed towards the diversification of farm production and increase in productivity and profitability. In order for diversification to be sustained over time, it is necessary to address issues of long-term strategies of environmental protection of diversified farm land, as well as the conditions which must be met for Guatemalan produce to become firmly established in the export markets. These conditions include the rational use of pesticides, a recognized export certification capability, and appropriate institutional strength among exporter associations and groups. Without the institutionalization of these measures, the benefits of crop diversification and participation in export markets will be limited to only those large landholders who have access to information and technology.

A major objective of this project's strategy is to assure sustainability of the activities indicated under this project and its amendment. Phase II of the HADS Project initiated the use of private sector entities to provide services to project beneficiaries in those cases and areas in which the public sector lacks competence or sufficient resources, or in which the target group can pay market rates for these services. This effort will support a process of strengthening the private sector's capability in providing services to small farmers. At the same time, this participant farmers will increase their confidence in the worth of contracting services to improve their capability of production, marketing and managing their ag. enterprises, as a result of the increase in their net incomes.

This process will benefit both, the Private and Public Sector. The Private Sector will experience increased demand for its services, which will encourage the growth and technification of its professionals to effectively provide the required services on a continuing basis directly to producers and product handlers, rather than in their present capacity as input salesmen. The benefit to the Public Sector, will be the release of resources to assist more poor small farmers with the same budget and personnel.

The involvement of the Private Sector in the Project activities, such as the Gremial intervention and the participation of private sector firms in studies, providing technical assistance in production, marketing, research, etc., will permit a complementarity between the Public and Private Sector.

Increased sustainability of Project activities is based on the process of transferring responsibility of providing many agricultural services to the Private Sector, for which the small

producer must be made efficient enough to pay for these services. The Public Sector, with current levels of personnel and budget, will concentrate on assistance to the poorest farmers, with the long term objective of helping them to become Private Sector customers. This strategy will have application to all agricultural sub-sectors, including irrigation, production, research, pest/pesticide management, forestation, watershed management and marketing.

#### End of Project Status

The HAD Phase III Amendment will provide additional support for the establishment of a sustainable basis for increased agricultural productivity and profitability in the Guatemalan Highlands. These benefits will be achieved through close cooperation between the GOG, USAID/Guatemala and technical assistance from the U.S., third countries and from the Guatemalan private sector. This cooperation, in conjunction with long- and short-term training and the purchase of commodities, will create an institutionalized basis for continuing development in the following areas:

- Pest and pesticide management capability developed within DIGESA's Sanidad Vegetal, including production/importation/distribution monitoring, improved diagnostic services directed towards the small and medium farmers of the country
- A pre-shipment certification program for exports which will result in reduced rejections of Guatemalan exports, greater compliance and enforcement of export standards, and the establishment of a reputation for high quality exports from Guatemala
- Soil and water conservation and agro-forestry in conjunction with at least 20 tributary watersheds associated with HAD small-scale irrigation sites
- Technology generation (from approximately 22 research studies) and transfer responsive to market demands and production potential in the context of land and farmer capability, and sustainable commercial agriculture
- A system of product grades, standards and measures which will facilitate data gathering and reporting for market information systems
- Establishment of agricultural technical data banks and a research system to solve site-specific production problems and support crop diversification on irrigated lands

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## Project Components

The Amendment creates one new component, Environment and Natural Resource Management, and adds resources to two existing components of the HAD Phase II Project: Adaptive Research and Marketing. The Phase III Amendment will support activities in three areas critical to ensuring sustainable agricultural diversification, the primary objective of the HAD Project. New Project components to be funded under this Amendment include Environment and Natural Resources (\$4.0 Million), Adaptive Research (\$1.0 Million) and Marketing of Non-Traditional Agricultural Exports (\$2.0 Million). The design of these components builds upon HAD Project experience to date, the recently completed Highlands Cross-cutting Evaluation, and the HAD Project Environmental Impact Assessment.

### Component I: Environment and Natural Resources (\$4.0 Million)

The Environment and Natural Resources (E/NR) component is comprised of two sub-components: Watershed Management and the Institutional Strengthening of the Plant Protection Division (Sanidad Vegetal). Both of these sub-components are essential to ensuring sustainable agricultural productivity from the HAD irrigation sites, and the Sanidad Vegetal sub-component support of pest/pesticide management (P/PM) will also strengthen the country's ability to provide internationally recognized pre-shipment inspection as a basis for phytosanitary and pesticide residue certification.

Watershed Management (\$2.5 Million AID input; \$369,000 counterpart plus a Peace Corps in kind contribution of \$381,000)

### Overview

This Cooperative Agreement with CARE will provide technical and organizational skills in watershed management to farmers in HAD Project irrigation areas. Improved soil and water resource management will contribute to sustainable agricultural production in the Project irrigation sites. Through a continuation of CARE's successful collaborative arrangements with both the GOG's forestry directorate (DIGEBOS) and the Peace Corps, reforestation and agro-forestry activities will provide direct, sustainable benefits to farmers in the middle and upper watershed areas. Training and strengthening of extension capabilities of DIGESA/DIGEBOS promoters will also be supported by the sub-component. Disbursements, or advances, for this project will be made on the basis of an annual implementation plan approved by AID.

## Site Selection

Watershed sites will be selected by CARE technical staff in close coordination with the long-term Watershed Management Advisor and irrigation site planners of the HAD Project so as to correspond to critical watersheds which supply the irrigation scheme. The Watershed Management sub-component to be implemented by CARE will conduct feasibility studies of the physical, social and logistical characteristics of the tributary watersheds of HAD irrigation sites, including preliminary assessment of benefits to downstream farmers resulting from different types and levels of watershed interventions. The watershed evaluation and site selection criteria will be defined by the technical staff of CARE and DIGEBOS in conjunction with USAID and HAD Project personnel, and will seek to maximize the number of downstream irrigation hectares benefited. This initial feasibility study will produce a list of 30-40 potential sites. Detailed study of Landsat images and additional field visits will reduce this list to the 20-25 watershed sites to be assisted during the Project.

## Watershed Group Organization

Operational watershed management plans, detailing the level of expected watershed protection and required physical activities, will be developed for each site with assistance from CATIE, CARE, Peace Corps and DIGEBOS, all of whom are familiar with and agree with their proposed roles in this component. In addition to these technical and environmental aspects, the plans will also incorporate the needs, goals and priorities of watershed site participants by means of a group management plan. During this formative stage, sub-component field staff (normally to consist of a DIGEBOS promotor and a collaborating Peace Corps Volunteer (PCV) for each site) will conduct motivational, organizational and training activities. All non-local materials and equipment will be provided by sub-component resources. As required, food incentives to counterbalance participants' risk and/or opportunity cost of labor contributed will also be provided during this phase. Local nurseries, storehouses and necessary equipment will be in place at each site by the end of the formative stage.

## Training

During the initial stage of the Watershed Management sub-component, training plans and materials will be developed by a training and extension specialist hired by CARE. This training plan will include training (both at CATIE and in-country) of DIGEBOS technical staff in watershed management, secondary forest management and small forestry product

enterprises. Promotors will receive an average of 15 days of training per year in basic forestry and soil conservation techniques, combined with more advanced workshops on group management plans, forest and plantation management, simple bookkeeping, grafting and fruit tree care. Site participants will receive training in essential forestry and soil conservation practices, and will participate in visits to established sites and short courses at regional training centers.

### Site Activities

The formative stage of watershed site development is expected to take approximately two years. During this phase, participants will implement site-specific activities in basic forestry and soil conservation identified in the site management plan. Among the soil and water management activities to be promoted are terracing, contour ditches, dead barriers, compost production, grass risers and other soil conservation structures. Forestry activities will include the establishment of nurseries and woodlots, seedling production and outplanting, live fences and barriers, alley cropping, fruit tree production and plantation/secondary forest management.

During the consolidation phase in the third year of site activity, the local forestry committees will assume greater responsibility for the planning, organization and direction of group activities. The annual calendar of group activities, maintenance of the nursery and soil conservation structures, and the organization of the forest fire brigades increasingly are managed without direction from the DIGEBOS promotor or the PCV. Food inputs and other material assistance are gradually phased out, or turned towards more complex, income-generating activities selected by the group. In the fourth year, groups become fully self-sufficient in terms of both management and material needs; nursery production is supported through fees, seedling sales and/or forest products.

### Inputs

Funding for the sub-component will provide for approximately 60 person-months of international personnel (CARE Project Manager, consultants), and an estimated 1,620 person-months of local personnel (Assistant Project Manager, Project Coordinator, WID and Training Coordinators, four supervisors, three extensionists, support staff, and 20 full-time DIGEBOS watershed promotors. Commodities include two trucks, seven pickups and a jeep, field equipment, nursery materials and supplies, and four personal computers. Training inputs include 204 person-months of in-country training, support

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for demonstration events, 28 person-months of third-country training, and training materials. The summary sub-component budget under the Cooperative Agreement with CARE is as follows:

International Personnel	\$303,371
Local Personnel	383,027
Commodities	457,166
Training	253,648
Operating & Administrative Costs	399,780
Travel & Per Diem	91,640
Administrative Support - Overhead	195,853
Evaluations & Audit	95,000
Inflation and Contingencies	320,515
<b>TOTAL</b>	<b>\$2,500,000</b>

#### Outputs

Over the four-year duration of the component, 4,500 smallholder households in 100 upper watershed communities of HAD irrigation sites will participate in resource conservation of their private, communal and municipal lands located in 20-25 economically important watersheds. As a result, over 1,000 downstream irrigation farmers will benefit through improved quality of agricultural lands and crop productivity. Over 7,000 hectares of land will be directly improved or protected by sub-component activities.

Agroforestry committees will be established in these communities to practice ecologically-sound, financially-viable activities, including fuelwood production, crop diversification, forest product micro-enterprises, etc. Approximately 20 DIGEBOS promoters will be trained in community organization, watershed planning and basic agro- forestry.

Institutional Strengthening of the Plant Protection Division (\$1.5 Million AID input; \$1.1 million counterpart)

#### Overview

This sub-component will provide support to the Plant Protection Division (Sanidad Vegetal) of the Ministry of Agriculture to enhance its ability to guarantee the safety and compliance with pesticide regulations of all agricultural produce in Guatemala. Under the guidance of the long-term Pest/Pesticide Management Advisor contracted under HAD Phase II, the sub-component will develop the capability of Sanidad Vegetal (SV) to effectively monitoring the distribution and field use of all pesticide and agrochemical materials throughout the country. The field pest diagnosis and extension services of SV

will be strengthened to improve pest and pesticide management practices by producers in Guatemala. These activities will enhance export agricultural production by permitting certification of compliance with internationally required pesticide and agrochemical safety standards. In addition, Price Waterhouse, also contracted under that amendment, will develop and monitor a financial tracking system for the HADS project, including the SV component.

The project has a strong Project Management Unit, also formed under Phase II, which will provide any additional management or technical support required. Finally, the Guatemalan Agrochemical Manufacturers Guild (GREPAGRO) has signed an agreement with MAGA to provide gasoline and maintenance for SV's vehicles as well as per diem for SV's five field inspectors. Tightened U.S. pesticide regulations have made the local agrochemical producers realize that it is good business to assure proper uses of their products to avoid rejection in the states and the concomitant negative reaction here. Ergo the agrochemical producers are helping support the agency that regulates them.

#### Pesticide Information System

Currently, SV is not capable of fulfilling its mandate of supervising pesticide registration, sales, storage distribution and use. Support will be provided to the Agrochemical Supervision and Registration Department to more effectively perform these functions through two activities: the development of a Pesticide Registration System and the strengthening of Agrochemical Regulation and Supervision.

#### Pesticide Registration System

An integrated/computerized database system will be developed with technical assistance hired under the Phase II technical assistance contract to simplify product registration and provide up-to-date information on current pesticides in use throughout the country, their legal status, product safety and health-related information. This system will aid in effectively monitoring and providing usage information on all pesticides and agrochemicals imported or locally manufactured. Information from the Pesticide Registry System will be provided to other GOG agencies, including the Ministry of Health, ICTA and DIGESA extension agents.

The activity will provide computer hardware and software to be installed in the Agrochemicals Supervision and Registry Department of SV. Short-term international and local technical

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assistance will be provided to develop the necessary database and train SV personnel in its maintenance and use. Supplies will also be provided for the operation of the system.

#### Supervision/Monitoring of Pesticide Distribution and Use

Sanidad Vegetal does not currently have an effective program for the field monitoring of pesticide and agrochemical distribution, storage, repackaging, labeling, and provision of information to the end-user. In Guatemala, the marketing system for these products is complex, involving many steps of sub-distribution and repackaging, and current supervision is unable to enforce proper control beyond the initial stages of this distribution process.

Five vehicles will be purchased to permit Agrochemical Inspectors to monitor distributors and stores throughout the country. As noted earlier, the Guatemalan Agrochemical Manufacturer's Guild (GREPAGRO) has signed an agreement with MAGA to provide gasoline and maintenance for these vehicles, as well as per diem for the five Inspectors.

The five Agrochemical Inspectors will be trained in the proper storage, handling and labeling of pest/pesticide materials, and procedures for quality control. The Inspectors will also be trained in providing information on the prevention and treatment of pesticide intoxication. Short-term training at the US Environmental Protection Agency (EPA) will also be provided for two persons from the Agrochemical Supervision and Registry Department in the areas of agrochemical and pesticide approval and prohibition procedures, quality control sampling, continuous updating of status of specific products, and differentiation between local and international "varieties" of apparently similar products.

Finally, funding will be provided for payment of outside laboratory analyses of quality control samples. Over time, the implementation of annual pesticide and agrochemical registration fees should bear the costs of these analytical services.

#### Pest Diagnosis and Extension Services

Guatemalan growers face a wide variety of pests and an equally wide variety of chemical means with which to combat them. The SV's Departments of Plant and Parasite Diagnosis and Integrated Pest Management are charged with providing technical assistance and extension services to Guatemala's rural farmers. The HAD Project participants are now being encouraged to use this type of technical service, and will contribute significantly to the load on diagnostic capabilities of the SV.

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In order to enhance SV's ability to provide this guidance both directly and through DIGESA and ICTA extensionists, the Project will improve the diagnostic facilities at the Central, Zacapa and Mazatenango laboratories, provide vehicles for expanding field diagnostic capability, and increase SV's role in disseminating appropriate technical information to growers and other MAGA agency extensionists.

#### Laboratory Diagnosis of Pests

As stipulated by the Guatemalan Pesticide Law, SV is to provide pest identification and plant disease diagnosis both in the field and through laboratory services. Currently, SV operates three laboratories (Central, Zacapa and Mazatenango) for this purpose, and performed over 18,000 diagnoses during 1988, mostly for small, rural farmers. Although basically a regulatory agency, SV's extension role in the diagnosis and recommendation of treatments for pests and plant diseases is very important in terms of the impact SV can effect on pesticide use in Guatemala.

Project funds will purchase basic laboratory equipment (microscopes, reagents, glassware, etc.) to improve the capability of these laboratories to provide these fundamental services. Project procured vehicles will extend the geographic coverage of field diagnostic services. A computerized database system will be established to allow continuous monitoring of pest diagnoses by crop and region. Training will also be provided for both SV and DIGESA extensionists in pest diagnosis and general principles of pest management.

#### Outreach and Extension Services

Given SV's important role in pest diagnosis and pesticide management, the transfer of this information base to individual growers and producer groups is essential. The outreach and extension activity will finance training of both MAGA extensionists and producer groups directly. Audiovisual materials will be provided for training, as well as the reproduction of P/PM materials.

Substantial funding is provided to conduct crop-specific training sessions for agronomists and other key personnel from the respective grower groups. With the assistance of outside training specialists, professionals from SV and extension service personnel will develop up-to-date, quality training materials, and establish an on-going program of technical information transfer regarding pest and pesticide management, including developments in pesticide regulations in specific domestic and export markets.

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### Inspection/Certification Services

The HAD Project focuses on the production and marketing of non-traditional agricultural export crops. For most export markets, agricultural products must be certified to be free from disease or economically significant insect pests by a recognized government agency of the exporting country. SV is the GOG entity legally responsible for phytosanitary certification, but SV is currently incapable of effecting or supervising legitimate inspection as a basis for valid certifications of this nature. In addition, a Memorandum of Understanding between the FDA and MAGA will require certification that products exported to the US markets comply with US produce standards and regulations for pesticide residues. Ensuring the reliability of any such certification program is essential to avoid automatic detention of Guatemala's export crops. This activity will provide funds for training, technical assistance, and analysis of pesticide residues to establish this key program.

### Inspection Services

Training of SV staff will be conducted to ensure full understanding and awareness of US regulations and standards governing agricultural produce, as well as practical standard procedures for produce sampling and inspection. The design and implementation of the inspection program will receive technical assistance from US counterpart agencies and the HAD technical assistance contractor in order to guarantee the reliability and acceptance of the program. Short-term visits to US inspection service facilities will be funded for two SV professional staff members. Vehicles will be purchased to provide transportation of inspection personnel to field inspection sites and shipment points for the collection of produce samples.

### Certification Services

Currently, through a June 1988 agreement with the Non-traditional Agricultural Exporter's Guild (Gremial), SV issues phytosanitary certificates without actual SV inspection, based solely on a statement by staff agronomists of the producer groups. Although the Gremial marketing component provides for improvement in this procedure, support will also be given to SV to enhance the reliability of the phytosanitary certificates issued by SV/MAGA. The SV component also provides support for analytical determinations of pesticide residues to be made of export lots. Based on the inspection results of a quality control system based upon such inspections, phytosanitary and pesticide residue certificates will be issued confirming compliance with established standards and regulations. This activity is closely coordinated with the proposed P/PM

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activities of the Gremial, and thus represents a joint public/private sector phytosanitary and pesticide residue service effort that will promote self-regulation of the produce industry and directly reduce pesticide use and contamination of the environment. Funding will be provided to SV to cover the cost of outside analytic services, computer hardware, software and training, and supplies.

SV staff will also be trained in criteria for selection of private laboratories and in supervision techniques for maintaining quality control of pesticide residue analyses.

### Inputs

A total of 12 person-months of technical assistance will be provided in addition to the HAD Phase II technical assistance contract. Thirteen vehicles, three computers, laboratory, office and audiovisual equipment will also be procured. U.S., in-country and third-country training, and operating and support costs are also budgeted. The summary component budget is as follows:

Technical Assistance	\$148,000
Commodities	441,000
Training	326,000
Operating & Support Costs	305,000
Evaluations & Audit	80,000
Inflation & Contingencies	200,000
<b>TOTAL</b>	<b>\$1,500,000</b>

Component II: Research Fund for Non-Traditional Agricultural Exports (\$1.0 Million AID input; \$715,000 counterpart)

### Overview

As Guatemala's production of non-traditional export crops has increased over the last ten years, so have the problems of production, post-harvest handling, processing and marketing. Often, technological solutions to these problems are either not available or have not been adapted to the special conditions of Guatemala. Although some larger producers are privately active in production and post-harvest research, the closely-held results are not available to the growing numbers of small farmers attempting to enter the NTAE market. This component will increase the quantity, quality, range and access of NTAE-related research through a matching-fund research grant mechanism to be administered by a Research Advisory Council established by the Non-Traditional Products Exporter's Guild, the Gremial.

Because of the interrelationship of international marketing regulations and phytosanitary and pest residue concerns, the inclusion of the Gremial is directly responsive to the HAD Phase II EIA. Because of concern for the "enterability" of Guatemalan produce into U.S. markets, the Gremial has taken the initiative in organizing producers to regulate agro-chemical use in compliance with U.S. EPA and FDA regulations, and has actively promoted IPM-oriented research to identify alternative control methods for pests and diseases.

The Gremial's efforts are directly supportive of the HAD IPM component and will foster greater coordination between the Guatemalan public and private sectors in addressing agro-chemical use.

Because of the nature of a research activity, it may not be possible to have a specific annual implementation plan approved each year, on which disbursements will be based. AID and the Gremial will agree on a mutually acceptable document which will serve as an annual implementation plan.

#### Agricultural Research Fund

Through a Cooperative Agreement, a fund of \$715,000 will be established to provide matching grants for research projects proposed by producers and exporters of non-traditional agricultural products. Approximately \$455,000 of this fund will be earmarked for research in pest and pesticide management and phytosanitary problems. The other \$260,000 of the fund will be provided as an unrestricted fund to assist other research needs NTAE producers identify. Support and other costs of \$285,000 will also be provided to the Gremial under the Cooperative Agreement.

A Research Advisory Council will be established by the Gremial, which will develop a list of priority products eligible for matching-grant assistance. The criteria for developing this list will include:

- / present and future volume and value of exports
- / number of producers involved, with special emphasis on the role of small farmers in crop production
- / level of need for immediate, problem-driven research with reasonable probability of producing useable results in a period of one to two years

recognition of the need to limit and focus the activities to be undertaken by the Fund, but retaining responsiveness to urgent requirements of the dynamic, expanding NTAE market

There are a variety of crop-specific problems needing research which may be tentatively identified at this time. Many of these are related to increasingly strict quality and safety standards required by export markets. Examples of priority crop-specific research needs include:

**Snow Peas:** Cost-effective treatment of *Ascochyta* (a fungal disease), moth larvae and spider mites; methods to reduce the levels of pesticide residues

**Strawberries:** Biological control of spider mites; cost-effective means of dealing with botritis and white grubs

**Broccoli:** Treatment of hollow stem and *plutella*; fertilizer trials

**Asparagus:** Treatment of La Roya fungus; control of nematodes; variety and fertilizer application trials

**Melons:** Treatment of melon virus in Zacapa area; white fly on the South Coast; dealing with Africanization of pollinating bees

**Brambleberries:** Research is needed on varieties suited to Guatemala and on stem borer, a problem present in Guatemala but not covered in North American or European literature

**Lettuce:** Studies on suitability of varieties for Guatemala; control of bolting

**Cauliflower:** Development of a white stem variety for Guatemala to increase acceptance in export markets; hollow stem treatment and control

**Celery:** Development of low-bolting varieties

**Garlic:** Suitability studies of white garlic varieties; processing methods for garlic puree

**Papaya:** Adaptation of Hawaiian research on hot-air treatment of papayas for export

**Okra:** Nematode control

**Peaches:** Production of certified stock free of Western X disease

**Green onions:** Variety and fertilizer trials

**Achiote:** Mildew control

The Research Council itself will be comprised of eight members: four from the private sector (representing Highlands, Coastal and Oriente producer interests), two from the university community, the Director of ICTA, and the Chief of ORD, in representation of USAID. The Council will select a Research Administrator through an open competition process. The Research Administrator, who will be responsible for the actual administration of the research fund, will provide guidance to organizations seeking grant support, review all proposals for completeness and conformity with Council requirements, manage the proposal review process, develop grant agreement documentation, monitor research progress and arrange for publication and dissemination of research results. The Research Administrator will be assisted by a Review Committee comprised of three experienced agricultural scientists, ad-hoc reviewers, and a secretary. As required, outside assistance from institutions such as the Escuela Agrícola Panamericana will be obtained.

Counterpart matching funds will come from independent and organized producers and exporters within the private sector, with additional in-kind contributions from the universities and public research (e.g., ICTA) sectors. It is expected that counterpart matching funds or in-kind contributions will average 50% of research costs, although the Council will have discretion to modify the 50% requirement as necessary or when special circumstances so require. While considerable variability is anticipated in the amounts of individual grants, it is expected that they will range from \$15,000 to \$90,000, with an average grant amount of approximately \$60,000. Although most of the funding for each grant is anticipated to be for local costs, the Fund recognizes that there will be problems for which no local expertise is readily available, and thus limited foreign exchange will be provided for bringing in short-term specialists if needed.

The grant agreements will specifically include agreements regarding the public disclosure of all research results obtained as a result of the grant. The Research Committee and Research Advisory Council will review the research results from each project, providing assurance of their scientific validity and practical soundness. The dissemination of the results is an

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important strategy to increase the distribution of benefits of the entire HAD Project, and will be carried out through the Gremial's information service and the Ministry of Agriculture's extension department, DIGESA, under other components of the HAD Project. Dissemination will include demonstration of new technologies developed through field days and trials. Initially, these demonstrations will be conducted by the producer groups, scientists and technicians involved in the research, and subsequently on a long-term basis by DIGESA.

**Inputs**

Phytosanitary Research Fund	\$455,000
General Research Fund	260,000
Personnel	174,952
Commodities	9,000
Operating & Support Costs	36,813
Travel & Per Diem	23,016
Inflation & Contingencies	41,219
<b>TOTAL</b>	<b>\$1,000,000</b>

**Outputs**

IPM/Phytosanitary Research Projects	
Funded	14
Unrestricted Research Projects Funded	8
Dissemination of Research Results	22

Institutional Strengthening of the Non-Traditional Products Exporter's Guild, or Gremial (\$2.0 Million AID input; \$511,829 counterpart)

The Non-Traditional Products Exporter's Guild, a private branch of the Guatemalan Chamber of Industry, is the leading interest group in the country involved in the promotion of non-traditional exports. The Gremial's strong leadership, demonstrated ability to influence national export promotion policy, and manifest interest in expanding market information and other services to non-traditional exporters led to the Guild's selection for implementation of market information and investment promotion activities under the Agribusiness Development Project (520-0276), initiated in 1985. The marketing services of the Gremial will be continued under the Phase III Amendment to the HAD Project to insure the sustainability of Project-promoted agricultural diversification. The support of Gremial marketing expertise is especially appropriate for inclusion in this Amendment, given the interrelationship of international marketing regulations and phytosanitary and pesticide residue concerns.

As in the other components, the Gremial's activities will be funded on the basis of an AID approved annual implementation plan.

#### Overview

The Gremial has already taken the initiative in addressing the marketing aspects of international phytosanitary and pest residue regulations. Steps have been taken to organize producers to regulate the use of agrochemicals in compliance with EPA and FDA regulations, and to promote IPM-oriented research to identify alternative methods to control pests and diseases. Export market competition also require that Guatemala strengthen its market information and promotion efforts, and those activities under the Agribusiness Project will be continued. The expansion of the Gremial's membership, however, require that the information system be refined and targeted, so as to support the needs of both "novice" and "expert" producers. Systematization of phytosanitary and pesticide residue information services will also be addressed under this component. The establishment of an acceptable system of grades and standards is also necessary. Export expansion and investment promotion activities will continue. Finally, the Gremial's effective policy analysis and training activities will be continued.

#### Market Information Activities

Regularly updated, reliable information on price levels and fluctuations, origins and quality of agricultural products, market demand forecasts, grades and standards and inspection requirements, brokers, wholesalers, shippers, trade agreements and other essential information, have been produced by the Gremial under the Agribusiness Development Project. The continued expansion and diversification of the Gremial's membership now require that the information delivery system be refined and targeted to address the varied needs of its members.

New information services will be developed under the proposed Amendment to service an increasingly sophisticated and experienced older membership, while enhancing the utility of information to the newer, "entry-level" members of the Guild. The increasingly important aspects of pest/pesticide residue management and grades and standards will also be addressed through expanded services involving both informational activities and pre-shipment inspections in the field and at packing stations. By the end of the Project, a respected and recognized inspection and grading system will be established, supported by a fee-for-service system.

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## Export Expansion, Investment Promotion and Policy Analysis

Prior activities of the Gremial in this area included systematic market research to determine market potential and access in selected foreign markets for NTAE products. The Guild also promoted attendance at international trade fairs, sponsored local trade fairs, and carried out and disseminated investment research results identifying potential investment activities and advantages of foreign investment in Guatemala.

Under the Agribusiness Development Project, the Gremial was involved in analysis and development of public policy affecting production and export of non-traditional agricultural exports, and played an effective role in influencing policy decisions favorable to the expansion of such exports. Project support will continue under the Phase III Amendment. Technical assistance needs in this area will be met through the Private Enterprises Project.

### Training for Agribusiness Entrepreneurs

Through the Agribusiness Development Project, the Gremial provided management and marketing training to agribusiness entrepreneurs. Training in export market product specifications, transportation, and exporting regulations and requirements was conducted, primarily through workshops, short seminars, one- to three-day short courses and field trips in-country.

Training under the expanded market component of the HAD Project will continue with the Gremial's program, and expand it significantly in new areas. Over the life of the Project, the Gremial will provide 25-30 workshops, short courses and field trips annually to approximately 4,000 participants. Short-term, non-degree technical and "hands-on" training programs in the United States and in other Latin American countries will also be developed in such areas as quality control in processing and packing of fresh produce; maintenance of storage and processing equipment; post-harvest handling and treatment of fresh and frozen products, and processing plant management. The Gremial will also sponsor in-country training conducted by internationally recognized NTAE specialists and institutions, and short-term faculty exchange programs in NTAE for local university professionals and researchers.

**Inputs**

Personnel	\$435,673
Commodities	12,130
Training	280,102
Operating & Support Costs	342,839
Export Promotion Activities	334,698
Travel & Per Diem	139,165
Evaluation & Audit	100,000
Inflation & Contingencies	355,393
<b>TOTAL</b>	<b>\$2,000,000</b>

**Outputs**

Market and Product Information Service	X
NTAE industry-wide producer organization implementing phytosanitary and pesticide residue inspections	X
Establishment of grades and standards and an internationally recognized seal of quality	X
Entrepreneurs and managers trained	4,000
Participation in international product promotion events/trade fairs	50
Promotion of country/region-wide product trade fairs and marketing events	4
Commercial missions/enterprises	6/120
NTAE university research and curriculum development missions	28

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## PROJECT ANALYSES

### Technical Analysis

#### Environment and Natural Resources

The HAD Phase II Project was found by the Environmental Impact Assessment conducted in late CY88 to have the potential of significantly affecting the environment by promoting high value cash crop agriculture likely to result in a more intensive use of chemical pesticides (see Annex F). The EIA team found evidence of the following effects of such increased pesticide usage:

- / destruction of natural enemies of both target and non-target pests
- / inducement of pest resistance
- / increased production costs
- / soil contamination
- / food contamination
- / acute human poisonings
- / inducement of non-acute poisoning symptoms
- / destruction of non-target organisms

In addition to these potential adverse effects associated with the Project, the EIA team also identified the following:

- / depletion of soil fertility and loss of organic matter through intensive and non-conservative farming practices, possibly leading to soil compaction
- / potential for erosion while developing small irrigation projects in sloping areas if soil conservation measures are not taken simultaneously
- / potential for reducing water yields through inadequate watershed management practices in recharge areas
- / small field monoculture and incorrect water management may promote problems with disease organisms and nematodes

The EIA found, however, that with soil conservation and adequate agricultural, forestry, water resource, pest and pesticide and environmental management, the Project offers the potential for creating important economic, environmental and social benefits in Project areas:

- / the Project will introduce reforestation and agroforestry, with soil protection, runoff reduction, increased water seepage and production of wood
- / the Project will increase awareness of interdependencies between soil cover and water supply beyond that achieved under the HAD I Project
- / by increasing land productivity, the Project will create greater economic incentives and possibilities for rural populations to remain in their communities

The EIA team identified three alternatives as a result of its study:

- A. Implement the HAD Phase II Project as designed. Under this alternative, all of the potentially adverse impacts, as well as the potential benefits, identified above would remain and/or increase.
- B. Develop a strengthened Pest/Pesticide Management component with the introduction of Integrated Pest Management (IPM); plus an Improved Watershed Management component including an explicit integration of Small Irrigation and Soil/Water Conservation components; plus a Forest Management/Agro-forestry component; plus provision for a Wildlife/Protected Area component. This alternative would retain all of the potential benefits while mitigating all of the potentially adverse impacts of the HAD Project.
- C. No action. Under this alternative, the HAD Project would essentially cease.

As a result of the EIA, the Mission has opted to develop the second alternative through a new Environment and Natural Resources component under the proposed Amendment. Support is provided for two sub-components which respond to the EIA: Institutional Strengthening of the Plant Protection Division, Sanidad Vegetal, and Watershed Management, to be implemented in HAD irrigation site watersheds through a Cooperative Agreement with CARE.

#### Institutional Strengthening of the Plant Protection Division

Sanidad Vegetal is the GOG agency with the primary responsibility to enforce the Pesticide Law and Plant Protection laws of Guatemala. Its functions include pesticide registration, supervision of pesticide importation and local

manufacture, quality control, quarantine controls, laboratory diagnosis of pests and promotion of IPM programs. It also has training responsibilities for growers and rural health center staff with regard to pesticide use and treatment of intoxication. Sanidad Vegetal does not currently have the technical and institutional capability to fulfill its mandate.

The broader mandate of Sanidad Vegetal, and the difficulties experienced in the Central American region which inhibit the implementation of IPM programs in a short timeframe, suggest that emphasis initially be given to Rational Pesticide Use Management (RPM), a concept that covers the purchasing, handling, mixing and application of pesticides; equipment calibration; proper disposal of containers; user safety; and production practices such as recognition of harmful and beneficial insects, crop rotation, biological controls, planting cycles and economic considerations in pesticide use. Whereas IPM is crop- and site-specific, long-term and highly technical, RPM programs will have an immediate impact in reduced, safer and more effective pesticide usage as the producer moves towards an IPM program. Research on IPM, supported by ROCAP through CATIE, can be applied to expand the RPM basis the HAD Project Amendment will develop.

Under the guidance of the HAD Project long-term Pest/Pesticide Management Advisor, the Phase III Amendment will assist Sanidad Vegetal in more effectively fulfilling its role in supervising the agrochemical industry, establishing a valid basis for the issuance of phytosanitary certificates and "certifying" pesticide residue analyses, and strengthening its laboratory diagnosis capabilities serving small farmers and extensionists throughout the country. Sanidad Vegetal's role as a clearinghouse for technical information regarding pest control issues will be strengthened with up-to-date information, active public awareness campaigns, etc. Sanidad Vegetal certification of approved "pesticide recommenders" passing a course given by or in conjunction with the Escuela Agrícola Panamericana.

Coordination with the Gremial-supported research activities into pest/pesticide management alternatives will be an important step towards combined public and private sector solutions to the pesticide problems identified in the EIA. Sanidad Vegetal and the Gremial will also work together on developing an effective inspection and certification program leading to greater compliance among producers and improved "enterability" for Guatemalan produce into foreign markets.

## Watershed Management

Experience from previous projects show that the limited amount of prime agricultural land, combined with high population growth rates, has forced the small farmer to remove natural forest growth and cultivate ever steeper hillside lands. Deforestation and conversion to agricultural land use occurs, water retention has been reduced in many areas and runoff has increased, resulting in reductions of streamflow and locally important water resources. Significant soil losses also result. This loss of soil and reduced water availability have resulted in decreased crop yields, and, in turn, decreased farmer income.

In HAD Phase II, watershed management will consist mainly of soil and water conservation and agro-forestry practices. Due to the key role these activities play in preserving the long-term productivity of agricultural land and their close interrelationship, these practices will be integrated with irrigation activities.

Watershed management practices have been promoted successfully in the Guatemalan Highlands for many years. Over 2,225 hectares of bench terraces and contour rows have been constructed under previous USAID projects in Region I using home-made leveling devices and hand tools. In other areas, hillside ditches, rock walls, live barriers and gully plugs using similar design and construction techniques have also been found to be appropriate measures to conserve soil and water resources. When integrated with crop management practices (e.g., conservation tillage, contour cropping, incorporation of crop residues, composting, green manuring, mulching and strip cropping), these measures have had a marked impact on crop production levels and long-term productivity.

Previous USAID project evaluations indicate a need to integrate irrigation with watershed management. Under the Phase III Amendment, this will be accomplished at irrigation sites and in tributary watershed areas. To increase effectiveness, the management package will be broadened to include agronomic practices and conservation structures. These measures will also be expanded to respond to a wider range of soil, topographic and climatic conditions to assure optimal crop productivity while conserving valuable resources.

Agro-forestry was introduced as a pilot activity under HAD in 1983. This component promoted the production of fuelwood by reforestation of public lands and seedling planting on small private land holdings. As reported in the Project midterm

evaluation, this component did not adequately support or address the overall objectives of small-scale irrigation and soil conservation activities. However, in Phase III of HAD, agro-forestry will play a more integrated role in the management of tributary watersheds for irrigation areas. In addition, Phase III will address further Highland problems by broadening the scope of this activity to emphasize on-farm agro-forestry activities and the protection of important forest stands in key watershed areas.

Past USAID experience has indicated that agro-forestry activities need to promote the establishment and management of local species or proven introduced species to protect critical watershed areas and diversify agricultural production systems. This will be accomplished under Phase III by selecting species characterized by ease of propagation, hardiness and productivity. Agro-forestry will also emphasize the incorporation of complementary multi-use tree species within existing or recommended cropping systems planted along fence lines as live fences and windbreaks, incorporated with conservation structures (such as along terrace slopes, rock walls or hillside ditches), and in mixed stands for watershed protection and lumber/fuelwood production. On upland watershed areas with existing tree stands, forest management (including reforestation, thinning, selective cutting and/or protection from fire and animals), will be employed.

Successful appropriate agro-forestry technology packages that include these techniques have been developed by the Centro Agropecuario Tropical de Investigaci3n y Ense anza (CATIE) and the CARE/INAFOR agro-forestry projects. These well-researched and applicable packages will be employed by CARE through community-based social forestry, agroforestry, environmental education and agricultural resource conservation activities in some 20 selected middle and upper watersheds of HAD small-scale irrigation sites.

#### Non-Traditional Agricultural Research Fund

Over the past ten years, the export of non-traditional agricultural products from Guatemala has increased dramatically. With this expansion has come an increasing number of problems related to production, post-harvest handling, processing and marketing. Rigorous quality standards have to be met for the demanding U.S. and European markets. Productivity per unit cost must be high to successfully compete with other suppliers. Producers must be constantly alert to a wide variety of diseases and pests which could seriously affect yields or wipe out their crops. Care must be taken in post-harvest

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handling and packing to assure that fresh produce reaches the consumer in good condition. Exported produce must also meet the strict and variable requirements of the U.S. Department of Agriculture, the Food and Drug Administration and the Environmental Protection Agency. In some instances, the technology to address these problems is known and readily accessible. In other cases, the technological solutions are not known or must be adapted to Guatemala's special conditions.

The need for conducting research to address problems related to the production and export of non-traditional agricultural exports has become increasingly evident. Some of the larger established producers in Guatemala have been carrying out active production and post-harvest handling research problems for a number of years. The results of this research, however, are generally closely held and not made available to other producers, including the growing number of small farmers trying to break into the NTAE market. In order to address these problems, this Amendment will establish an Agricultural Research Fund to which NTAE exporters and producers can turn for matching funding to support critical research activities. The Fund will provide a flexible, quick-response capability to provide matching assistance on a 50-50 basis for urgent, problem-driven research which will address production, post-harvest handling, processing and marketing problems confronting NTAE producers and exporters.

Because of the importance of pest/pesticide management issues for the NTAE sector, approximately two-thirds of the Fund will be restricted to support IPM and phytosanitary research. A Research Council will administer the Fund, and will establish a list of priority products eligible for research funding, based upon the following criteria:

- / present and potential future volume and value of exports
- / number of producers involved, with particular attention to the role of small farmers in crop production
- / level of need for immediate, problem-driven research which has a reasonable probability of yielding conclusive, usable results in one to two years
- / recognition of the need to limit and focus the activities undertaken through the Fund, but retaining the flexibility to be responsive to clear and urgent requirements in a dynamic, expanding market.

## Marketing

The constraints associated with the poorly developed marketing system have caused it to be a principal limitation to the success of production-oriented activities. Design of the marketing component is based upon the premise that by increasing the availability and awareness of market alternatives and opportunities, the participants in the marketing system will make rational economic choices. In addition, as their knowledge of market options increases, more competitive systems will emerge, with benefits accruing to the small and medium producer, as well as to the consumer.

Agricultural production and marketing for export and domestic consumption are interrelated and mutually dependent. They form part of an integrated marketing system. In Guatemala, the major outlet for farm output is the domestic market, where traditional grains and vegetables are the basic units of production and consumption. For some of these same commodities, major export markets have developed (e.g., El Salvador and Mexico), and represent important growth opportunities. While the products demanded in these regional export markets and the Guatemalan internal market are the same, international boundaries allow market differentiation. Thus, while the traditional small producer does not have to change his production program, he should be able to choose between two markets. In a competitive marketing system the producer should then be in a position to maximize benefits through rational market selection.

The situation with respect to specialty export crops (primarily to the U.S., Canada and Europe) does not lend itself to the same degree to interrelation between the export and internal markets. However, two directions can be pursued to bring them into closer contact. First, domestic promotion of export products would create alternative, secondary markets. Though not as lucrative as the export markets, they would give producers increased bargaining power vis a vis the processors/exporters, as well as a safety valve for over-production and export rejects. Promotion responsibility and initiative rests primarily, and ultimately, with the private sector. Both producers and marketers have a direct interest in broadening the composition of the national diet. Within the near future organizations or associations representing these groups should consider long-term campaigns for effecting changes in consumption patterns.

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A second path of action towards a closer synchronization between traditional and export activities requires the development of a market orientation and mentality among commercial producers. Basically, this implies accepting market considerations as the primary element in production planning. Once the farmer produces with the objective of satisfying market demands, he can more easily adapt to the special rigor that export markets require. This approach to farming will enable the producer to diminish risk and increase income stability and security, whether he elects to deal in domestic or export markets.

### Administrative Analysis

#### Sanidad Vegetal

Sanidad Vegetal is a division of DIGESA, the Ministry of Agriculture's agricultural extension services directorate. It is endowed with regulatory powers to enforce the GOG's Pesticide Law and Plant Protection laws, and is responsible for pesticide registration, supervision of pesticide importation and local manufacture, quality control, quarantine controls, laboratory diagnosis of pests and promotion of IPM programs. It also has training responsibilities to both growers and health post staff. Sanidad Vegetal is divided into four technical branches: Plant and Parasite Diagnosis, IPM, Supervision and Agro-chemical Registration, and Plant Quarantine. Sanidad Vegetal serves three client groups through supervision or service provision:

- / the agro-chemical industry is regulated and supervised by Sanidad Vegetal. By law, all pesticides have to be registered with the Division, which is empowered to supervise the distribution and sale of pesticides, proper labelling of products, and compliance with the Pesticide Law.
- / for export-oriented commercial growers, Sanidad Vegetal is responsible for issuing phytosanitary certificates required for entry into the United States. In the near future, when a Memorandum of Understanding is signed between the U.S. Food and Drug Administration and the MAGA, Sanidad Vegetal will also be responsible for certifying that proper pesticide practices are used.
- / laboratory pest diagnosis services are provided to the small farmer producing for both domestic and export markets.

These functions are imperfectly performed, in part because of lack of training and in part because of inadequate resources. Agro-chemical supervision and registration, for example, is carried out completely manually. Project resources will develop databases of imported and manufactured products, their current legal status, and an inventory of local pests and diseases. "Policing" functions are currently almost totally dependent on the (agro-chemical) industry being policed. Education and training functions are similarly stymied because of lack of vehicles and funds for materials. Although substantial numbers (18,000 in 1988) of laboratory pest diagnoses are conducted in three laboratories, the lack of sufficient laboratory equipment and supplies inhibits Sanidad Vegetal from performing this vital service to the small farmer. The Parasitology and Plant Diagnostics department not only performs the diagnosis, but also provides pest control recommendations to the producer. This department also works closely with the IPM department in designing and implementing IPM programs. Thus, although Sanidad Vegetal on the surface appears to be just a regulatory agency, it may well be one of the few institutions in the country capable of providing a carefully thought out and systematic approach to pest control through laboratory diagnosis, a basic tenet of IPM.

The budget for Sanidad Vegetal for the past five years has been modest:

<u>Year</u>	<u>Amount</u>
1984	Q. 210,844
1985	211,044
1986	205,589
1987	254,893
1988	268,782

Approximately 88% of Sanidad Vegetal's budget is for salaries; the rest supports operating costs. The Division currently has 84 employees, of whom 7 are university-level and 38 are technicians. The two principal departments that will implement activities under this Amendment (Registration and Supervision of Pesticides, and Plant and Parasite Diagnosis) have 8 employees each. More than one-half of Sanidad Vegetal's employees are in the Plant Quarantine department and are stationed at the principal border entry points throughout the country.

Inspection and certification services are essential to the success of the export-orientation of the HAD Project. It is here where Sanidad Vegetal is perhaps the weakest. Currently

the Department of Plant Quarantine issues the phytosanitary certificates required for export produce. The lack of necessary resources had rendered this a meaningless "rubber stamp" function. In June 1989, Sanidad Vegetal signed an agreement with the Gremial that allows the producer's agronomist to certify that the produce meets all the requirements of the phytosanitary law (i.e., free from disease or economically significant pests or insect damage); Sanidad Vegetal then issues a phytosanitary certificate without actually inspecting the produce. On the one hand, this facilitates the export of produce from Guatemala, but on the other hand the certificates are not recognized as having any validity by U.S. agencies since an industry is essentially certifying itself.

The institutional strengthening support to Sanidad Vegetal directly addresses these weaknesses in an agency which will play an increasingly important role in the NTAE market development. Resources will be directed towards strengthening only two of the many functions Sanidad Vegetal is mandated with: pesticide registration, information and training, and pest diagnostics and inventory. By addressing the primary institutional constraints of Sanidad Vegetal, inadequate infrastructure and training of its personnel, the Mission believes that the agency will be capable of carrying out the activities contemplated by the Amendment.

#### Watershed Management Activities: CARE

CARE has fifteen years of experience in forestry and soil conservation in Guatemala. During this time, CARE pioneered the field of agro-forestry in Guatemala, and established itself as the key PVO engaged in social forestry in the country. Since its inception in 1974, CARE's Agro-forestry Project has produced approximately 36.5 million forestry seedlings, sponsored over 10,000 hectares of reforestation, and installed an estimated 6,300 hectares of soil conservation structures. The Agro-forestry Project has enabled three institutions (CARE, INAFOR/DIGEBOS and the Peace Corps) to develop a long-term, stable working relationship that has, over the years, involved some 48,000 smallholder participants and benefitted at least a half a million others.

A number of important changes have taken place in CARE's agro-forestry activities in recent years. Based on recommendations from a 1983 evaluation by Chemonix Corp., seedling production was decentralized from larger towns to a wider network of smaller community nurseries. Also resulting from the same evaluation was a shift from larger block plantations on marginal, often poorly protected, municipal lands

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to agro- forestry planting on small private holdings. As a result, survival rates improved as did individual smallholder's benefits resulting from their efforts. More recently, the Project has placed greater emphasis on local self-management, women's participation, nursery phase-over to community groups and long-term sustainability of agro-forestry activities.

CARE is a well-established organization in Guatemala with a solid track record of managing community-based activities such as the watershed management sub -component. The sub-component budget includes provision for one international-hire Project manager, a local-hire Project coordinator, and necessary support staff. No institutional limitations are foreseen which would impede implementation of the sub- component.

#### The Non-Traditional Products Exporter's Guild, or Gremial

The Non-Traditional Product Exporter's Guild, a non-profit trade committee assigned to the Guatemalan Chamber of Industry, was founded in 1982 to serve as an effective means of communication with other organizations of the private and public sectors on areas relating to production and particularly exports. The fundamental interest of the Gremial is to protect the interests of the exporting sector and to work for the establishment of fiscal incentives to encourage production. The Gremial also lobbies for the elimination of GOG policies and obstacles inhibiting the export of Guatemalan products to international markets. The Gremial addresses different areas of the Guatemalan economy, such as

- / reactivation of the capacity of the country's industries that have reduced their export production because of international market deterioration
- / fomenting export production and the creation of jobs to improve the social and economic situation of many Guatemalan families
- / encouraging the export of non-traditional products, resulting in foreign exchange generation and an improvement in the country's balance of payments
- / diversification of Guatemala's industrial and agricultural production to reduce the country's vulnerability to detrimental external factors
- / improvement of the service sector, especially in sea, land and air transportation

- / improvement of external financing to allow private sectors to increase the volume of their international sales.

The Gremial has over 650 members whose products range from wicker furniture to processed food products. The Gremial is open to and actively seeks membership among the entire range of small, medium and large enterprises. A sliding-scale quarterly membership is charged for Gremial membership, and has allowed the organization to become approximately 45% self-sufficient. With current efforts by the Gremial to implement an enhanced progressive fee structure and a fee-based service delivery program, and an increasing membership base, the Gremial is expected to be able to self-finance its core program by PACD. The other activity to be funded under the Phase III Amendment, the research fund, is seen as an experimental activity to test the private sector's willingness to support research activities directly benefitting NTAE's. If successful, this pilot activity will become the precursor for a larger, self-sustaining research support activity operated by the private sector.

At present, the Gremial is operated by 39 professional and technical staff and 15 support staff. The organization is well-run: a late CY87 audit by Price Waterhouse was favorable, as was a USAID voucher review in early CY89. All recommendations from the Price Waterhouse audit have been implemented; the one major concern (delays in preparation of monthly financial statements) has been answered through hiring of additional accounting staff and the computerization of the accounting system. Finally, as of August 31, 1989, the organization's debt-to-assets ratio was 58%, with liabilities totalling Q.1,550,479 and assets of Q.2,670,154.

The Phase III Amendment will provide continued core budget support (originally provided under the Agribusiness Development Project) to assist the Gremial's current activities in providing market information, in maintaining a strong policy analysis capability, in promotion of non-traditional agricultural exports and investments, and in provision of training activities (workshops and seminars). These represent activities that the Gremial has successfully implemented with USAID support over the past five years. Sufficient core staff support is provided under this Amendment to assure the Gremial's capability of implementing the proposed activities. On the basis of the institutional analysis of the Gremial, USAID has determined that the Non-Traditional Products Exporter's Guild is administratively capable of carrying out its functions under the Phase III Amendment to the HAD Project.

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## Social Analysis

This Project is noteworthy for the diversity of its technical components and of the sociocultural characteristics of the intended beneficiaries. Geographically, virtually all of Guatemala's Highland region will be included, from the Mexican to the Honduras/El Salvador borders. Within this vast area, the majority of the population are farmers, cultivating an average of less than 7 hectares of corn, beans, squash and other traditional crops. Culturally, Guatemalan farmers, like their counterparts in Bolivia, Ecuador, and Peru, comprise a heterogeneous mix of ethnic groups ranging from the Mayans, the direct inheritors of ancient pre-colonial native traditions to poor non-Mayan "ladino" descendants of the country's Spanish conquistadores. Climatically, the area ranges from the cool western mountains through the temperate central regions, to the warm, semi-arid eastern hills.

These differences strongly condition the farmers' ways of thinking about risk, and their receptivity to change. Since agricultural diversification and soil/water resource management involve both of these factors, it is especially important that strategies for this Project be sufficiently flexible to permit adaptation of technical assistance to local circumstances.

In the case of the watershed management activities to be undertaken by CARE, special attention will be directed during the selection and implementation process to the strengths and limitations of existing community organizations, the local environmental knowledge base, the social valuation of costs (especially labor costs), the degree to which written and graphic material can be conveyed in a meaningful way to participants, and the development of simple accounting systems for participants in forestry micro-enterprises. Careful selection and training of watershed management promoters must receive high priority for this sub-component. IPM training materials and media to be developed under the Sanidad Vegetal sub-component will also take into account the limited literacy skills of the target population.

## Expected Benefits

Immediate benefits will include increased employment and net incomes, expanded savings opportunities and a broader range of choices in production and consumption. Improved health and nutritional status will enhance both the quantity and quality of family labor, with more opportunities for schooling and leisure time. Fuller productive on-farm employment will reduce the need for off-farm wage labor and seasonal migration. In the longer

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term, gains in small farm income and saving will increase effective demand for non-agricultural goods and services and generate a growing pool of rural capital available for financing both rural and urban investment.

#### Role of Women

The Watershed Management activities of the E/NR component have the greatest potential of increasing involvement of women and enhancement of benefits to them. Although the role of women has in general received little attention in the past in agricultural projects, a USAID-funded study currently being conducted by CARE on enhancing the role and participation of women indicates that:

- / when offered the opportunity many women are quite interested in agro- forestry and soil conservation activities
- / there is a tendency to prefer income-generating activities with a relatively rapid return, and those which contribute to the family food budget (such as soil conservation, composting and vegetable gardening) as opposed to longer-term projects (such as reforestation of communal lands)
- / women can and do find enough discretionary time to participate in social forestry activities if perceived as advantageous
- / women's involvement tends to be more spatially constrained than men's, focusing activities in the vicinity of the farmstead
- / women are often available to work during critical seedling production periods when many men are absent from the community working for wages on large estates
- / women overwhelmingly prefer to work in groups with other women or with women and children, rather than in groups with men
- / involving women in Project activities with an all-male Project field staff is often difficult, but not impossible
- / food assistance given to women in exchange for work is more likely to be consumed by the family than diverted to other uses

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Although these findings are preliminary, CARE suggests that women's participation and benefits will be enhanced under the Phase III activities if the following guidelines are employed:

- / baseline and diagnostic studies include consideration of women's needs, priorities and constraints
- / group and watershed management plans incorporate agro-forestry and soil conservation activities
- / selection of field staff give high priority to recruiting qualified women promoters and technicians, and of male promoters and technicians capable of working with women's groups
- / staff be trained in skills and methods necessary to work with women's and mixed male/female groups; extension training should include culturally appropriate modules for organizing and training women's groups
- / monitoring and evaluation indicators should be included to measure progress towards women-related goals.

#### Spread Effects

The CY89 cross-cutting evaluation of USAID assistance to the Highlands area found that the effects of USAID-supported irrigation and crop diversification efforts had visibly spread throughout the Central and Western Highlands. The technical interventions--terracing, small-scale irrigation, soil conservation, vegetable and fruit tree cultivation--and their income and employment generating impacts, were detected beyond original Project sites. Small farmers in Guatemala--Mayan and Ladino alike--commonly share information about farming practices and have a strong awareness of what their neighbors are doing. They are accustomed to working in groups, formally or informally as circumstances may require, and every community has at least a few individuals open to innovation. Most small farmers need some cash during the year for specific purposes and will try something they have seen others profit by. Even in more traditional Mayan areas, many farmers are at least aware of some of the technologies to be promoted under the Project, and it is as much poverty as a sense of risk per se which constrains their adoption. Since these are among the constraints to be addressed by the Project, the prognosis for rapid diffusion is good.

## Economic Analysis

The HAD Phase III Amendment is almost entirely devoted to addressing environmental concerns related to activities being conducted under HAD Phase II. These concerns do not affect in any significant way the economic analysis prepared as part of the HAD Phase II Project Paper. The two main causes of higher production and income-- the introduction of irrigation and improved market access--remain basically unaffected by the Phase III Amendment. Watershed management will enhance, in any case, the double-cropping and changes in crop mix permitted by irrigation. The same is also true of the revised orientation of Phase II towards livestock enlargement and commercialization. Furthermore, the basic limiting factors to the achievement of higher income levels--farm size, high percentage of cultivable land dedicated to basic grains, and the scarcity of human resources--will persist independently of environmental issues.

Another fundamental economic aspect of the Phase II Amendment is the market orientation for the producer. New market alternatives and marketing techniques are not only directed towards higher-quality products and lower post-harvest losses, as well as enhancing the availability and awareness of market opportunities, are not affected by the Phase III Amendment. Equally unaffected are the price information system devised under Phase II, the direct creation of employment and indirect job stimulation. Moreover, the discount rate (15 percent) chosen for benefit-cost ratios and present-worth calculations in the Phase II economic analysis is reasonable as a proxy for the opportunity cost of capital at present in Guatemala.

In conclusion, the expected economic benefits accruing from the Phase II Amendment to the HAD Project--increased employment, higher net income and savings, broader choices in production and marketing--are practically unaffected by the Phase III Amendment. Therefore, the existing economic analysis remains valid and sufficient for the proposed Phase III Amendment.

## Environmental Analysis

Because this is in large part an environmental Amendment, detailed discussion of environmental considerations of the proposed activities is contained in the Technical Analysis section, above. The Mission will conduct an IEE focusing on the watershed management and pest/pesticide management activities of the Environment and Natural Resources component of the Phase III Amendment, which were designed in response to the Phase II EIA and fully incorporate the mitigative actions outlined therein.

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The Mission believes that the Adaptive Research and Marketing components are categorically exempt from an IEE in accordance with Regulation 216.2.(c).

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V. FINANCIAL ANALYSIS AND PLAN

a. Project Budget and Financial Plan

The activities planned under this PP amendment to the Highlands Agricultural Development Phase II Project include the improvement of pest and pesticide management, watershed conservation, directed research and continued support for export-oriented marketing services. To develop these activities institutional support will be provided to the GOG's Plant Protection Agency and the Non-Traditional Products Exporters Guild (the Gremial); a matching-fund research grant mechanism will be established to be administered by a Research Advisory Council established by the Gremial; and a grant will be given to CARE to develop model small irrigation watersheds and integrated watershed management schemes. A.I.D. funds will be obligated through two means to three participating institutions. A Handbook 13 Cooperative Agreement will be the grant instrument with CARE for \$2.5 million and also with the Non-Traditional Exporters Guild for \$3 million. The institutional strengthening of the GOG's Plant Protection Agency will be implemented through a Handbook 3 bilateral Project Grant Agreement to the Highlands Agricultural Development Project (520-0274) with the Ministry of Agriculture for \$1.5 million.

The total additional budget for the four year project extension up to the HAD project PACD of September 1993 will be \$10,102,970, inclusive of counterpart budget. A.I.D.'s contribution will comprise 69.3% of the total project amendment budget, or \$7 million in grant funds. The other U.S. Government (USG) contribution, which comprises 3.8% of the total budget, represents the cost of the Peace Corps volunteers who will play a key role as counterparts to DIGEBOS promoters within the watershed management activity. 11.1% of the budget, or \$1.12 million, will be contributed by the Government of Guatemala (GOG). The remaining 15.8% will comprise the counterpart contribution of CARE, the Peace Corps, the Non-Traditional Products Exporters Guild, matching funds or in-kind contributions to average 50% of research costs, and the Guatemalan Agrochemical Manufacturers Guild (GREPAGRO).

Table 1 contains the project summary by component, including GOG and other counterpart contributions, broken down by dollar and local currency, while Table 2 shows the summary information by budget line items. The projection of expenditures by project year for A.I.D. grant funds and counterpart is shown in Table 3. The methods of implementation and financing are detailed in Table 4. Tables 5 and 6 show for both A.I.D. grant funds and counterpart the breakdown by project year and currency mix, of the project expenditures by budget line item within each component.

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Inflation is calculated at 5% on dollar costs and 15% on local currency costs, starting in the second year. The contingency factor is 8.6%, excluding the Research Fund.

b. Counterpart

The counterpart requirements will be met both by direct fundings and also contributions in-kind.

1. GOG contributions:

With respect to the institutional strengthening of the Plant Protection Division the in-kind counterpart contribution provided by the Division and also DIGESA comprises salaries of extension agents, laboratory and field technicians, office personnel together with certain operating costs.

The watershed management component involves the participation of DIGEBOS technicians and watershed promoters and the in-kind counterpart contribution comprises salaries and related expenses of the DIGEBOS staff involved in the project extension.

2. Other contributions:

In the watershed management component CARE will purchase vehicles and participate in the funding of operating and support costs.

Within the institutional strengthening of the Plant Protection Division five vehicles will be purchased with A.I.D. funds to permit Agrochemical Inspectors to monitor distributors and stores throughout the country. The Guatemalan Agrochemical Manufacturer's Guild (GREPAGRO) has signed an agreement with the Ministry of Agriculture to provide gasoline and maintenance for these vehicles, as well as per diem for the five inspectors.

The counterpart in the component for the institutional strengthening of the Gremial represents the progressive absorption on the part of the Gremial of the recurrent operating costs, particularly with respect to salaries.

c. Audits and Financial Reviews

Funds have been provided for mid and end of project audits to be performed under the IQCs for non-Federal audits controlled by the Inspector General's Office. The Mission

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Controller's Office will conduct annual financial reviews either under the IQC mechanism or utilizing in-house financial analysis personnel.

d. Recurrent Costs

The financial replicability of this project amendment depends on the willingness and financial capability of the GOG to "replicate" or continue the activities in which it is involved, i.e. watershed management and the institutional strengthening of the Plant Protection Division.

The basis for project institutionalization of the watershed management component at the national level is contingent upon the availability of technical, supervisory, logistical and human resources within DIGEBOS, the major counterpart. At present, DIGEBOS is a weak institution unable to cover its current financial and programmatic commitments adequately. The project amendment will provide considerable institutional strengthening to allow it to be able to assume its full role in the watershed conservation activity as well as its other responsibilities. The Mission has concluded that with the importance that the GOG is giving to environmental concerns additional budget allocations will be available to not only cover counterpart funds required during project implementation, but also funds required after A.I.D.'s assistance is ended both for DIGEBOS and the Plant Protection Division.

The introduction of the Core Development Budget concept using the local currency funds generated under the A.I.D. Economic Support Fund (ESF) programs has greatly strengthened the capability of the GOG to allocate financing to high-priority development projects, including the Highlands Agricultural Development Project. The joint programming of the PL 480 Title I generated local currency funds can also be used to guarantee the necessary allocation of resources for the sustainability of the watershed management and the institutional strengthening of the Plant Protection Division.

The role of CARE project staff is primarily advisory, providing technical assistance and administering and planning project activities. The project phase-over at the community level is not meant to be an arbitrary cut-off but rather a period when trends in group self-management and local self-sufficiency that have evolved over four years are reinforced. By that time, the committees will be able to plan and direct all major project activities, manage material inputs and raise funds (through fees, sales of seedlings or forest products) to support nursery production.

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Given the current efforts of the Gremial to implement an enhanced progressive fee structure and fee-based service delivery program, and taking into account the growth projected both in memberships and exports, the Gremial is expected to be able to self-finance its core program by the end of the project. The Gremial will have consolidated its overall service delivery program into a core program sustainable over the long term.

The applied agricultural research activity is seen as an experimental activity to test the private sector's willingness to support research activities directly benefitting non-traditional agricultural exporters. If this activity is successful, it will become the precursor for a larger research support activity that will be self-sustaining. However, from the point of view of the project amendment it should be viewed as a pilot effort.

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Table 1  
Budget Summary and Financial Plan  
by Activity

Activity	USAID		Total	OTHER USG		606		Other		TOTAL
	FX	LC		FX	LC	FX	LC			
Watershed Management	965,596	1,534,404	2,500,000	381,013	118,744	102,000	148,000		3,249,757	
Inst'l. Strengthening of Plant Protection Division Research Fund	720,000	780,000	1,500,000	0	1,002,068	0	124,316		2,626,384	
Inst'l. Strengthening of Non-Traditional Exporters Guild	110,000	890,000	1,000,000	0	0	0	715,000		1,715,000	
	655,290	1,344,710	2,000,000	0	0	26,660	485,169		2,511,829	
<b>TOTAL</b>	<b>2,450,886</b>	<b>4,549,114</b>	<b>7,000,000</b>	<b>381,013</b>	<b>1,120,812</b>	<b>128,660</b>	<b>1,472,485</b>		<b>10,102,970</b>	

Table 2  
Budget Summary and Financial Plan  
by Input

Input	USAID		Total	OTHER USG		606		Other		TOTAL
	FX	LC		FX	LC	FX	LC			
Technical Assistance	134,080	90,780	224,860	0	0	0	0		224,860	
Personnel	226,511	993,652	1,220,163	381,013	746,316	0	328,414		2,675,906	
Commodities	663,900	255,396	919,296	0	92,000	103,100	11,111		1,125,507	
Training	186,000	673,750	859,750	0	0	0	36,915		896,665	
Operating and Support Costs	74,966	1,009,466	1,084,432	0	282,496	7,360	366,068		1,740,356	
Research Fund	110,000	605,000	715,000	0	0	0	715,000		1,430,000	
Export Promotion Activities	252,000	82,698	334,698	0	0	0	3,277		339,975	
Travel and Per Diems	68,200	185,621	253,821	0	0	18,200	9,700		281,721	
Administrative Support - Overhead	195,853	0	195,853	0	0	0	0		195,853	
Evaluations and Audit	252,000	23,000	275,000	0	0	0	0		275,000	
Inflation and Contingencies	287,376	629,751	917,127	0	0	0	0		917,127	
<b>TOTAL</b>	<b>2,450,886</b>	<b>4,549,114</b>	<b>7,000,000</b>	<b>381,013</b>	<b>1,120,812</b>	<b>128,660</b>	<b>1,472,485</b>		<b>10,102,970</b>	

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Table 3  
Projected Expenditures by Project Year

Project Year	USAID	OTHER USG	606	OTHER	TOTAL
1	1,888,121	50,000	265,202	339,679	2,543,002
2	1,623,627	105,000	275,689	397,881	2,402,197
3	1,319,090	110,250	285,385	442,328	2,157,053
4	1,252,035	115,763	294,536	421,257	2,083,591
Inflation and Contingencies	917,127	0	0	0	917,127
<b>TOTAL</b>	<b>7,000,000</b>	<b>381,013</b>	<b>1,120,812</b>	<b>1,601,145</b>	<b>10,102,970</b>

Table 4  
Methods of Implementation and Financing (\$000's)

Input/Method of Implementation	Method of Financing	Amount
<b>1. TECHNICAL ASSISTANCE</b>		
Direct Contracts	Direct Payment	148
Cooperative Agreement	Advances/Direct Reimbursement	77
<b>2. COMMODITIES</b>		
Direct Contracts	Direct Payment	406
Cooperative Agreement	Advances/Direct Reimbursement	478
606 Institutional Procedures	Direct Reimbursement	35
<b>3. TRAINING</b>		
Direct Placement	Direct Payment	70
Cooperative Agreement	Advances/Direct Reimbursement	334
606 Institutional Procedures	Direct Reimbursement	256
<b>4. PERSONNEL</b>		
Cooperative Agreement	Advances/Direct Reimbursement	1,220
<b>5. OPERATING AND SUPPORT COSTS</b>		
Cooperative Agreement	Advances/Direct Reimbursement	975
606 Institutional Procedures	Direct Reimbursement	305
<b>6. RESEARCH FUND</b>		
Cooperative Agreement	Advances/Direct Reimbursement	715
<b>7. EXPORT PROMOTION ACTIVITIES</b>		
Cooperative Agreement	Advances/Direct Reimbursement	335
<b>8. TRAVEL AND PER DIEMS</b>		
Cooperative Agreement	Advances/Direct Reimbursement	254
<b>9. AUDITS/EVALUATIONS</b>		
Direct Contracts	Direct Payment	275
<b>Sub-Total</b>		<b>6,083</b>
<b>CONTINGENCIES/INFLATION</b>		<b>917</b>
		<b>7,000</b>

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Table 5  
Financial Plan and Analysis - USAID Funding  
By Input (Budget Line Item) within Activity (Element or Component)

Component No. 1 - Environment and Natural Resource Management

a. Watershed Management

Input/Budget Line Item	Year 1		Year 2		Year 3		Year 4		Total		TOTAL USAID
	FX	LC									
Technical Assistance	6,720	16,240	8,400	16,940	16,240	2,800	6,720	2,800	38,080	38,780	76,860
Personnel	47,159	113,078	68,159	100,183	54,659	89,983	56,534	79,783	226,511	383,027	609,538
Commodities	180,350	21,113	38,750	61,118	34,400	46,469	400	74,566	253,900	203,266	457,166
Training	5,000	36,349	10,000	44,076	10,000	61,437	10,000	76,786	35,000	218,648	253,648
Operating and Support Costs	4,043	93,155	4,403	100,760	4,460	90,880	4,460	97,619	17,366	382,414	399,780
Travel and Per Diems	1,050	21,860	1,050	21,860	1,050	21,860	1,050	21,860	4,200	87,440	91,640
Admin. Support - Overhead	49,747	0	48,571	0	46,221	0	51,314	0	195,853	0	195,853
Evaluations and Audit	10,000	4,000	2,000	4,000	10,000	10,000	50,000	5,000	72,000	23,000	95,000
Inflation and Contingencies	8,798	16,338	30,569	59,161	41,478	48,063	41,841	74,267	122,686	197,829	320,515
<b>Total</b>	<b>312,867</b>	<b>322,133</b>	<b>211,902</b>	<b>408,098</b>	<b>218,508</b>	<b>371,492</b>	<b>222,319</b>	<b>432,681</b>	<b>965,596</b>	<b>1,534,404</b>	<b>2,500,000</b>

b. Institutional Strengthening of the Plant Protection Division

Input/Budget Line Item	Year 1		Year 2		Year 3		Year 4		Total		TOTAL USAID
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	
Technical Assistance	48,000	24,000	36,000	16,000	12,000	12,000	0	0	96,000	52,000	148,000
Commodities	316,000	25,000	90,000	10,000	0	0	0	0	406,000	35,000	441,000
Training	15,000	70,000	23,000	74,000	20,000	59,000	13,000	52,000	71,000	255,000	326,000
Operating and Support Costs	0	72,000	0	100,000	0	98,000	0	35,000	0	305,000	305,000
Evaluations and Audit	0	0	40,000	0	0	0	40,000	0	80,000	0	80,000
Inflation and Contingencies	38,000	19,000	22,000	50,000	5,000	42,000	2,000	22,000	67,000	133,000	200,000
<b>Total</b>	<b>417,000</b>	<b>210,000</b>	<b>211,000</b>	<b>250,000</b>	<b>37,000</b>	<b>211,000</b>	<b>55,000</b>	<b>109,000</b>	<b>720,000</b>	<b>780,000</b>	<b>1,500,000</b>
<b>Component Total</b>	<b>729,867</b>	<b>532,133</b>	<b>422,902</b>	<b>658,098</b>	<b>255,508</b>	<b>582,492</b>	<b>277,319</b>	<b>541,681</b>	<b>1,685,596</b>	<b>2,314,404</b>	<b>4,000,000</b>

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Component No. 2 - Research Fund for Non-Traditional Export Crops

Input/Budget Line Item	Year 1		Year 2		Year 3		Year 4		Total		TOTAL USAID
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	
<b>Research Fund</b>											
Phytosanitary Research Projs.	20,000	110,000	20,000	110,000	20,000	110,000	10,000	55,000	70,000	385,000	455,000
General Research Projects	10,000	55,000	10,000	55,000	10,000	55,000	10,000	55,000	40,000	220,000	260,000
<b>Sub-total Research Fund</b>	<b>30,000</b>	<b>165,000</b>	<b>30,000</b>	<b>165,000</b>	<b>30,000</b>	<b>165,000</b>	<b>20,000</b>	<b>110,000</b>	<b>110,000</b>	<b>605,000</b>	<b>715,000</b>
Personnel	0	43,738	0	43,738	0	43,738	0	43,738	0	174,952	174,952
Commodities	0	9,000	0	0	0	0	0	0	0	9,000	9,000
Operating and Support Costs	0	9,333	0	9,333	0	9,333	0	8,814	0	36,813	36,813
Travel and Per Diems	0	5,754	0	5,754	0	5,754	0	5,754	0	23,016	23,016
Inflation and Contingencies	0	3,391	0	11,765	0	13,088	0	12,975	0	41,219	41,219
<b>Sub-total Operating Expenses</b>	<b>0</b>	<b>71,216</b>	<b>0</b>	<b>70,590</b>	<b>0</b>	<b>71,913</b>	<b>0</b>	<b>71,281</b>	<b>0</b>	<b>285,000</b>	<b>285,000</b>
<b>Component Total</b>	<b>30,000</b>	<b>236,216</b>	<b>30,000</b>	<b>235,590</b>	<b>30,000</b>	<b>236,913</b>	<b>20,000</b>	<b>181,281</b>	<b>110,000</b>	<b>890,000</b>	<b>1,000,000</b>

Component No. 3 - Private Sector Marketing of Export Crops

Institutional Strengthening of the Non-Traditional Exporter's Guild

Input/Budget Line Item	Year 1		Year 2		Year 3		Year 4		Total		TOTAL USAID
	FX	LC									
Personnel	0	149,205	0	118,266	0	93,789	0	74,413	0	435,673	435,673
Commodities	4,000	2,000	0	2,000	0	2,000	0	2,130	4,000	8,130	12,130
Training	20,000	52,820	20,000	51,153	20,000	49,569	20,000	46,560	80,000	200,102	280,102
Operating and Support Costs	16,000	82,942	16,000	74,648	12,800	67,183	12,800	60,466	57,600	285,239	342,839
Export Promotion Activities	63,000	20,674	63,000	20,674	63,000	20,674	63,000	20,676	252,000	82,698	334,698
Travel and Per Diems	16,000	18,791	16,000	18,791	16,000	18,791	16,000	18,792	64,000	75,165	139,165
Evaluations and Audit	0	0	50,000	0	0	0	50,000	0	100,000	0	100,000
Inflation and Contingencies	16,900	37,643	29,750	82,807	21,770	73,672	29,270	63,581	97,690	257,703	355,393
<b>Component Total</b>	<b>135,900</b>	<b>364,075</b>	<b>194,750</b>	<b>368,339</b>	<b>133,570</b>	<b>325,678</b>	<b>191,070</b>	<b>286,618</b>	<b>655,290</b>	<b>1,344,710</b>	<b>2,000,000</b>

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Table 6  
Financial Plan and Analysis - Counterpart  
By Input (Budget Line Item) within Activity (Element or Component)

Component No. 1 - Environment and Natural Resource Management

a. Watershed Management

Input/Budget Line Item	Year 1				Year 2			Year 3			Year 4			TOTAL		TOTAL
	Other FX	Other LC	606 LC	Other FX	Other LC	606 LC	Other FX	Other LC	606 LC	Other FX	Other LC	606 LC	Other FX	Other LC	606 LC	
Personnel	0	0	14,685	0	0	25,172	0	0	34,868	0	0	44,019	0	0	118,744	118,744
Commodities	51,000	985	0	34,000	1,912	0	0	2,357	0	17,000	3,855	0	102,000	9,109	0	111,109
Operating and Support Costs	0	11,515	0	0	26,088	0	0	58,643	0	0	44,645	0	0	138,891	0	138,891
<b>Total</b>	<b>51,000</b>	<b>12,500</b>	<b>14,685</b>	<b>34,000</b>	<b>28,000</b>	<b>25,172</b>	<b>0</b>	<b>59,000</b>	<b>34,868</b>	<b>17,000</b>	<b>48,500</b>	<b>44,019</b>	<b>102,000</b>	<b>148,000</b>	<b>118,744</b>	<b>368,744</b>

b. Institutional Strengthening of the Plant Protection Division

Input/Budget Line Item	Year 1		Year 2		Year 3		Year 4		Total		TOTAL
	606 LC	Other LC	606 LC	Other LC	606 LC	Other LC	606 LC	Other LC	606 LC	Other LC	
Personnel	156,893	0	156,893	0	156,893	0	156,893	0	627,572	0	627,572
Commodities	23,000	0	23,000	0	23,000	0	23,000	0	92,000	0	92,000
Operating and Support Costs	70,624	31,079	70,624	31,079	70,624	31,079	70,624	31,079	282,496	124,316	406,812
<b>Total</b>	<b>250,517</b>	<b>31,079</b>	<b>250,517</b>	<b>31,079</b>	<b>250,517</b>	<b>31,079</b>	<b>250,517</b>	<b>31,079</b>	<b>1,002,068</b>	<b>124,316</b>	<b>1,126,384</b>

Component No. 2 - Research Fund for Non-Traditional Export Crops

Input/Budget Line Item	Year 1		Year 2		Year 3		Year 4		Total		TOTAL
	FX	LC									
Phytosanitary Research Projs.	0	130,000	0	130,000	0	130,000	0	65,000	0	455,000	455,000
General Research Projects	0	65,000	0	65,000	0	65,000	0	65,000	0	260,000	260,000
<b>Total</b>	<b>0</b>	<b>195,000</b>	<b>0</b>	<b>195,000</b>	<b>0</b>	<b>195,000</b>	<b>0</b>	<b>130,000</b>	<b>0</b>	<b>715,000</b>	<b>715,000</b>

Component No. 3 - Private Sector Marketing of Export Crops

Institutional Strengthening of the Non-Traditional Exporter's Guild

Input/Budget Line Item	Year 1		Year 2		Year 3		Year 4		Total		TOTAL
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	
Personnel	0	25,313	0	70,832	0	103,288	0	128,981	0	328,414	328,414
Commodities	1,100	550	0	625	0	625	0	202	1,100	2,002	3,102
Training	0	5,203	0	7,997	0	9,977	0	13,738	0	36,915	36,915
Operating and Support Costs	0	10,137	0	21,888	3,680	31,219	3,680	39,617	7,360	102,861	110,221
Export Promotion Activities	0	1,197	0	1,360	0	1,360	0	1,360	0	5,277	5,277
Travel and Per Diems	4,400	2,200	4,600	2,500	4,600	2,500	4,600	2,500	18,200	9,700	27,900
<b>Total</b>	<b>5,500</b>	<b>44,600</b>	<b>4,600</b>	<b>105,202</b>	<b>8,280</b>	<b>148,969</b>	<b>8,280</b>	<b>186,398</b>	<b>26,660</b>	<b>485,169</b>	<b>511,829</b>

## IMPLEMENTATION PLAN

### Administrative Arrangements

### Methods of Obligation

AID funds will be obligated to three participating institutions:

- a. Handbook 13 Cooperative Agreement with CARE for \$2.5 million,
- b. Handbook 13 Cooperative Agreement with the Non-Traditional Exporter's Guild for \$3.0 million, and
- c. Handbook 3 bilateral Project Grant Agreement Amendment to the Highlands Agricultural Development Project (520-0274) with the Ministry of Agriculture for \$1.5 million.

A Cooperative Agreement has been chosen as the Grant instrument with CARE to allow for greater USAID involvement in the definition and selection of watersheds to be worked in. The same instrument has been chosen for the Grant with the Non-Traditional Exporter's Guild to allow for greater USAID involvement in Project management and implementation. Both Cooperative Agreements will be negotiated and executed by the Regional Contracting Officer in Guatemala.

### A.I.D. Responsibilities

The USAID Guatemala Office of Rural Development (ORD) will have overall responsibility for monitoring Project activities financed under this Amendment. One USDH and one FSN have full-time responsibility for managing and coordinating this Project. Another USDH will manage the grant to the Non-Traditional Export's Guild in coordination with the overall HAD Project Manager. A large technical assistance and management contract is scheduled to be signed in December 1989, and provides key advisors to assist the Mission in Project management. Two long-term Advisors (Watershed Management and Pest/Pesticide Management) will have direct responsibilities under the Phase III activities. A Mission Project Committee, chaired by the HAD Project Manager, is charged with the development of monitoring mechanisms to anticipate and resolve implementation problems in a timely manner.

The Project Manager, assisted by the Project Development Support Office (PDSO) and the Contracts and Supply Office (C&SO), will prepare the Cooperative Agreements to be negotiated

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and executed with CARE and the Gremial by the Regional Contracting Officer for the Watershed Management and Research Fund and Marketing components, respectively. The HAD Project Manager, with the assistance of appropriate Mission staff, GOG counterparts and the technical assistance contractor, develops the yearly planning documents needed to allocate resources to this Project effectively. The HAD Project Manager is also responsible for ensuring that Project resources are linked as needed with resources of other Mission projects.

A.I.D. will directly manage the activities with CARE and the Gremial with the assistance of the Watershed Management and Marketing Advisors, respectively. The Pest/Pesticide Management Advisor will have primary responsibility for managing the Sanidad Vegetal activities. The Mission is now in the process of contracting a PSC Environmental Advisor with HAD Project funds. This individual will have responsibility for overseeing implementation of the HAD EIA recommendations.

#### GOG Responsibilities

The responsible GOG agency will be the Ministry of Agriculture, Livestock and Food (MAGA). Implementation responsibility has been delegated to a recently- created, national-level MAGA entity established, for the purposes of HAD Project management, as a Project Administration Unit (PAU). Implementation of the Sanidad Vegetal activities funded by this Amendment will be under the overall direction and coordination of this unit.

The PAU carries out a wide range of activities, including orientation, support and selective supervision of the several Ministry Departments (e.g., DIGESA, DIGESEPE, ICTA, INDECA and BANDESA) involved in HAD Project implementation. The PAU is assisted by a 30-person Guatemalan technical assistance team already on- board, and will receive additional support by external technical assistance to be contracted by December 1989. The unit will assure the maintenance of acceptable public sector performance levels and coordinate reprogramming of public sector resources as necessary, and maintains close contact with USAID and the technical assistance contractor. The unit is also responsible for consolidating and submitting regional operational plans and progress reports from the several Ministry departments, with the appropriate analyses and recommendations.

At the operational level, the unit represents MAGA with respect to defining Project terms of reference, bid evaluation, and contract review for those stated and agreed upon activities being executed by the GOG agencies and/or private sector firms, organization, and individuals. It also represents MAGA in the

identification of suitable candidates for both long- and short-term overseas training, serves as a clearing house for private sector training grants, and supervises public sector services to assure that they meet criteria in the HAD Project Phase II Amendment Plan in terms of adequacy and timeliness. DIGESA will have specific responsibility for supervision of the Sanidad Vegetal activities under the Amendment.

#### Monitoring Plan

The HAD II Project tasks the technical assistance contractor with the design and implementation of a Project Monitoring System for USAID's approval, including baseline data, which will effectively provide a continuous flow of data to track Project implementation and measure Project impact. This system will track, in addition to financial management of the Project, progress toward achievement of projected outputs and provide an "early warning" system to Project managers when serious shortfalls are developing.

#### Project Implementation

Monitoring the implementation process of activities funded under this Amendment will use the same systems in place for HAD Phase II. These mechanisms focus on adherence to the programmed schedule and work plan (i.e., timely acquisition of inputs and achievement of estimated outputs) and on the flow of administrative and financial information, paperwork and actions. The fundamental role of the monitoring system is to maintain Project management current and to alert them as to implementation trouble spots before they can adversely affect the Project.

#### Project Impact

The HAD Project includes financing for the installation of information systems in some of the implementing agencies which will permit accurate cross-sectional and time series data collection on Project beneficiaries. Specific surveys of the client groups will also provide indicators of change and Project impact. The technical assistance contractor will guide the design of the basic information instruments, data processing procedures and analysis, in order to standardize them across participating agencies.

#### Procurement Plan

For more details regarding procurement, TA and training plans please see Annex J.

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### Technical Assistance

Most technical assistance required under this Amendment will be provided by a contractor (currently in the final stages of negotiation) expected to be on-board by January 1990. In areas where USAID Mission elects to contract services for selected TA through the PSC, IQC, PASA arrangements and/or other modes, the Contractor will be made responsible for assuring Project quality control and setting performance standards for technical assistance, as specified in the contractual agreement between USAID and the Contractor.

### Commodities

Commodities to be procured for the Phase III Amendment will be in the following general categories: a) vehicles; b) laboratory and field demonstration equipment; and c) support equipment for data collection, analysis and information programs. All commodities will have their source and origin in the U.S., Guatemala, and member countries of the Central American Common Market. Only U.S. manufactured motor vehicles will be procured. A Procurement Services Agent (PSA) has been contracted by the HAD Project and will have procurement authority for this Project Amendment.

### Training Plan

The evaluations of the forerunner activities to the HAD Phase III Amendment concluded that additional resources should be made available to strengthen training support for small farmer programs. This constraint is notably critical when introducing subsistence farmers to non-traditional practices and technologies necessary for improved environmental resource and rational pest/pesticide management. Written material has limited utility among a largely uneducated, multi-lingual populace. Equally important is the need to improve the technical preparation of public sector research and extension personnel, and to raise the administrative and management capabilities among public sector officials. Improved and expanded training and education programs to introduce technological changes at the farm level, increase communication and dissemination of information, and introduce greater efficiency in program and Project implementation are greatly expanded by the HAD Phase II Project, and will be specifically complemented by this Phase III Amendment.

CARE will train 35 DIGEBOS technicians and promoters in watershed protection planning and interventions such as secondary forest management and forest product enterprises. DIGEBOS technicians will, as part of their training, will

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receive short courses at CATIE in Costa Rica and attend in-country seminars conducted by CATIE and other expert personnel. Promotors will receive an average of 15 days of formal training per year through a flexible training schedule combining courses in basic forestry and soil conservation with workshops on group resource management plans, forest and plantation management, bookkeeping, grafting and fruit tree care. The DIGEBOS personnel, in conjunction with Peace Corp Volunteer counterparts, will provide training to approximately 4,500 smallholder farmers in HAD watershed areas in these and other relevant areas. Watershed smallholders will also participate in field days, demonstrations and visits to established watershed sites.

As part of the institutional strengthening activities with MAGA's Sanidad Vegetal, training of staff is contemplated in pesticide registration and computer systems use; supervision of pesticide sales and packaging, labelling, warehousing and instructions; rational pesticide use (50 extensionists will be trained through the program at the Escuela Agrícola Panamericana); field pest diagnosis; and FDA, USDA and U.S. Customs regulations and inspection procedures. Sanidad Vegetal will sponsor approximately 50 field days to demonstrate results of rational pest management to some 2,500 farmers and technicians, and over 200 field days demonstrating correct pesticide use to an estimated 3,000 farmers will also be conducted. As a result of these activities, over 300 private sector technicians, more than 500 agricultural representatives and over 200 university and paramedical technicians will be trained in various aspects of plant protection, pesticide management and agro-medicine. As noted earlier, the training and TA required for this component will be more clearly defined in an institutional analysis to be carried out at the inception of the project.

Training under the Gremial's marketing component is handled through a series of 25-30 seminars, workshops, short courses and field trips each year over the four year Amendment. Some 4,000 entrepreneurs and managers will be trained through this mechanism in management and marketing aspects, including export market product specifications, transportation, and exporting regulations and requirements. Support is also provided for short-term, non-degree technical training programs in the U.S. and Latin American countries with highly developed agribusiness sectors.

#### Audit and Evaluation Plan

CARE (the PVO selected to conduct watershed management activities) and the Non-Traditional Exporter's Guild (in charge



of the private sector research fund and marketing activities) will be audited on a yearly basis by an independent local accounting firm contracted specifically for this task. The Ministry of Agriculture, Livestock and Food, as part of the GOG, is audited each year by the Contralor a de Cuentas, the official GOG audit institution. AID funding for audit activity has been included in the Project budget. These audits will be supervised and reviewed by the USAID Controller's office to ensure conformity with sound fiscal management practices.

Two formal external evaluations of the HAD Project are scheduled -- one in the fourth quarter of CY90 and the other in the third quarter of CY92. These evaluations will be undertaken by a select team of short-term expatriate and Guatemalan consultants. Resource personnel for the evaluators include the Project institutional contractors, USAID Mission staff, and the Guatemalan public and private institutions involved in the Project.

To set the basis for these evaluations, and to provide a system of continuous monitoring and oversight throughout the life of Phase II, the Contractor, with the USAID Project Manager and key GOG counterparts, will identify baseline data requirements, develop specific evaluation criteria, establish quantifiable performance benchmarks (specifically as related to end-of-project output indicators) and a comprehensive monitoring and evaluation plan. The USAID Mission designated evaluation officer will also be involved. The key output should be a evaluation framework that is timely, well-conceived, focused and manageable.

The first external evaluation will essentially be an instrument to note the course of the Project, reprogram those resources that have no real opportunity of being used over the life of the Project, and address and provide relevant recommendations for overcoming critical problem areas. The second external evaluation will be the main focal point for the USAID Mission decision whether to proceed on planning and allocating resources to support a five year Phase III activity.

The USAID Mission will also conduct yearly reviews (during the first quarter of each Project year) to monitor progress of the Project. These will be chaired by the USAID Director (or his designee). The Project Manager will cooperate with the Contractor in the elaboration of on-going Project planning exercises and will play a significant role in developing the Project's yearly implementation plan.

The proposed Amendment includes a total of \$275,000 for evaluations, special studies and audits for the E/NR, private sector research and marketing activities to be undertaken.

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## Implementation Schedule

The proposed HAD Phase III Project Amendment activities will take place over a period of four years, beginning in December 1989. An illustrative implementation schedule is presented in the following table.

Shortly after the proposed Amendment is authorized, Cooperative Agreements will be signed with CARE and the Gremial. An Amendment to the HAD ProAg will be signed in January 1990 with the GOG for the new activities to be undertaken with Sanidad Vegetal.

Early phases of Project implementation under this Amendment will focus on establishing the necessary coordination mechanisms among the institutions involved. The arrival of three long-term technical assistance advisors (Watershed Management, Marketing and Pest/Pesticide Management) in January 1990 will assist in the development of the management frameworks for the participating GOG and private sector institutions, including arrangements for procurement, training, special studies and monitoring.

With the technical assistance advisors in place, Amendment activities will commence. During the first year, CARE will hire Project staff, identify DIGEBOS counterpart technicians, perform site selection, hire and train promoters and develop watershed management plans. The Gremial will establish its Research Committee and administrative mechanisms required for the grant program, and begin awarding research grants by the end of first quarter CY90. In Sanidad Vegetal, training plans will be developed and initiated, commodities (including laboratory equipment, vehicles and computer equipment) ordered, and database development begun. Under the Marketing Component, the Gremial will continue to provide training and promotion services for its membership, and identify and develop new services to both broaden its membership base and serve the increasingly complex needs of the non-traditional agricultural export sector in Guatemala. After the first year, the three institutions will refine and consolidate their service delivery activities: CARE will be actively working with watershed management groups, the Gremial research activity will continue funding new research and begin dissemination of results to the NTAE sector, Sanidad Vegetal will expand P/PM information, training and diagnostic services, and the Marketing component will continue its activities with expanded NTAE services.

Intensive reviews of the HAD Project, chaired by the Mission Director, will be held on an annual basis. The USAID Project Committee will meet regularly to monitor progress of the Project and resolve problems. Two external evaluations of the

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HAD Phase II Project are already scheduled to be conducted. The first evaluation will take place in the fourth quarter of CY90. This external interim evaluation will assess Project implementation progress to date and identify the need to redirect or reprogram Project activities. The second external evaluation will be carried out in the third quarter of Year 4 (CY92) of the Phase II Project. This Final Evaluation will examine both impact and progress toward achieving Project purposes and outputs, and will provide the basis upon which to plan follow-on Project activities.

### ILLUSTRATIVE IMPLEMENTATION SCHEDULE

DATE	ACTIVITY
<b>Amendment Year One</b>	
November 1989	PPS approved in Mission
December 1989	Cooperative Agreements signed with CARE and the Gremial
January 1990	Project Agreement Amendment signed with the Ministry of Agriculture for the new Sanidad Vegetal component
	Long-term Watershed Management, Marketing and Pest/Pesticide Management Advisors arrive in country
	Applied Agricultural Research Council and Research Review Committee formed in the Gremial
January-February 1990	Priority research crops and research areas established by the Gremial Research Council

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DATE	ACTIVITY
February 1990	Memoranda of Understanding (MOU's) signed between CARE, the Gremial and the Ministry of Agriculture HAD Project office
	Research Administrator hired at the Gremial and first proposals reviewed and approved for funding
March 1990	Initial organization of a private sector, commodity-based group to carry out phytosanitary and pesticide residue inspections and monitoring of use
April-May 1990	First group of private sector and Sanidad Vegetal technicians to begin training on proper use and application of pesticides
Amendment Year Two	
May 1990	Regional Conference on soil conservation (natural resource management context)
July 1990	HAD Project Year Three Implementation Plan and Budget approved by GOG/AID
August 1990	Major USAID external interim evaluation of HAD Project
Amendment Year Three	
July 1991	HAD Project Year Four Implementation Plan and Budget approved by GOG/AID
November 1991	Informal AID/GOG evaluation

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DATE	ACTIVITY
Amendment Year Four	
May 1992	Final external evaluation of Project to reprogram and recommend basis for design of Phase III follow-on project
July 1992	Year five operational plan approved by GOG/AID
December 1992	Project Assistance Completion Date

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**CONDITIONS PRECEDENT, COVENANTS AND NEGOTIATING STATUS**

**Conditions Precedent to First Disbursement**

None.

**Covenants**

No disbursement will be made to any participating entity without AID's prior approval of that entities annual implementation plan.

**Negotiating Status**

The activities described in this Project Paper Amendment have been fully discussed with the appropriate officials of the GOG and of the Non-Traditional Exporter's Guild and CARE. The GOG supports the Project as designed, and implementation may proceed upon signing of the Project Agreement.

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## SC (3) - STATUTORY CHECKLIST

A. PROCUREMENT

1. FAA Sec. 602(a). Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? Yes
  
2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or determined under delegation from him? Yes
  
3. FAA Sec. 604(d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? N/A
  
4. FAA Sec. 604(e): ISDCA of 1980 Sec. 705(a). If nonU.S. procurement of agricultural commodity or product thereof is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.) N/A
  
5. FAA Sec. 604(g). Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those countries which receive direct economic assistance under FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.) N/A

6. FAA Sec. 603. Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates? No
7. FAA Sec. 621(a). If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs? Yes
8. International Air Transportation Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available? Yes
9. FY 1989 Appropriations Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States. Yes
10. FY 1989 Appropriations Act Sec. 524. If assistance is for consulting service through procurement contract pursuant to 5 U.S.C. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)? Yes

B. CONSTRUCTION

1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services be used? N/A
2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? N/A
3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the CP), or does assistance have the express approval of Congress? N/A

C. OTHER RESTRICTIONS

1. FAA Sec. 122(b). If development loan repayable in dollars, is interest rate at least 2 percent per annum during a grace period which is not to exceed ten years, and at least 3 percent per annum thereafter? N/A
2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? N/A
3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? Yes
4. Will arrangements preclude use of financing:

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- a. FAA Sec. 104(f); FY 1989 Appropriations Act Secs. 525, 536. (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; or (4) to lobby for abortion? 1-4 Yes
- b. FAA Sec. 483. To make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated? Yes
- c. FAA Sec. 620(g). To compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President? Yes
- d. FAA Sec. 660. To provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? Yes
- e. FAA Sec. 662. For CIA activities? Yes
- f. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained? Yes
- g. FY 1989 Appropriations Act Sec. 503. To pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel? Yes

- h. FY 1989 Appropriations Act Sec. 505. **Yes**  
To pay U.N. assessments, arrearages or dues?
- i. FY 1989 Appropriations Act Sec. 506. **Yes**  
To carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)?
- j. FY 1989 Appropriations Act Sec. 510. **Yes**  
To finance the export of nuclear equipment, fuel, or technology?
- k. FY 1989 Appropriations Act Sec. 511. **Yes**  
For the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?
- 1. FY 1989 Appropriations Act Sec. 516; State Authorization Sec. 109. **Yes**  
To be used for publicity or propaganda purposes designed to support or defeat legislation pending before Congress, to influence in any way the outcome of a political election in the United States, or for any publicity or propaganda purposes not authorized by Congress?
- 5. FY 1989 Appropriations Act Sec. 584. **Yes**  
Will any A.I.D. contract and solicitation, and subcontract entered into under such contract, include a clause requiring that U.S. marine insurance companies have a fair opportunity to bid for marine insurance when such insurance is necessary or appropriate?

HIGHLANDS AGRICULTURAL DEVELOPMENT PROJECT, 520-0274  
PROJECT PAPER AMENDMENT No. 4

SC(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A includes criteria applicable to all projects. Part B applies to projects funded from specific sources only: B(1) applies to all projects funded with Development Assistance; B(2) applies to projects funded with Development Assistance loans; and B(3) applies to projects funded from ESF.

A. GENERAL CRITERIA FOR PROJECT

- |  |  |
|--|--|
| <p>1. <u>FY 1988 Appropriations Act Sec. 523; FAA Sec. 634A.</u><br/>If money is sought to obligated for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified?</p> | <p>Yes. CN sent to Hill on November __ , 1989.</p> |
| <p>2. <u>FAA Sec. 611 (a)(1).</u><br/>Prior to an obligation in excess of \$500,000, will there be (a) engineering, financial or other plans necessary to carry out the assistance, and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?</p>      | <p>Yes</p>   |
| <p>3. <u>FAA Sec. 611 (a)(2).</u> If legislative action is required within recipient country, what is the basis for a reasonable expecta-</p>  | <p>N/A</p>   |

tion that such action will be completed in time to permit orderly accomplishment of the purpose of the assistance?

4. FAA Sec. 611(b); FY 1989 Appropriations Act Sec. 501. If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq)? (See A.I.D. Handbook 3 for guidelines.)

N/A

5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and total U. S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability to maintain and utilize the project effectively?

N/A

6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.

This project will, to the extent feasible, access regional pest management projects. Most HADS activities however are country-specific and do not lend themselves to a regional approach.

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7. FAA Sec. 601(a). Information and conclusions on whether projects will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
- (a) Yes. The Gremial and Sanidad Vegetal components are facilitating export of non-traditional crops.
- (b) Our support of the Gremial in this and other projects foster private initiative and competition.
- (c) No
- (d) No
- (e) Yes a major thrust of this amendment, and the overall project, is the improvement of technical efficiency.
- (f) No
8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
- Not addressed by this project, but addressed by other A.I.D. projects.
9. FAA Secs. 612(b), 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.
- While the GOG and private sector counterparts are only required to contribute the equivalent of 25% of our donation, they are contributing 80%.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release? No
11. FY 1989 Appropriations Act Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? N/A.
12. FY 1989 Appropriations Act Sec. 549. Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U. S.-made components) be used directly to procure feasibility studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for export to the United States or to third country markets in direct competition with U.S. exports, of textiles, apparel, footwear, handbags, flat goods No

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(such as wallets or coin purses worn on the person), work gloves or leather wearing apparel?

13. FAA Sec. 119(q)(4)-(6) & (10). Will the assistance
- (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas?
- (a) Yes. Our pest management component will result in more controlled use of pesticide and therefore less damage to the country's biological diversity.
- (b) No. This will be carried out under another project currently being designed.
- (c) Same as (b).
- (d) No
14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (either dollars or local currency generated therefrom)?
- N/A
15. FY 1989 Appropriations Act. If assistance is to be made to a United States
- Yes. The CARE component meets A.I.D. counterpart requirements.

PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from sources other than the United States Government?

16. FY 1989 Appropriations Act Sec. 538. If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of A.I.D., and is the PVO registered with A.I.D.? **Yes**
17. FY 1989 Appropriations Act Sec. 514. If funds are being obligated under an appropriation account to which they were not appropriated, has prior approval of the Appropriations Committees of Congress been obtained? **N/A**
18. State Authorization Sec. 139 (as interpreted by conference report). Has confirmation of the date of signing of the project agreement, including the amount involved, been cabled to State L/T and A.I.D. LEG within 60 days of the agreement's entry into force with respect to the United States, and has the full text of the agreement been pouched to those same offices? (See Handbook 3, Appendix 6G for agreements covered by this provision). **Yes. Copies of the agreements are always forwarded to Washington upon obligation of the funds.**

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance  
Project Criteria

- a. FY 1989 Appropriations (a) No  
Act Sec. 548 (as (b) No  
interpreted by  
conference report for  
original enactment).  
If assistance is for  
agricultural develop-  
ment activities (spec-  
ifically, any testing  
or breeding feasibil-  
ity study, variety  
improvement or intro-  
duction, consultancy,  
publication, confer-  
ence, or training),  
are such activities  
(a) specifically and  
principally designed  
to increase agricul-  
tural exports by the  
host country to a  
country other than the  
United States, where  
the export would lead  
to direct competition  
in that third country  
with exports of a sim-  
ilar commodity grown  
or produced in the  
United States, and can  
the activities reason-  
ably be expected to  
cause substantial in-  
jury to U.S. exporters  
of a similar agricul-  
tural commodity; or  
(b) in support re-  
search that is intend-  
ed primarily to bene-  
fit U.S. producers?

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- b. FAA Secs. 102(b), 111, 113, 281(a). Describe extent to which activity will (a) effectively involve the poor in development by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries.
- (a) The target group for the improved technology and watershed protection is primarily the rural poor. Application of this technology should result in higher productivity and income.
- (b) N/A
- (c) N/A
- (d) N/A
- (e) N/A

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- c. FAA Secs. 103, 103A, 104, 105, 106, 120-21; FY 1989 Appropriations Act (Development Fund for Africa). Does the project fit the criteria for the source of funds (functional account) being used? **Yes**
- d. FAA Sec. 107. Is emphasis placed on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses and small incomes of the poor)? **Yes**
- e. FAA Secs. 110, 124(d). Will the recipient country provide at least 25 percent of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)? **Yes**
- f. FAA Sec. 128(b). If the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or if it attempts to **Yes**

stimulate scientific and technological research, has it been designed and will it be monitored to ensure that the ultimate beneficiaries are the poor majority?

- g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government. N/A

- h. FY 1989 Appropriations Act Sec. 536. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions? No

Are any of the funds to be used to pay for the performance of involuntary sterilization as a method of family planning or to coerce or provide any financial incentive to any person to undergo sterilization.? No

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- Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning? **No**
- i. FY 1989 Appropriation Act. Is the assistance being made available to any organization or program which has been determined to support or participate in the management of a program of coercive abortion or involuntary sterilization? **No**
- If assistance is from the population functional account, are any of the funds to be made available to voluntary family planning projects which do not offer, either directly or through referral to or information about access to, a broad range of family planning methods and services? **No**
- j. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? **Yes**

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k. FY 1989 Appropriations Act. What portion of the funds will be available only for activities of economically and socially disadvantage enterprises, historically black colleges and universities, colleges and universities having a student body in which more than 40 percent of the students are Hispanic Americans, and private and voluntary organizations which are controlled by individuals who are black Americans, Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)?

To be determined. Gray Amendment organization will be given strong consideration in the procurement of services.

1. FAA Sec. 118 (c). Does the assistance comply with the environmental procedures set forth in A.I.D. regulation 16? Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (a) stress the importance of conserving and sustainably managing forest resources; (b) support activities which offer employment and income

- (a) Yes, under our watershed protection activity.
- (b) No. This will be done under our MAYAREMA project currently being developed.

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alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas; (c) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (d) help and destructive slash-and-burn agriculture by supporting stable and productive farming practices; (e) help conserve forests which have not yet been degraded by helping to increase production on lands already cleared or degraded; (f) conserve forested watersheds and rehabilitate those which have been deforested; (g) support and training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (h) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (i) conserve biological diversity in forest areas by sup-

(c)	Yes
(d)	Yes
(e)	Yes
(f)	Yes
(g)	Yes
(h)	See "b" above
(i)	See "b"

porting efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, and by helping to identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas: (j) seek to increase the awareness of U.S. government agencies and other donors of the immediate and long-term value of tropical forests; and (k) / utilize the resources and abilities of all relevant U.S. government agencies?

(j) See "b"  
(k) No

- m. FAA Sec. 118 (c) (13). If the assistance will support a program or project significantly affecting tropical forests (including projects involving the planting of exotic plant species), will the program or project (a) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the

N/A

land, and (b)/take full account of the environmental impacts of the proposed activities on biological diversity?

- n. FAA Sec. 118 (c) (14). Will assistance be used for (a) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; or (b) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas?
- (a) No  
(b) No
- o. FAA Sec. 118 (c) (15). Will assistance be used for (a) activities which would result in the conversion of forest lands to the rearing of livestock; (b) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively
- (a) No  
(b) No

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undegraded forest lands; (c) the colonization of forest lands; or (d) the construction of dams or other water control structures which flood relatively undegraded forest lands, unless with respect to each such activity an environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development?

(c) No  
(d) No

p. FY 1989 Appropriations Act. If assistance will come from the Sub-Saharan Africa DA account, is it (a) to be used to help the poor majority in Sub-Saharan Africa through a process of long-term development and economic growth that is equitable, participatory, environmentally sustainable, and self-reliant; (b) being provided in accordance with the policies contained in section 102 of the FAA; (c) being provided, when consistent with the objectives such assistance, through African, United States and other PVOs that have

N/A

demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Saharan Africa; (d) being used to help overcome shorter-term constraints to long-term development, to promote reform of sectoral economic policies, to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities, to bring about appropriate sectoral restructuring of the Sub-Saharan African economies, to support reform in public administration and finances and to establish a favorable environment for individual enterprise and self-sustaining development, and to take into account, in assisted policy reforms, the need to protect vulnerable groups; (e) being used to increase agricultural production in ways that protect and restore the natural resource base, especially food production, to maintain and improve basic transportation and communication net-

works, to maintain and restore the natural resource base in ways that increase agricultural production, to improve health conditions with special emphasis on meeting the health needs of mothers and children, including the establishment of self-sustaining primary health care systems that give priority to preventive care, to provide increased access to voluntary family planning services, to improve basic literacy and mathematics specially to those outside the formal education system and to improve primary education, and to develop income-generating opportunities for the unemployed and underemployed in urban and rural areas?

- q. FY 1989 Appropriations Act Sec. 515. If deob/reob authority is sought to be exercised in the provision of DA assistance, are the funds being obligated for the same general purpose, and for countries within the same general region as originally obligated, and have the Appropriations Committee of both Houses of Congress been properly notified? N/A

## LOGICAL FRAMEWORK - HIGHLANDS AGRICULTURAL DEVELOPMENT PHASE III (520-0274)

SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><b>GOAL</b> To enable the rural sector to make a greater contribution to national economic growth.</p>	<p>Increase in rural sector contribution to economic growth.</p>	<p>1) Evaluation 2) AID &amp; GOB data and economic analyses</p>	<ul style="list-style-type: none"> <li>- Democracy and open market system remains</li> <li>- Project's impact is as projected</li> <li>- No policy constraint to small farmer participation</li> </ul>
<p><b>Purpose</b> To enhance the sustainability of rural agricultural productivity and commercial crop diversification through the improvement of pest and pesticide management, watershed conservation, directed research and continued support for export-oriented marketing.</p>	<p>1) Adoption and widespread application of new technologies in integ. pest management and watershed protection, by 4,500 families in the target area 2) A minimum increase of 50% in production and income due to the application of new technologies. 3) An additional 7,000 hectares reforested during the life of project.</p>	<p>1-3) AID and counterparts' field reports; evaluations, studies.</p>	<ul style="list-style-type: none"> <li>- technologies adapted</li> <li>- technologies have the desired impact</li> <li>- institutional development is successful</li> </ul>

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LOGICAL FRAMEWORK - HIGHLANDS AGRICULTURAL DEVELOPMENT PHASE III(520-0274)

SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Outputs</p> <p><b>A. Watershed Management Component</b></p> <p>1) Smallholder households participating in resource conservation.</p> <p>2) Number of watersheds involved</p> <p>3) Number of HAs directly improved or protected by this component.</p> <p>4) Number of agroforestry committees formed.</p> <p>5) DIGEBOS promoters trained in community organizations, watershed planning and basic agroforestry.</p> <p><b>B. Pest/Pest Management Component</b></p> <p>1) Comprehensive Institutional Analysis of Sanidad Vegetal (SV) completed</p> <p>2) Institutional development plan designed, based on institutional analyses.</p> <p>3) Pesticide registration system developed.</p> <p>4) System established for field monitoring of pesticide and agrochemical distribution storage, repacking, labeling and provision of information to end user.</p>	<p><b>A) Watershed Management Component</b></p> <p>1) 4,500 household participants</p> <p>2) 20-25</p> <p>3) 7,000 HAs</p> <p>4) 100</p> <p>5) 20</p> <p><b>B) Pest/Pest Management Component</b></p> <p>1) 1</p> <p>2) 1</p> <p>3) 1</p> <p>4) 1</p>	<p><b>A) Watershed Management Component</b></p> <p>1-5) Field reports of AID and counterparts; evaluations</p> <p><b>B) Pest/Pest Management Component</b></p> <p>1) receipt of analysis</p> <p>2) receipt of plan</p> <p>3-4) AID and counterpart reports and evaluations</p>	<p><b>A. Watershed Management Component</b></p> <p>1) Smallholders are receptive to new technologies</p> <p>2-3) Resources and project design enable us to reach target of watersheds involved and HAs protected.</p> <p>4) Sufficient community participation. Effective community organization by DIGEBOS.</p> <p>5) DIGEBOS assigns sufficient qualified personnel.</p> <p><b>B) Pest/Pest Management Component</b></p> <p>1) Analysis is accurate and thorough</p> <p>2) Plans realistic, feasible and acceptable to AID, DIGEBOS and S.V.</p> <p>3) Pesticide registration is successfully implemented.</p> <p>4) Field monitoring is carried out efficiently and supported by necessary legislation.</p>

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**C. Non-Traditional Export Research  
Fund Component (Grenial)**

- 1) Fund established by the Grenial to provide financing for NTAE research.
- 2) A Research Advisory Council established by the Grenial.
- 3) IPM/Phytosanitary Research Projects funded.
- 4) Unrestricted Research Project funded.
- 5) Dissemination of project results.

**D. Institutional Strengthening of  
the Grenial**

- 1) Marketing and product information service developed.
- 2) NTAE producers organizations implementing phytosanitary and pesticide residue inspections forced.
- 3) Establishment of grades and standards and an internationally recognized seal of approval.
- 4) Entrepreneurs and managers trained.
- 5) Participation in international product promotion events/trade fairs.
- 6) Promotion of country/region wide product trade fairs and marketing events.
- 7) Commercial missions/enterprises
- 8) NTAE university research and curriculum development missions.

**C. Non-traditional Research  
Fund Component**

- 1) Fund established with the quetzal equivalent of US\$715,000
- 2) 1
- 3) 14
- 4) 8
- 5) 22

**D. Institutional Strengthening of  
the Grenial**

- 1) 1
- 2) 1
- 3) 1
- 4) 4,000
- 5) 50
- 6) 4
- 7) respectively, 6/120
- 8) 28

**C. Non-Traditional Export Research  
Fund Component**

- 1) USAID audit, reports from Grenial
- 2) Observation
- 3-4) Grenial reports; AID evaluations

**D. Institutional Strengthening of  
the Grenial**

- 1-3) Grenial reports; AID evaluations
- 3) Feedback from US and foreign markets
- 4-8) Grenial reports; AID Evaluations; feedback from universities.

**C. Non-Traditional Research  
Fund Component**

- Sufficient demand for NTAE studies
- Counterpart funding made available on a timely basis.
- Studies have desired impact.
- Studies' results broadly disseminated and applied.

**D. Institutional Strengthening of  
the Grenial**

- Demand for product information service
- Producers accept and support phytosanitary and pesticide residue inspections.
- Grades and standards realistic and internationally acceptable.
- Sufficient interest in the training.
- Sufficient interest and resources to participate in international trade events/fairs and country/regional fairs and marketing events.
- Adequate NTAE curriculum developed and adapted by the universities.

## LOGICAL FRAMEWORK - HIGHLANDS AGRICULTURAL DEVELOPMENT PHASE I (520-0274)

SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
INPUTS	Total USAID	1) USAID records	-USAID funds available
a. Watershed Management		2) Counterpart records	- counterpart funds made available on a timely basis
Activity		3) Audits	
Technical Assistance	303,371		
Personnel	383,027		
Commodities	457,166		
Training	253,648		
Operating & Support Costs	399,780		
Travel & Per Diem	91,640		
Admin. Support - Overhead	195,853		
Evaluations & Audit	95,000		
Inflation & Contingencies	320,515		
Total	2,500,000		
b. Institutional Strengthening of the Plant Protection Division			
Activity			
Technical Assistance	148,000		
Commodities	441,000		
Training	326,000		
Operating & Support Costs	305,000		
Evaluations & Audit	80,000		
Inflation & Contingencies	200,000		
Total	1,500,000		

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c. Research Fund for Non-Traditional  
Agricultural Exports

Activity

!Research Fund	455,000
!Phytosanitary Research Projects	260,000
!General Research Projects	
!Sub-total Research Fund	715,000
!Personnel	174,952
!Commodities	9,000
!Operating & Support Costs	36,813
!Travel & Per Diem	23,016
!Inflation & Contingencies	41,219
!Sub-total Operating Expenses	285,000
Component Total	1,000,000

Component No. 3 - Private Sector  
Marketing of Export Crops

Institutional Strengthening of the  
Non-Traditional Exporter's Guild

Activity

!Personnel	435,673
!Commodities	12,130
!Training	280,102
!Operating & Support Costs	342,839
!Export Promotion Activities	334,698
!Travel & Per Diem	139,165
!Evaluations & Audit	100,000
!Inflation & Contingencies	355,393
Component Total	2,000,000

EXECUTIVE SUMMARY

The amended Highlands Agriculture Development Project (520-0274), HAD-II, has the potential of significantly affecting the environment by promoting high value cash crop agriculture that will likely result in a more intensive use of chemical pesticides. The potential also exists for affecting the environment through the implementation of small irrigation programs; however, overall project design allows for an adequate approach to land and water management and any adverse effects are likely to be accidental and not of major environmental significance. The Project's approach to wildlands/biodiversity conservation can be improved, but no significant threats to these resources are evident in the Project's design nor in the soil conservation and irrigation projects sampled by the CICP/ECOTECNIA Environmental Assessment team.

Funds were provided to farmers under HAD I for two major activities: a) small scale irrigation (mini riego) and b) soil conservation. Under HAD II, crop production will be financed in areas under irrigation. Surveys conducted by the CICP/ECOTECNIA Environmental Assessment team revealed that 100% of crops grown in HAD-I small irrigation districts were "higher value" cash crops as opposed to traditional, subsistence crops. A noticeably higher proportion of production costs (22.7%) went to pest control in high value crops (brussel sprouts, broccoli, cauliflower, snow pea and strawberry) as compared to traditional subsistence crops (corn, beans, wheat and potatoes) (11.8%) (BANDESA 1987).

The use of chemical pesticides may result in: a) destruction of natural enemies of pests; in target as well as non-target pests (e.g., Anopheles - ICAITI 1976); b) inducement of resistance; c) secondary pest outbreaks; d) increased resurgence of pest populations; e) increased production costs; f) soil contamination; g) water contamination; h) food contamination; i) acute human poisonings; j) chronic human poisonings; k) inducement of non acute poisoning symptoms; l) destruction of non target organisms. The CICP/ECOTECNIA Environmental Assessment team was able to document a), e), f), h), i), k) and l) above and to obtain circumstantial evidence of b).

The CICP/ECOTECNIA EA team evaluated 14 small farmer plots, taking representative soil, crop and water samples. All soil and product samples were contaminated with either metamidophos, cypermethrin or both. No water samples showed pesticides residues. However, samples were taken in the middle of the rainy season.

In 1987, a total of 316 clinical pesticide poisonings with

22 fatalities was reported by the Ministry of Health in the four regions where HAD-I operated. (HAD-I programs covered less than 1% of total surface in these regions). Of these, a significant percentage (20 to 25%) may have represented suicides.

About 1 in every four pesticide poisoning cases is reported to public health clinics for treatments. (See Table 1 in Appendix 3).

Minimal or no protective equipment was used according to surveys. Most respondents use a hat (94.5%) and boots (74.0%), and some use a handkerchief (45.9%), but nothing else for their own protection. Some symptoms generally associated with, but not necessarily related to, pesticide poisoning were reported in significantly higher proportions among respondents applying pesticides.

Results on effects on non target organisms showed no significant difference in number of arthropods between treated and untreated broccoli plots, except in the mature stage of the crop, where arachnids were significantly reduced by the sprays (see appendix 2). Biodiversity was reduced significantly after applying the pesticide treatment in the midst of the growing period. No effects on biodiversity were observed when the plant is very young or when it is ready for harvest.

Some degree of illiteracy (20% in farmers surveyed; 43% in all population over 15 years of age - ICAITI/AID 1984) and difficulties in reading warnings on labels and other pesticide information are among the cultural barriers that prevent peasants from being fully aware of pesticide dangers. However, some farmers choose to ignore pesticide dangers even while being aware.

Analysis of current practices shows that for a specific crop, farmers are using 30 different types of fungicides, 23 types of insecticides including nematicides and 3 pyrethroid insecticides, and 2 herbicides.

Circumstantial evidence of development of resistance in pests of crops financed under HAD-I and SFD was found in a survey of 282 farmers. A significant percentage (90%) of HAD-I and SFD beneficiaries interviewed stated that their current pest controls do not work very well, that the pests are more serious every time (90%) and that more pesticides have to be used (86%).

No significant interference between current pest control in crops likely to be financed under the HAD amendment and other large scale human and agricultural pest control programs was found. However, intensive cotton pest control programs in the coastal area resulted in development of resistance in the malarial mosquito over 10 years ago (ICAITI 1976).

IPM is an approach to crop protection that has proven successful in assuring a more appropriate use of pesticides in many parts of the world and in many crops (Anonymous 1984, 1985; Bottrell 1979; Furtick 1976; Hoyt and Burts 1974; Newson 1975; Smith et al. 1976; Watson et al 1976). Available research shows that IPM demonstration plots could be set up in the following Guatemalan crops: tomatoes (CATIE IPM), bróccoli (AGMIP), snow peas (ICTA) and potatoes (ICTA) (See appendix 1).

The survey showed that 1 (Aldrin) of the 59 pesticides being used by AID beneficiaries was not registered by the USEPA, 2 fungicides, 1 herbicide and 16 insecticides were registered but restricted on the basis of user hazard and 1 (Metasystox) had either notice of rebuttable presumption against re-registration, notice of intent to cancel or notice of intent to suspend (Polly Hoppin, The Conservation Foundation, Personal Communication 1988). A list of registered pesticides by crop is presented in Appendix 12.

As regards small irrigation and soil conservation, due to a varied topography and climatic conditions, it is not possible to design agricultural or forestry technologies that can be generalized to the HAD-II area. Some areas, such as the Department of Izabal, Alta Verapaz and the northern part of Huehuetenango do not justify project involvement on climatic grounds.

Small irrigation projects are commonly located in the higher zones of watersheds (recharge zones) and their size is relatively small; thus the potential for reducing water yields through inadequate management practices is high. Each case must be evaluated individually, on the basis of topography, climate, potential land use, current agricultural practices and resource conservation criteria.

Climate is as variable as geography in the HAD area. Rainfall ranges from 500 to 6,000 mm. Rainy days go from 45 to 210. Most small irrigation projects fall in areas with a dry period of from 5 to 7 months. Average temperatures range from 10 to 28 C. Agricultural and resource management technologies must be adapted to these variations.

Highland ecosystems have been farmed for many years. They can be considered highly disrupted ecosystems. In many cases intensive farming takes place in forestry potential areas.

Some estimate that 80% of native animals and 50% of native plants are endangered in the HAD area. However, it is not possible to estimate the degree of endangerment.

All of the few remaining high cloud forests of Guatemala

fall within the HAD area (CECON 1988). Several endemic species of snakes and frogs have been discovered in these areas (Campbell 1987). Several species considered endangered inhabit the HAD area. (See Appendix 15 and figure 15 below).

With appropriate care and consideration of specific cases, introducing wildlife conservation criteria into the HAD strategy, all effects on wildlife and wild habitats can be substantially mitigated so as to render them not significant. Mitigative actions are presented in the preceding section.

In general, HAD-II complies with sections 118 and 119 of the Foreign Assistance Act. However, provisions must be made for evaluating each small irrigation case separately.

The following possible adverse impacts were identified:

- a. Increased destruction of natural enemies of pests due to the sole reliance on chemical pesticides;
- b. Increased inducement of resistance of agricultural pests, due to the sole reliance on chemical pesticides;
- c. Increased destruction of non target organisms in agricultural areas;
- d. Increased risk of human acute and chronic intoxication with pesticides;
- e. Increased pesticide contamination off target;
- f. Increased production costs via increases in the pest control component;
- g. Depletion of soil fertility and loss of organic matter through intensive and non-conservative farming practices possibly leading to soil compaction.
- h. Potential for erosion while developing small irrigation projects in sloping areas unless soil conservation measures are taken simultaneously;
- i. Potential for reducing water yields through inadequate watershed management practices in recharge areas;
- j. Small field monoculture and incorrect water management may promote problems with disease organisms and nematodes.

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However, with soil conservation and adequate agricultural, forestry, water resource, pest and pesticide and environmental management, the project offers the potential for creating important economic, environmental and social benefits in the area.

Among the most important environmental and social benefits identified:

- \* Project will introduce reforestation and agroforestry, with soil protection, runoff reduction, increased water seepage and production of wood;
- \* Project will increase awareness of interdependencies between soil cover and water supply; this has already begun under HAD I;
- \* By increasing land productivity, it will create greater economic incentives/possibilities for rural populations to remain in their communities.

The following alternatives were identified:

- A. Proposed Project Amendment as designed;
- B. Strengthened Pest/Pest Management Component with the introduction of Integrated Pest Management plus Improved Watershed Management Component including an explicit integration of Small Irrigation and Soil/Water Conservation Components, forest management/agroforestry component, plus the Provision for a Wildlife/Protected Area Component in the HAD amendment; and,
- C. No Action.

Under Alternative A, all the potentially adverse impacts as well as potential benefits listed above would remain and/or increase.

Under Alternative B, all of the potentially adverse impacts could be mitigated and all the potential benefits retained.

Under Alternative C, the HAD project would essentially cease.

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## ECONOMIC ANALYSIS

The Project Amendment No. 3 is almost entirely devoted to address environmental concerns related to the Highlands Agricultural Development Project, Phase II. These concerns in no significant way affect the economic analysis prepared for the original project HAD II. The two main causes of higher production and income--the introduction of irrigation and the improved market access-- remain basically unaffected by Amendment No. 3. Watershed management will enhance, in any case, the double cropping and the change in crop mix permitted by irrigation. The same can be said of the revised orientation of the Phase II Amendment towards livestock enlargement and commercialization. Furthermore, the basic limiting factors to achieving higher income levels--farm size, high percentage of land dedicated to basic grains, and scarcity of human resources--will persist independently of environmental issues.

Another of the fundamental economic aspects of Phase II Amendment is the market orientation for the producer. New market alternatives and marketing techniques not only oriented towards higher-quality products and lower post-harvest losses, but to increase the availability and awareness of market opportunities, are not affected by Project Amendment No. 3. The same can be said of the price information system devised in the HAD II Project, and of the direct employment creation and indirect job stimulation prompted by HAD II. Moreover, the discount rate chosen for benefit-cost ratios and present-worth calculations in the economic analysis (15 percent) is reasonable as a proxy for the opportunity cost of capital at present in Guatemala.

In conclusion, the expected economic benefits accruing from HAD II--increased employment, higher net income and savings, broader choices in production and marketing--are practically unaffected by Project Amendment No. 3. Therefore, the existing economic analysis still covers properly and accurately the relevant aspects of Amendment No. 3, and should be left untouched.

## D. Institutional Analysis Summary

### 1. Ministry of Agriculture Plant Protection Directorate

#### a. Authority and Responsibility

The Plant Protection Division (Sanidad Vegetal) was first established in 1944 and works within the framework of Public Law No. 446 entitled "Plant Protection Law". A separate pesticide law (No. 43-74) mandates Sanidad Vegetal's responsibilities in relation to the importation, registration, sales, storage, distribution, and use of pesticides. The internal regulations and functions of Sanidad Vegetal were last modified in 1982 and are as follows:

a. be the principal entity charged with the design, planning, implementation, and evaluation of plant protection programs, subprograms, projects and/or activities in the national territory,

b. and assist in the increase of agricultural production and productivity and environmental protection through:

- the application of quarantine measures to avoid the entry of new pests and diseases,
- provide technical assistance to control, combat and eradicate existing pests and diseases,
- provide pest diagnostic services,
- provide epidemiological vigilance,
- provide technology for integrated control of pests,
- and apply effective measures for the control, registry, supervision and safe management of pesticides.

To fully carry out the above mandate Sanidad Vegetal would have to undertake distinct activities in at least 14 different areas ranging from programs for the control and prevention of insect pests, plant diseases, and weeds to programs to monitor the use of agrichemicals and their effects on stored products and implication on human health and the environment, poisonings, residues, resistance and tolerances.

The mandate is obviously a large one and one that is not being effectively carried out. This large array of functions can be divided into two categories: technology transfer and regulatory/control. The technology transfer function is largely nonexistent. Other public sector institutions such as ICTA and the DIGESA extension service provide similar and perhaps better services. The regulatory/control function is more effectively carried out by Sanidad Vegetal which has more resources devoted to it. In recent years there has also been increased demand and support from the private sector for Sanidad Vegetal to improve and increase its regulatory/control function particularly in the area of pesticides.

Sanidad Vegetal is a dependency of the General Directorate for Agricultural Services (DIGESA), one of the principal agencies of the Ministry of Agriculture whose primary function is to provide crop related extension services for small farmers. The administrative unit of DIGESA manages the budget, programming, and planning for Sanidad Vegetal.

Sanidad Vegetal operations are divided among five units:

- the Office of the Technical Director
- the Department of Plant Quarentine
- the Department of Plant and Parasite Diagnosis,
- the Department of Integrated Pest Management and Phytosanitary Campaigns,
- and the Department of Registration and Supervision of Pesticides

b. Budget, Infrastructure and Human Resources

The budget for Sanidad Vegetal for the past five years has been as follows:

<u>Year</u>	<u>Amount</u>
1984	Q. 210,844
1985	211,044
1986	205,589
1987	254,893
1988	268,782

Approximately 88% of Sanidad Vegetal's budget is for salaries with the rest for operating costs. Sanidad Vegetal currently has 84 employees, of which 7 are university level and 38 are technicians. The two principal departments that will implement activities under HAD, the Departments of Registry and Supervision of Pesticides and Plant and Parasite Diagnosis, have 8 employees each. Over half of the employees are in the Plant Quarantine Department employed at the principal border entry points throughout the country.

c. Capacity of Sandid Vegetal to Participate in the HAD Project

Resources will be provided under HAD to strengthen only two of the many functions that Sanidad Vegetal is mandated with. These two are the information/registration/training function related to pesticides and the pest diagnostic/inventory function.

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First it's worth discussing whether there are other alternatives to carrying out these functions within the private sector. Heightened awareness has developed within two private sector interest groups on the need to strengthen the pesticide information/registration function to provide a basis for a more rational pesticide use and preserve increasingly demanding export markets. Both the pesticide dealers and non-traditional crop producers have examined their needs in this area and concluded that a stronger public sector role in this area is required. Both concluded that only government can certify or control the quality of a product. Other private sector based certification/control systems were looked at in other countries and deemed to be impractical for Guatemala. Both the pesticide dealers and the non-traditional crop producers are willing to play a strong role including providing resources to ensure that public sector certification/control functions are developed properly.

With regards to the pest diagnostic/inventory function this is an area that the private sector is playing an increasing role. Larger growers can take samples to private laboratories and pay for services. A stronger public sector role in this area would not necessarily compete with these private initiatives nor could they replace the public one. The Sanidad Vegetal labs are needed to support the larger DIGESA extension service effort. An official pest registry that reports on what pests are in Guatemala and what crops they infest is extremely important. Witness the current California attempt to ban Central America strawberries based upon literature references to possible medfly infestation.

Sanidad Vegetal's primary constraints for participation in the HAD project are the lack of infrastructure and training for its personnel. Personnel should not be a problem at the technical level, as there presently is sufficient staff assigned to Sanidad Vegetal. However, once training has been given and present staff become more qualified, it may be difficult to retain such personnel as their skills become more valuable on the open market. This is a general problem with all projects in Guatemala and cannot be solved through this project.

In summary, Sanidad Vegetal is capable of undertaking the activities contemplated under this Project. Activities to be carried out are adequately focussed and resources to be provided are adequate in both type and quantity to bring about necessary responses within the organization to carry out the required activities.

INSTITUTIONAL ANALYSIS

## The Nontraditional Product Exporters Guild

The Nontraditional Product Exporters Guild, a nonprofit trade committee assigned to the Chamber of Industry of Guatemala, was founded in May 1982. The organization was created through the efforts of a group of exporters who decided to organize an institutional body to represent them. The Guild was formed to serve as an effective means of communication with other organizations of the private sector, and with the public sector in areas related to production and particularly exports.

The fundamental purpose of the Guild is to protect the interests of the exporting sector and to work for the establishment of fiscal incentives to encourage production. The Guild is also established to eliminate policies and obstacles that in one way or another hinder the export of guatemalan products destined for international markets.

The Guild is an example of the achievements that can be attained through mobilization of mutual interests to reach ambitious goals by overcoming constraints which obstruct growth of Guatemala's export industries. Currently, the Guild represents a large number of private companies and cooperatives that are dedicated to exporting. Its activities have contributed significantly to increasing Guatemala's international trade and improving Guatemala's trade balance.

**A. GOALS:**

1. To protect the interests of its members.
2. To promote Guatemalan nontraditional exports.
3. To cooperate with institutions working to better Guatemala's commercial relations on an international level.
4. To propose, through CAEM and the Chamber of Industry of Guatemala, legislation which supports increased exports of nontraditional product.
5. To foster improved relations with countries that import Guatemalan products.
6. To promote the creation of an exporting mentality and consciousness in both the private and public sector.
7. To develop an international and national campaign to improve Guatemala's image as a stable exporting country.
8. To create an awareness and pride in the quality of Guatemalan products.
9. To find new sources of funding for the export of nontraditional products through working with national and international lending institutions.
10. To maintain good relations among its members, and to provide required institutional support.
11. To support national research institutions and public and

private university curriculum and research development to reinforce nontraditional agricultural exports and a strengthened agribusiness orientation.

#### B. WAYS IN WHICH THE GUILD COOPERATES WITH THE GUATEMALAN ECONOMY

The Guild has a major responsibility to the industrial, agricultural agro-exporting sectors. Its actions reflect different areas of economic activity in Guatemala such as:

1. Reactivation of the capacity of the country's industries that have reduced their export production because of international market deterioration.
2. Export production which creates jobs allowing many guatemalan families to improve their social and economic situation.
3. Exports of Guatemalan nontraditional products that generate foreign currency which contributes to improve the country's balance of payments.
4. Contribution to the diversification of Guatemala's industrial and agricultural production, thus reducing the country's vulnerability to detrimental external factors.
5. Improvement of the service sector, especially in sea, land and air transportation.
6. Improvement of external financing to allow private exporting sectors to increase the volume of their international sales.

#### C. SERVICES PROVIDED BY THE GUILD:

##### 1. At an institutional level:

- a. functions as an interest group and lobby before the Government to propose practical solutions to problems caused by bureaucratic regulations in the export process.
- b. Holds periodic discussions with Central Bank authorities to solve foreign exchange problems which restrain acquisition of necessary raw materials for production in export sectors.
- c. Participates in policy negotiations on export promotion.
- d. Cooperates with public and private organizations in promoting Guatemalan products in international markets.
- e. Works actively with the Bank of Guatemala and private financial institutions in searching for new sources of financing for the export sector.
- f. Maintains relations with institutions that promote imports of products from developing countries.

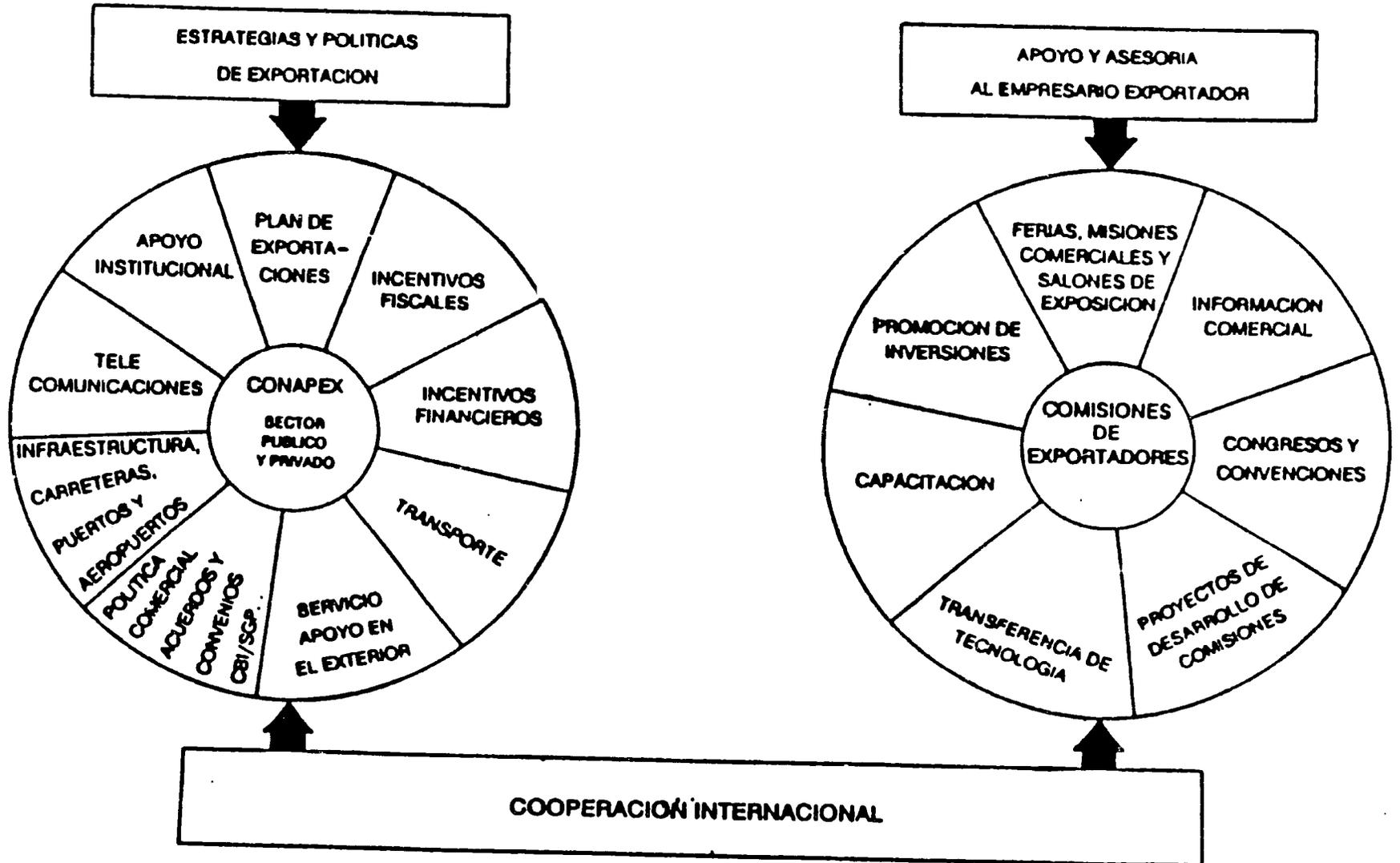
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**Gremial de Exportadores de Productos no Tradicionales**

ADSCRITA A LA CAMARA DE INDUSTRIA DE GUATEMALA

**AREAS DE ACCION DE LA GREMIAL DE EXPORTADORES DE PRODUCTOS NO TRADICIONALES**



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- g. Finance participation of Guatemalan and international university and research professionals and institutions in Guild programs and projects promoting and further developing nontraditional agricultural exports.

2. At an operational level:

- a. Provides support to its members in specific activities.
- b. Directs to its members all requests for Guatemalan products that are received from international markets.
- c. Provides support to international buyers and/or investors that come to Guatemala. Potential buyers are placed in personal contact with local producers/exporters.
- d. Offers its members workshops, courses and seminars on international trade and export-related topics. These activities are jointly implemented with institutions such as the Bank of Guatemala, Universidad Rafael Landivar, the Chambers of Entrepreneurs, and the Guatemalan Management Association.
- f. Participates in discussions of commercial treaties and agreements that Guatemala signs with third world countries.

D. MEMBERSHIP REQUIREMENTS

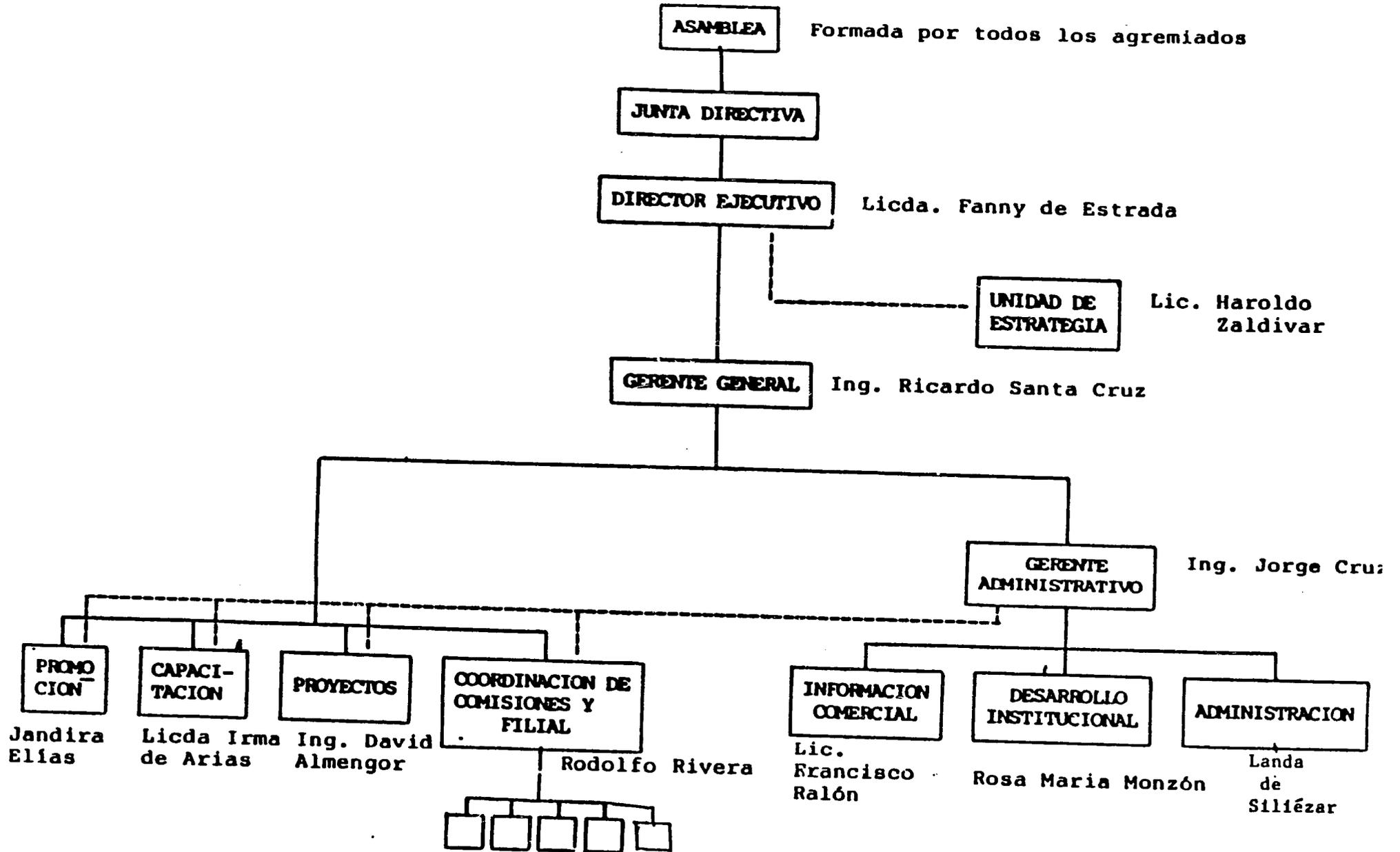
The Guild has over 650 members whose products range from wicker furniture to processed food products. The Guild is open to and actively seeks membership among the entire range of large, medium and small enterprises. Requirements for admission to the Guild include:

1. To be an individual or company legally organized to operate in Guatemala.
2. To submit an application, providing the information requested therein, so that it can be analyzed by the Guild's Board of Directors.
3. To pay an entrance fee of Q100.
4. To pay a quarterly membership fee ranging from Q120 to Q 440, depending upon the size of firm measured as value of exports and total value of assets in the firm. Next year, the upper range of membership fees will increase to Q600 as the Guild finalizes the implementation of a scaled membership fee.



# Gremial de Exportadores de Productos no Tradicionales

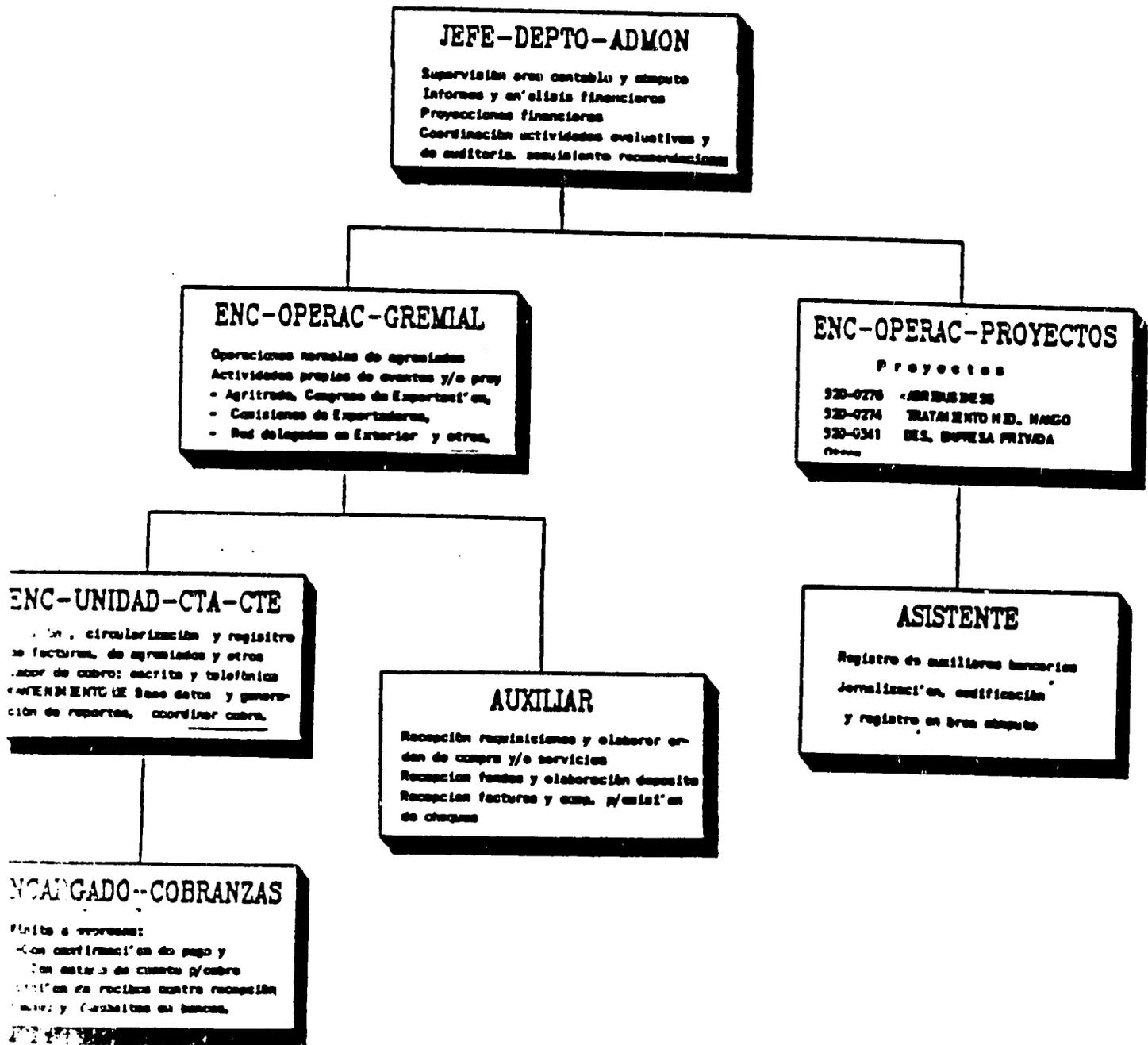
ADSCRITA A LA CAMARA DE INDUSTRIA DE GUATEMALA



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ORGANIZACION FUNCIONAL

# DEPARTAMENTO DE ADMINISTRACION



## E. STAFF

The Guild has a staff of highly qualified professionals, technicians, and support personnel consisting of 54 people:

Executive Director	1
General Manager	1
Administrative Manager	1
Assistant Admin. Manager	1
Executive Director's office staff	2
Promotion Dept. head	1
Head, Training & T.A. Dept	1
Head, Dept of Project management	1
Head, Dept. of Computer Systems	1
Assistant, Dept. of Computer Sys.	1
Coordinator of Comm. and Afiliates	1
Head, Dept of Market Information	1
Head, Dept. of Institutional Devel.	1
Head, Dept. of Accounting	1
Executive Assistants to Commissions	6
Promotion Dept. Staff	4
Training Staff	3
Market Information staff	4
Institutional Development staff	1
Accounting dept. staff	7
accountants (2)	
accounting assistants (5)	
Total Professional and Technical staff	<u>39</u>
Support Staff (recept's, sec's., etc.)	<u>15</u>
Total Personnel	54

GREMIAL DE EXPORTADORES DE PRODUCTOS NO TRADICIONALES  
BALANCE GENERAL  
AL 31 de agosto de 1989

ACTIVO			
<b>CIRCULANTE</b>			
Caja y Bancos (Nota 1)		Q. 477,697.09	
Agremiados -neto-		34,772.46	
Deudores		234,716.03	
Cuentas por liquidar		9,393.79	Q 756,579.37
<b>PROYECTOS EN PROCESO</b>			
Fondos por liquidar	Fondos	Desembolsos	
	Asignados	Aprobados	
AID No. 520-0276 GE	Q.2,446,061.25	2,243,994.85	
AID No. 520-0341 PED	1,260,178.56	358,394.28	
AID No. 520-0274-G-SS	434,488.97	320,676.94	
Proyecto Hidrotérmico de mango (Nota 1)	332,817.00		
	4,473,545.78	2,923,066.07	1,550,479.71
<b>MOBILIARIO Y EQUIPO</b>			
Mobiliario		158,385.39	
Equipo de computación		226,828.35	
Equipo de comunicación		78,097.67	
Depreciaciones acumuladas		463,311.41	
		(100,376.48)	362,934.93
<b>OTROS ACTIVOS</b>			
Depósitos		160.00	160.00
<b>TOTAL ACTIVO</b>			Q.2,670,154.01
			=====
<b>PASIVO</b>			
<b>CORTO PLAZO</b>			
Cuotas anticipadas agremiados		Q. 18,626.90	
Cuentas por pagar		57,809.41	Q 76,436.31
<b>LARGO PLAZO</b>			
Reserva p/Indemnizaciones		39,135.77	39,135.77
<b>FONDOS PARA PROYECTOS POR LIQUIDAR</b>			
AID No. 520-0276 GE		202,066.40	
AID No. 520-0341 PED		901,784.28	
AID No. 520-0274-G-SS		113,812.03	
Proyecto Hidrotérmico de mango		332,817.00	1,550,479.71
<b>PATRIMONIO</b>			
<b>SUPERAVIT</b>			
Ejercicio vigente		436,603.64	
Ejercicios anteriores		242,511.26	
Por Donación		324,987.32	1,004,102.22
<b>TOTAL PASIVO Y PATRIMONIO</b>			Q2,670,154.01
			=====

Guatemala, Septiembre 28, de 1989

Ing. Ricardo Santa Cruz  
GERENTE GENERAL

Landa Ketty de Siliezar  
CONTADORA

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GREMIAL DE EXPORTADORES DE PRODUCTOS NO TRADICIONALES

ESTADO DE INGRESOS Y GASTOS

Del 1 de julio de 1989 AL 31 de agosto de 1989

INGRESOS	JULIO 1989	AGOSTO 1989	ACUMULADO A AGOSTO 1989
Agremiados	Q. 49,121.07	Q. 42,852.08	Q. 91,973.15
Otros	211,364.42	355,382.05	566,746.47
	260,485.49	398,234.13	658,719.62
<b>MENOS</b>			
<b>GASTOS DE FUNCIONAMIENTO</b>			
Servicios Personales	Q. 18,610.58	Q. 20,019.73	Q. 38,630.31
Servicios No Personales	1,593.89	4,360.93	5,954.82
Materiales y Suministros	642.26	2,775.91	3,418.17
Actividades Especificas	59,230.98	113,673.74	172,904.72
Depreciaciones	603.98	603.98	1,207.96
	80,621.69	141,434.29	222,115.98
SUPERAVIT DE PERIODO	Q. 179,803.80	Q. 256,799.84	Q. 436,603.64
	=====	=====	=====

Guatemala, Septiembre 28, de 1989

Ing. Ricardo Santa Cruz

Landa Ketty de Siliezar

**PRIOR USAID ASSISTANCE**

The Mission's Private Enterprise Development Project (520-0341) assistance to the Guild focuses on Nontraditional (largely nonagricultural) Export Promotion. It assists the Guild to develop country policies to foster nontraditional exports, implement specific programs for groups of entrepreneurs classified by product presently being exported, and strengthen the services being provided by the Guild. The PED project complements the Guild's current activities by strengthening its capacity to provide services needed most by the manufacturing sector.

Under the Nontraditional Export Promotion component, (US\$ 2 million) specific activities supported include:

--reinforce the policy analysis capability of the private sector.

--provide a long-term export development advisor and seven staff positions in the Guild to focus on policy and technical assistance activities.

--provide technical assistance and training programs for specific groups of exporters defined by commodity group.

--strengthen the institutional development of the Guild through the development of a system of fee charges for delivery of commodity specific services and seminars.

ROCAP's Nontraditional Agricultural Exports Support Project (596- 0108) assistance to the Guild places emphasis on nontraditional fresh agricultural products and includes consulting services to provide technical assistance and training in the following areas: production techniques of nontraditional agricultural products, post-harvest management, export marketing, transportation, assistance in retrieval and management of marketing information, and use of computers to provide information on product quality specifications, international prices, and market trends.

In addition, the project provides funds for two microcomputers with its corresponding software, and provide funds to cover expenditures for attendance to seminars, workshops and courses.

ROCAP's program complements USAID/Guatemala projects providing technical assistance, financing and training to Guatemalan

entrepreneurs. Mission activities supporting export expansion have been complemented by other ROCAP projects: Export Promotion Fund (596-0109), Export Agribusiness and Development Promotion (596-0123) and Export Management Training. Additionally ROCAP has sponsored regional transportation and capital markets studies. Their findings will assist both individual countries and regional approaches.

The amendment will provide continued core budget support, originally provided under the Agribusiness Development Project, in support of the Guild's current activities in providing market information, in maintaining a strong policy analysis capability, in promotion of nontraditional agricultural exports and investments, and in provision of training activities (workshops and seminars). The represent activities that the Guild has successfully implemented during the past five year period. The Guild's ability to utilize the resources and implement the activities developed under the other projects is predicated upon the continuation of core budget support under this project.

The Guild's well qualified staff, collaboration in the design of the project amendment, and Board of Director's strong interest in the project are sound reasons to expect that its participation in the project will result in effective implementation. The Guild performed exceptionally well in its implementation of the Guild's component of the Agribusiness Development Project, which this amendment is extending. The Guild was audited by Price-Waterhouse in late 1987, and received a favorable report. An AID voucher review was conducted in early 1989, and a second favorable report was presented. All recommendations made under the Price-Waterhouse audit had been implemented and no major issues were found. The one concern, delays in preparation of monthly financial statements, have been answered by the Guild by hiring additional accounting staff and implementing a program of computerizing its accounting system.

The Guild's financial analysis is favorable. The organization's accounting procedures follow well accepted accounting principles. As of August 31, 1989 the Guild showed a debt-to-assets ratio of .58 or 58%, with liabilities totalling Q1,550,479 and assets of Q2,670,154.

On the basis of the foregoing analysis, USAID/Guatemala has determined that the Nontraditional Product Exporters Guild is administratively capable of carrying out its functions under the project.

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RESEARCH FUND FOR NON-TRADITIONAL AGRICULTURAL EXPORTSII. RATIONALE

Over the past ten years, the export of non-traditional agricultural products from Guatemala has increased dramatically. With this expansion have come an increasing number of problems related to production, post-harvest handling, processing and marketing. Rigorous quality standards have to be met for the demanding U.S. and European markets. Productivity per unit cost must be high to meet competition from other suppliers. Producers must be constantly alert to a wide variety of diseases and pests which could greatly reduce or wipe out their crops. Production must be timed to meet tight market windows. Care must be taken in post-harvest handling and packing to assure that fresh produce reaches the consumer in good condition. The exported produce must meet the strict and variable requirements of the U.S. Department of Agriculture, the Food and Drug Administration, and the Environmental Protection Agency. In some instances, the technology to address these problems is known and readily accessible. In other cases, the technology is not known or has to be adapted to Guatemala's special conditions.

The need for conducting research to address problems related to the production and export of non-traditional agricultural products has become increasingly evident. Some of the largest established producers have been carrying out active production and post-harvest handling research programs for a number of years. However, the results of this research are generally closely held and not made available to other producers, including the increasing number of small farmers who are trying to break into the NTAE market. A recent initiative by the Mango Producers' Association provides an example of how research can be carried out to solve a critical constraint and also be made available to a wide number of producers. Confronted with the U.S.D.A. restriction on the continued use of Ethylene Dibromide in the treatment of mangoes for export, the Mango Producers' Sub-Commission of the Non-Traditional Products Exporters Guild (Gremial) decided to jointly fund a research project to test the feasibility of using a hot-water dip treatment for mangoes destined for export. USAID/Guatemala provided a \$150,000. matching grant to assist them in carrying out this activity. Other producer groups are interested in trying to develop and support similar research activities.

Building upon the approach taken by the Mango Producers' Association, this amendment will establish an Agricultural Research Fund to which NTAE exporters and producers' associations can turn for matching funding to support critical research activities. The Fund will provide a flexible, quick-response capability to provide matching assistance on a 50-50 basis for urgent, problem-driven research which will address production, post-harvest handling, processing and marketing problems confronting producers and exporters of non-traditional agricultural exports.

### III. PROJECT DESCRIPTION

The Agricultural Research Fund will be administered by a Research Advisory Council convened by, but independent from, the Non-Traditional Products Exporters Guild (Gremial). The Council will be composed of recognized, respected leaders in the agricultural sector. They will be drawn from the private sector, the universities and the public sector. Day-to-day operations of the Fund will be managed by a Research Administrator who will serve concurrently as Executive Secretary of the Council. The Administrator will work with groups interested in applying for a matching research grant to assure that their proposal is technically sound and complete. The proposal is then submitted to the Research Council for a determination on whether it is within the priority crop and problem areas established, and it is then ranked against other proposals. Proposals selected for funding are forwarded to the Research Review Committee for technical review and modification, if necessary, before approval. As part of the research grant, a protocol will be included that the results of the research will be made available to anyone who wants them. The Administrator will monitor research in progress and will make arrangements for publication and dissemination of the research results.

The rationale for not making the fund a permanent and integral part of the Gremial itself is based upon a concern that the Gremial is not a research institution and should not become one. The Gremial's strength is in promoting non-traditional exports and in organizing producers and exporters to that end. The Gremial can make a significant contribution to establishing the fund and making it operational without making the fund a permanent element of its structure. Permanent integration of the research fund into the Gremial risks overloading the range of services the Gremial is already mandated to provide and diffusing its activities to its long term detriment. Administratively, the Gremial is also concerned that the integration of the component into its formal structure would be seen by its membership as a attempt to further increase

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permanent staff and incur the additional burden of long-term personnel benefit packages that are extremely costly.

A. Project Elements

1. Agricultural Research Fund

Under this amendment, a Fund of \$715,000 will be established to provide matching grants for research projects proposed by producers and exporters of non-traditional agricultural products. Within the overall fund, \$415,000 is dedicated to specific research activities addressing IPM- and phytosanitary related problems. \$260,000 is provided as an unrestricted fund intended to be applied to the total range of possible applied agricultural research problems that can be addressed.

The Council will establish a list of priority products which will be eligible for receipt of matching grants from the Fund. The criteria for inclusion on the list of eligible products will include

--Present and potential future volume and value of exports.

--Number of producers involved, with particular attention to the role of small farmers in crop production.

--The level of need for immediate, problem-driven research which has a reasonable probability of producing conclusive, useable results in one to two years.

--Recognition of the need to limit and focus the activities undertaken through the Fund, but retaining the flexibility to be responsive to clear and urgent requirements in a dynamic, expanding market.

The Council, with the assistance of the Administrator, will establish and publicize guidelines for requesting assistance through the Fund. The Council will strive for 50-50 matching arrangements, including consideration of in-kind resources, but will have the discretion to modify this requirement as deemed necessary. Counterpart matching funds will come from independent and organized producers and exporters within the private sector, such as contributed to the research activity for hot water treatment of mangos, with additional contributions in kind from private universities and possibly from ICTA. It is understood that the private sector contributions will come from sectors who have a direct interest in solving the research problem being addressed by the proposed research, and who expect to benefit from the research results.

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The criteria for proposed research eligibility for receiving matching grants will include:

--The proposed research project must be related to a production, post-harvest handling, processing or marketing problem of one of the priority non-traditional agricultural exports approved for matching funding by the Research Advisory Council.

--The proposed research must address a high priority problem of the producers and exporters of non-traditional agricultural products as fully documented by the requesting group and approved by the Council.

--The proposed research activity must have a clearly demonstrated, positive potential impact on large numbers of small producers. Preference will be given to activities which involve small farmers as participants.

--The proposed research activity must provide for collaboration between producers, processors and/or exporters and qualified scientific/technical personnel from the local university, private and/or public sector research community, augmented as necessary by outside technical expertise.

--The proposed research activity should have a reasonable probability of producing conclusive, useable results in one to two years.

--The proposing group must submit a technically sound proposal, which includes an analysis of the top research priorities for the proposed product and why the requested project is deemed to be the highest priority. It will also present a detailed research design, plan of action and description of the human and financial resources required, including the proposed matching arrangement with the Fund. The plan of action must also provide for publication and dissemination of the results, including the participation of the research team in dissemination activities such as field days.

--The proposing group will be expected to provide 50% of the resources required for carrying out the proposed research activity. The resources can be in cash or in kind. The Council will have the discretion to modify the 50% requirement as and when they deem necessary.

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--The proposing group must sign a protocol agreeing to public disclosure of all research results obtained as a result of the grant.

When the proposal is judged to be complete by the Administrator and has been pre-selected by the Research Council for funding, it will be reviewed, and once a determination of technical soundness is reached, approved by the Research Review Committee. Once approved, a simple grant agreement will be attached to the proposal detailing the responsibilities of the parties and signed by the Administrator and the requesting group. Matching grants will generally be on a 50-50 basis, but can be modified at the discretion of the Research Council. While considerable variability is anticipated in the amount of the grants, it is estimated that they will range from \$15,000 to \$90,000, with an average grant of about \$65,000. Although most of the funding in each grant is anticipated to be expended on local costs, the research fund recognizes that there will be problems for which local expertise may not be readily available, and it will be necessary to bring specialists in from abroad. There are funds provided for this type of foreign exchange expenditure, as well as for local costs.

## 2. Research Advisory Council

The Research Advisory Council will be composed of eight members. Four members will be from the private sector with a balance between highlands, coastal and Oriente interests. Two members will be from the University community and the seventh member will be the Director of ICTA. USAID will be represented on the council by the Chief of ORD or his designated representative. A search committee will be constituted composed of the President of the Gremial and the Chief of the Office of Rural Development of USAID/Guatemala. The Search Committee will be responsible for contacting potential members to determine their interest and willingness to serve on the Council and for determining the final composition of the Council.

Council members should be respected leaders in the agricultural sector with a strong interest in research and belief in its critical importance for the successful development of the sector. They should also possess the ability to see beyond their own interests to the interests of the sector and the country as a whole. Membership on the Council will be staggered, with two private sector members and one University member appointed for two and four year terms each. The Council will then be self-renewing, with serving members electing new members every two years. Members may be reappointed for up to two additional two year terms. Membership on the council will be ad-honorem with reimbursement for transportation and lodging

expenses. This amendment includes funding to cover the costs of travel, per diem and meeting expenses for the Council.

The Council, in its first official session, will elect its officers and make arrangements, through the Gremial, to advertise for the position of Research Administrator. The Council will select the Administrator through an open competition process. The Administrator will be contracted by the Gremial for a period of one year, renewable annually at the discretion of the Council and subject to the availability of funds.

### 3. Research Administrator

The Research Administrator will be selected by the Research Advisory Council through an open competition process. The Administrator should be trained in the agricultural and/or related sciences, have at least 10 years of active involvement in the agricultural sector, be recognized as an energetic and competent manager, and have a good working knowledge of agricultural research design and management. He will be housed in the Gremial and his salary and benefits, secretarial, administrative and logistical support will be funded by \$285,000 in Project funds.

The Administrator will provide guidance to organizations wishing to present proposals for matching grants from the Fund. He will review all proposals for completeness and conformity with the requirements established by the Council. He will participate as an ex-officio member on the Research Review Committee reviewing and approving proposals for funding. He will make arrangements for distributing the proposals to the Council and will serve as an ex-officio member at all Council sessions. It will be his responsibility to convey the decisions on proposals to the requesting groups and to develop and sign the necessary grant documentation. He will monitor research in progress and make arrangements for publication and dissemination of all research results.

### 4. Research Review Committee

The Research Review Committee will be composed of three agricultural scientists selected by the Research Advisory Council. They will possess university training and extensive experience in conducting agricultural research in any of

several disciplines including entomology, plant pathology, soil science, plant genetics, etc. The Committee will establish the standards and procedures that will be utilized for review of research proposals. They will also compile a list of local scientists/technicians who are thoroughly conversant with past and ongoing research in the discipline/subject matter areas expected to be covered in research proposals.

When a research proposal is received, the Committee member who is most knowledgeable on the subject proposed for research will serve as chairman of an ad-hoc group which he will convene composed of individuals selected from the Committee's list of qualified scientists/technicians. The ad-hoc group will carefully review the proposal to assure that the research design is sound and that the proposed resources and course of action have a good probability of resulting in conclusive, useable research results in the time allotted. When the research is completed, the ad-hoc group will be reconvened to review the results and make a judgement as to the scientific validity of the conclusions and whether any further research is required.

The members of the Research Review Committee will participate in Committee meetings on an ad-honorem basis but will receive an honorarium, as will ad-hoc research review group members, when reviewing specific research proposals and research results. The Project Amendment includes funds to cover the costs of honoraria, travel and per diem to be paid to the Committee and ad-hoc review group members.

##### 5. Operating Procedures

The Administrator will make arrangements for publicizing the existence of the Fund and disseminating information on eligible crops and research themes established by the Council. Persons interested in undertaking a research activity would bring interested producers and producer groups together with local scientists/technicians to prepare a research proposal. The proposal would include the research design, plan of action and a detailed list of human and financial requirements, including any external technical expertise that may be required. The proposal would also include a description of the priority research needs for the selected crop and an explanation of why the particular research activity proposed was selected as the highest priority.

The Administrator will provide guidance to the requesting groups on preparation of their proposals. When the Administrator is satisfied that the proposal is complete, it

will be submitted to the Research Council for a determination of its importance within the framework of priority crops and problems, and if approved, is passed on to the Research Review Committee which will assure that it is technically sound and that the proposed course of action and resources have a good probability of achieving conclusive, useable results in the time allotted. Once the Committee approves the proposal, it authorizes the Administrator to proceed with preparation and signature of an agreement with the grantee which details the responsibilities of the parties.

The Administrator will monitor research in progress and approve monthly reimbursements to grantees for costs incurred upon receipt of satisfactory documentation in accordance with the terms of the agreement and the approved research proposal. When research results are ready, they will be reviewed by an ad-hoc group of the Research Review Committee to assure that they are scientifically valid and practically sound. When approved for dissemination by the Research Review Committee and the Research Advisory Council, the results will be published and disseminated widely.

Dissemination of research results will be carried out through the Gremial's information service and the Ministry of Agriculture's department of extension, DIGESA, under the HAD's project. Dissemination will include demonstration of the new technology in field days and trials conducted initially by the producer groups and scientist/technicians involved in the research, and on a long-term basis by DIGESA.

#### 6. Project Outputs:

1. IPM/Phytosanitary related research projects funded	14
2. General research projects funded	8
3. Research reports on results disseminated	22

### IV. TECHNICAL ANALYSIS

#### A. Research Needs

The increase in the number and volume of non-traditional agricultural exports over the past ten years has been dramatic. With this expansion in types of products and area and manpower affected, production and post-harvest problems have become critical concerns. For example, the U.S. Department of Agriculture decision to outlaw the use of Ethylene Dibromide in treatment of mangoes for export dealt a heavy blow to the mango industry. The incidence of botritis (a fungus) in strawberry production was a severe set-back to

Rincon Grande exports. High levels of pesticide residues in snow peas have resulted in the rejection of shipments, with substantial losses to the producers and exporters.

A survey of priority problems of the producers and exporters of non-traditional agricultural products disclosed the following critical research needs:

--Snow Peas -- Research needed on cost-effective treatment for Ascochyta (a fungal disease), ways to keep pesticide residues at levels acceptable to export markets, cost effective treatment for moth larvae and spider mites.

--Strawberries -- Research needed on biological control of the spider mite (arana roja), cost-effective means of dealing with botritis and the gallina ciega (white grub).

--Broccoli -- Research needed on treatment of hollow stem (tallo hueco) and plutella. Fertilizer trials.

--Asparagus -- Research needed on treatment of La Roya fungus and control of nematodes as well as variety and fertilizer application trials.

--Melons -- Research needed on treatment of melon virus in the Zacapa area and white fly on the South Coast. Research also needed on how to deal with the Africanization of pollinating bees in Guatemala.

--Brambleberries -- Research needed on varieties suited to Guatemala and on stem borer (a problem that is present in Guatemala but not covered in the North American and European literature on brambleberries).

--Lettuce -- Research needed on suitable varieties for Guatemala and control of bolting.

--Cauliflower -- Research needed to develop a white stem variety for Guatemala. The current green stem variety does not have good acceptance in the export market. Hollow stem is also a serious problem.

--Celery -- Research needed to develop low-bolting varieties.

--Garlic -- Research needed on white garlic varieties suitable for Guatemala; also on processing methods for garlic puree.

--Papaya -- Research needed on hot-air treatment of papayas for export. Research being conducted in Hawaii which could be adapted to the conditions in Guatemala.

--Okra -- Research needed on nematode control.

--Peaches -- Research needed on production of certified stock free of Western X disease.

--Green onions -- Need variety and fertilizer trials.

--Achiote -- Research needed on mildew control.

Each of the above problems are of critical importance in the production or post-harvest handling of NTAE products. Solution of the problems can mean substantial benefits to the producers (and the economy) in increased output, reduced costs and higher quality produce for the export market. There is clear demand for a Fund which would provide matching grants for undertaking research which would be problem-driven with a good probability of providing useable results in the short term.

## B. Research Capacity

Agricultural research is currently conducted by the Instituto de Ciencia y Tecnologia Agricola (ICTA), San Carlos University, the Universidad del Valle and a few of the larger private sector firms and producer associations. Until recently, research was concentrated on the basic grains, food crops and major export crops. There is no real tradition of horticultural research in Guatemala. Only within the past ten years have there been any sustained attempts at research in the vegetable and fruit crops which constitute the non-traditional agricultural export market. Laboratory facilities of varying quality are available at ICTA, San Carlos, Del Valle, ANACAFE, and a few private firms. Thus, while there is some in-country capacity to conduct scientifically valid agricultural research in non-traditional agricultural export crops, it is limited and at times, will need to be augmented by external short-term technical expertise.

### 1. ICTA

ICTA was established in 1973 and has concentrated on research in the basic grains and food crops for most of its existence. In the past few years, with encouragement from AID, it has started to conduct research on some vegetable and fruit crops including cabbage, broccoli, cauliflower, garlic, snow peas,

potatoes, melons, tomatoes, cucumber, okra, pineapple, papaya, mango, grapes, apples, peaches and pears.

The ICTA staff has some 25 technicians trained to the M.S. level and one to the PhD level. They tend to be primarily in the basic grains and food crops with only \_\_\_ trained to the M.S. level in fruit or vegetable production. ICTA has established good relations with the International Agricultural Research Centers such as CIAT, CIMMYT, and CIP and collaborate with them on research on basic grains and food crops. They also have worked with U.S. university researchers experienced in horticulture and pomology under the Highlands Agricultural Diversification project. Short term technical assistance in horticulture and pomology will continue to be provided under the HADS II project.

The ICTA lab facilities are set up for soil, foliar and other types of analysis. Producers complain that it takes an inordinately long time to get research results. ICTA is working on several of the research areas included in Section IV A, Research Needs, and they have indicated their interest in applying for matching grants from the Agricultural Research Fund.

## 2. San Carlos University

San Carlos University is one of the oldest educational institutions in Latin America. It has a large Department of Agricultural Sciences with some 1500 students at the Guatemala City campus. There are some 60 professors with training to the M.S. level and one to the PhD level. The Institute of Agronomic Research, which was founded in 1980, provides funding for a limited amount of basic research in renewable natural resources and agricultural production. Approximately 5% of the overall Agricultural Sciences Department budget goes to research. The Institute has received assistance in their research efforts from CIDA, the Swiss aid program, FAO, and the International Board for Plant Genetic Resources. They have also collaborated to a very limited extent with the private sector, such as a current effort with ANACAFE on the Mal de Vinas problem in coffee. More applied research is carried out under their program of Supervised Professional Studies for 5th year students who are required to complete a research thesis to receive their degree as an ingeniero agronomo. The GOG public extension service, DIGESA, finances some of this thesis research work as does a local cooperative federation (FEDECOAG). There are 15 laboratories in the Faculty of Agricultural Sciences which can carry out most basic analyses required for agriculture.

To date, San Carlos staff have conducted very little research in fruit and vegetable production because they are reluctant to engage in what they perceive to be competition with ICTA. Some of the 5th year research theses have been on horticultural problems with several students working with the Cuatro Pinos cooperative. With a relatively large number of professors trained to the M.S. level, there is capacity to conduct agricultural research, although there is limited experience in horticulture or pomology. There are specialists in entomology, soil science, plant pathology and other disciplines on the San Carlos faculty who could collaborate in research activities with producer groups. During project design, conversations with San Carlos staff indicated that they would be interested in participating in the matching grant program.

### 3. Universidad del Valle

The University of Del Valle has a small but impressive program in agriculture with some 60 students and \_\_\_ full or part-time professors trained to the M.S. level and \_\_\_ to the PhD level. They have the capacity to do basic or applied research in entomology, plant pathology, soils, tissue culture, and virus identification. Their laboratories are large and well equipped and managed. They can carry out 16 different analyses needed for agriculture research. They have a tradition of working collaboratively with the private sector on research. For example, they produced the first description and classification of cardamom varieties currently grown in Guatemala in collaboration with the Association of Cardamom Producers. They are following this up with a joint effort to develop a good commercial variety of cardamom with a resistance to mosaica del cardamomo. They have also worked collaboratively with coffee and rubber producers. They have established a good working relationship with Cornell University on bean virus study and are contemplating a relationship with the University of Georgia on soils analysis. With their close working relationship with the private sector, they should be active participants in the research matching grants program.

### 4. Other Research Activities

In addition to applied research carried out by the larger commercial firms and some of the Producers Associations, there are a number of small consulting firms which will carry out research when funding is provided by growers in the private sector. For example, a private firm is conducting the research on hot water treatment of mangoes for export.

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In addition to the laboratories at ICTA, San Carlos and del Valle, there is a laboratory run by ANACAFE, a new soils laboratory started by a recent University of Georgia M.S. graduate and a few other specialized laboratories around the country.

There is technical capacity within the country but it will need to be complemented in some cases by external technical expertise and sample analysis outside of Guatemala. Funding for this purpose will be an eligible expense under the matching grant program of the Agricultural Research Fund.

### C. Feasibility of Matching Arrangements

There has been considerable experience with collaboration between producers or producer groups and ICTA or the local universities. In those cases, the producers have put up funding for the research and publication of the results. Producers have also contracted with private firms to carry out applied research on urgent problems. During project design, discussions with producers and ICTA and university personnel indicated that expansion of this approach on a 50-50 matching basis with grants from the Fund would be feasible for research activities involving the larger, more successful producers. However, most individuals interviewed felt that the less well established groups composed of large numbers of small farmers would have a more difficult time making a 50-50 match. They suggested that the program have the flexibility to allow these less well endowed farmers to participate.

## V. ADMINISTRATIVE ANALYSIS

### A. Administrative Capacity of the Gremial

The Guild of Non-Traditional Exporters (the Gremial) will provide the institutional base for the Agricultural Research Fund. The Research Advisory Council will be convoked by the Gremial. The Gremial will contract the Research Administrator and his secretary, who in turn will manage the Fund and related expenses for the Council and Research Review Committee. Disbursements will be made by AID to the Gremial for subsequent disbursement to the sub-grantees.

The administrative capacity of the Gremial will have to be expanded to handle the new program. Funds will be included in the project to cover the cost of renting and furnishing additional office space and for hiring the Administrator and a secretary. Funds will also be provided for honoraria for the Research Review Committee and travel, per diem and related expenses for the

Council, Review Committee and the Administrator and his staff. The inclusion of funds in the project for these purposes should enable the Gremial to absorb this new activity. The Gremial has the capacity to contract the Administrator and his secretary and to obtain and furnish the additional office space required. As an experienced AID grantee, it has the capacity to oversee the Research Administrator in meeting AID's financial and progress reporting requirements.

It is anticipated that, aside from the initial convoking of the Council, the hiring of the Administrator and his secretary, and the provision of space for the project staff and Council meetings, the Agricultural Research Fund, Council, Administrator and Research Review Committee will operate almost completely independently of the Gremial. The Administrator will be responsible for guiding the proposal process, preparing and monitoring the agreements with matching grant recipients, disbursing funds and receiving and reviewing documentation for costs incurred in implementing the research activities. While ultimate responsibility for AID funds will rest with the Gremial as the grantee, most of this responsibility will be delegated to the Council and Administrator. In this way, the operation of the Fund should not be a major burden on existing Gremial management. By the time this activity is underway, the Guild will have computerized its accounting system. This is expected to routinize and further reduce the burden of the management/accounting function. We do not expect that this activity will exceed the management absorptive capacity of the Gremial.

#### B. Administrative Capacity of Grant Recipients

The criteria for eligibility for receipt of matching grants under the Fund require that the proposed research activity be a collaborative effort between producers and producer groups and qualified in-country research personnel, augmented by external technical expertise as required. The grant agreement will detail the responsibilities of the parties to the agreement, including responsibility for administration of the Grant. Administration could be handled by either the producer/producer group or the University or private firm providing the research personnel. In either case, the administrating unit would have the capacity to contract local personnel, procure local equipment and supplies and submit supporting documentation for costs incurred in accordance with AID requirements. The contracting of external technical expertise will be more difficult because of the lack of local experience in such procurement. Some institutions such as ICTA and the Universidad del Valle have worked with external sources of

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technical expertise and should be able to handle the procurement of such assistance under a matching grant. In other cases, it will be necessary for USAID/Guatemala to procure the external technical expertise required.

## VI. ISSUES

### A. Small Farmer Involvement/Impact

Special care will be taken in project implementation to assure that small producers will be involved in and benefit from activities to be funded through the matching research grants. The crops selected by the Council for financing under the project will involve or have the potential to involve large numbers of small producers. The criteria for eligibility for matching grants will include a provision that any proposed research activity must have clear potential benefit for large numbers of small producers, with preference given to on-farm research involving small producers. The criteria also will require that the results of the research be disseminated widely through publications and field days. In addition, at least one member of the Research Advisory Council will be thoroughly familiar with and sympathetic to the needs of small farmers. These provisions should assure that the project has a strong positive impact on small producers.

### B. PRIORITIZATION OF RESEARCH

As a first order of business, the Research Advisory Council will have to establish which crops will be eligible for financing under the matching grant program. With limited resources, the Fund will not be able to do cover all needs. Priorities will have to be set and the number of eligible crops will have to be limited. Criteria for the selection of eligible crops are spelled out in Section III, A, 3. While there is a clear need to prioritize and focus, the Council should retain the flexibility to be able to respond to urgent needs precipitated by unusual, unforeseen crop or market developments.

In addition to prioritization of crops, care will need to be taken to assure that any proposed research is considered a top priority by producers and exporters. Research on esoteric problems with little practical pay-off must be avoided. The criteria for the Fund call for the collaboration of producers and researchers in preparation and implementation of each research activity. The criteria

also require that the proposal contain a discussion of the most important researchable problems confronting the given crop and why the research proposed is considered to be the highest priority. These provisions should help assure that each research activity addresses a high priority problem with substantial potential impact on a large number of producers.

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ILLUSTRATIVE BUDGET

Project: Hollow Stem in Broccoli

Local Costs (in Quetzales)

Salaries:

Agronomist to supervise experiments -- One year . . . . . Q32,000.  
Soil Scientist -- 30 days at Q200/day . . . . . 6,000.  
Plant Pathologist -- 30 days at Q200/day . . . . . 6,000.  
Plant Physiologist -- 30 days at Q200/day . . . . . 6,000.

Transportation and Per Diem:

Transportation for Agronomist -- Q500/mo for 12 months . . . . . 6,000.  
Per Diem for Agronomist -- 80 days at Q80/day . . . . . 6,400.  
Transportation for 3 local scientists -- Q15/day for 20 days . . . . . 900.  
Per Diem for 3 local scientists -- Q80/day for 10 days . . . . . 2,400.

Field Supplies and Materials:

6,000.

Labor Costs:

30 days at 15 experimental sites at Q6/day . . . . . 2,700.

Laboratory Fees and Costs

20,000.

Other Direct Costs:

Publication costs . . . . . 18,000.  
Field Day costs . . . . . 4,000.  
Communications and Miscellaneous . . . . . 2,700.

TOTAL . . . . . Q120,000.

US\$44,444.44

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External Assistance Costs (in US\$)

Salaries:

Soil Scientist -- 18 days at \$280/day . . . . . \$5,040.  
Plant Physiologist -- 18 days at \$280/day . . . . . 5,040.

Transportation and Per Diem:

Six Round Trips -- U.S.-Guatemala-U.S. at \$600/trip . . . . . 3,600.  
40 days per diem at \$99/day . . . . . 3,960.

Other Direct Costs:

Communications and Miscellaneous . . . . . 2,360.  
TOTAL . . . . . \$20,000.  
GRAND TOTAL . . . . . US\$64,444.

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TABLE 1

10/07/89  
14:44:00

	YR 1		YR 2		YR 3		YR 4		AID TOTAL FX/LX
	FX	LX	FX	LX	FX	LX	FX	LX	
I. Personnel									
A. Research Administrator	\$0	\$33,516	\$0	\$33,516	\$0	\$33,516	\$0	\$33,516	\$134,064
B. Secretary	\$0	\$3,556	\$0	\$3,556	\$0	\$3,556	\$0	\$3,556	\$14,222
Subtotal	\$0	\$37,072	\$0	\$37,072	\$0	\$37,072	\$0	\$37,072	\$148,286
II. Operating Expenses									
A. Office Rental	\$0	\$4,444	\$0	\$4,444	\$0	\$4,444	\$0	\$4,444	\$17,778
B. Office Furnishings	\$0	\$2,000	\$0	\$0	\$0	\$0	\$0	\$0	\$2,000
C. Computer	\$0	\$7,000	\$0	\$0	\$0	\$0	\$0	\$0	\$7,000
D. Office Supplies	\$0	\$2,222	\$0	\$2,222	\$0	\$2,222	\$0	\$1,703	\$8,369
E. Communications	\$0	\$2,667	\$0	\$2,667	\$0	\$2,667	\$0	\$2,667	\$10,667
F. Transportation	\$0	\$3,378	\$0	\$3,378	\$0	\$3,378	\$0	\$3,378	\$13,511
G. Per Diem	\$0	\$2,376	\$0	\$2,376	\$0	\$2,376	\$0	\$2,376	\$9,504
Subtotal	\$0	\$24,087	\$0	\$15,087	\$0	\$15,087	\$0	\$14,568	\$68,829
III. Honoraria for Research Advisory Council	\$0	\$6,667	\$0	\$6,667	\$0	\$6,667	\$0	\$6,667	\$26,667
Subtotal	\$0	\$6,667	\$0	\$6,667	\$0	\$6,667	\$0	\$6,667	\$26,667
VI. \$ Inflation (5%)	\$0		\$0		\$0		\$0		\$0
VII. 0 Inflation (15%)		\$0		\$8,824		\$10,147		\$10,058	\$29,029
VIII. Contingencies (5%+)		\$3,391		\$2,941		\$2,941		\$2,915	\$12,189
ADMIN. TOTAL	\$0	\$71,217	\$0	\$70,590	\$0	\$71,914	\$0	\$71,279	\$285,000
IV. Gen'l Research Projects									
Avg. \$65000 each	\$10,000	\$55,000	\$20,000	\$110,000	\$10,000	\$55,000	\$0	\$0	\$260,000
(including expatriate TA (18 days plus 3 rd trips: Guate-USA) \$10,000									
V. Phytosanitary Research Projects									
Avg. \$65000 each	\$20,000	\$110,000	\$30,000	\$165,000	\$20,000	\$110,000	\$0	\$0	\$455,000
(including expatriate TA (18 days plus 3 rd trips: Guate-USA)									
RESEARCH TOTAL	\$30,000	\$165,000	\$50,000	\$275,000	\$30,000	\$165,000	\$0	\$0	\$715,000
AD & RES Total	\$30,000	\$236,217	\$50,000	\$345,590	\$30,000	\$236,914	\$0	\$71,279	\$1,000,000

TABLE 1

10/07/89

14:44:00

	YR 1		YR 2		YR 3		YR 4		COUNTERPART TOTAL FX/LX
	FX	LX	FX	LX	FX	LX	FX	LX	
I. Personnel									
A. Research Administrator		\$0		\$0		\$0		\$0	\$0
B. Secretary		\$0		\$0		\$0		\$0	\$0
		-----		-----		-----		-----	-----
Subtotal		\$0		\$0		\$0		\$0	\$0
II. Operating Expenses									
A. Office Rental		\$0		\$0		\$0		\$0	\$0
B. Office Furnishings		\$0		\$0		\$0		\$0	\$0
C. Computer		\$0		\$0		\$0		\$0	\$0
D. Office Supplies		\$0		\$0		\$0		\$0	\$0
E. Communications		\$0		\$0		\$0		\$0	\$0
F. Transportation		\$0		\$0		\$0		\$0	\$0
G. Per Diem		\$0		\$0		\$0		\$0	\$0
		-----		-----		-----		-----	-----
Subtotal		\$0		\$0		\$0		\$0	\$0
III. Honoraria for Research Advisory Council		\$0		\$0		\$0		\$0	\$0
		-----		-----		-----		-----	-----
Subtotal		\$0		\$0		\$0		\$0	\$0
VI. \$ Inflation (5%)		\$0		\$0		\$0		\$0	\$0
VII. Q Inflation (15%)		\$0		\$0		\$0		\$0	\$0
VIII. Contingencies (5%+)									
	ADMIN.	TOTAL	\$0	\$0	\$0	\$0	\$0	\$0	\$0
IV. Gen'l Research Projects									
Avg. \$65,000 each			\$65,000	\$130,000	\$65,000		\$0	\$260,000	
(including expatriate TA (18 days plus 3 rd trips: Guate-USA) \$10,000									
V. Phytosanitary Research Projects									
Avg. \$65,000 each \$55,000			\$130,000	\$195,000	\$130,000		\$0	\$455,000	
(including expatriate TA (18 days plus 3 rd trips: Guate-USA)			-----	-----	-----		-----	-----	-----
RESEARCH TOTAL			\$195,000	\$325,000	\$195,000		\$0	\$715,000	
			=====	=====	=====		=====	=====	=====
AD & RES Total			\$195,000	\$325,000	\$195,000		\$0	\$715,000	

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SANIDAD VEGETAL COMPONENT  
PROCUREMENT, TA and TRAINING PLANS

## 1. PROCUREMENT

<u>ITEMS:</u>		<u>AGENT</u>	<u>YEAR</u>
<u>Vehicles:</u>			
Pesticide residue department 1991	3	USAID/PSA	2
Ag. Chemical - outreach Training (5 first years; 2 second for outreach)	7	USAID/PSA	1&2
Diagnostic lab technicians	3	USAID/PSA	1
<u>Computers:</u>			
1 386 type with hard disk add on capabilities		DIGESA (PDA)	1
2 286 types for data entry purposes			
Office furniture varies on type of office		DIGESA	1
<u>Diagnostic laboratory</u>			
Office Equipment 3 sets	Laboratories diagnosis	PSA	1
Office Equipment 2 sets	Monitor Pesticide	PSA	2
Office Equipment 2 sets	Computer Division	PSA	1
<u>Ag. Chemical Supervision Department</u>			
Audiovisual equipment		PSA	1
Photocopier		PSA	1
Cameras, videos		PSA	1
Slide Projector		PSA	1
Movie Projector		PSA	1

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**TECHNICAL ASSISTANCE  
AND  
TRAINING PLAN FOR SANIDAD VEGETAL**

	Year	# of Course	People	Days	TOTAL	
Ag. Chemical	1	24	20	2	960	The TA is for 2 months of outside consultants.
The five day/five people courses are for SV staffers; the one day courses are formal workshops for retail store clerks; the numerous courses are at the campesino level in the field.	1	1	5	5	25	
	1	3	20	1	60	
	2	24	20	2	960	
	2	1	5	5	25	
	2	3	20	1	60	
	3	24	20	2	960	
	3	1	5	5	25	
	3	3	20	1	60	
	4	20	20	2	800	
	4	3	20	1	60	
<b>Computers:</b>						The TA is for 1 month of outside assistance in program design and 5 months of local TA in program set up and design.
All computer courses are for the three SV staffers	1	1	3	60	180	
	2	1	3	50	150	
	3	1	3	40	120	
	4	1	3	40	120	
<b>Diagnosis</b>						2 months of outside TA in laboratory techniques and 8 months in local TA for advanced laboratory diagnosis.
The 21 and 15 day courses are for SV 30 participants	1	1	10	21	210	
courses are for DIGESA personnel; the 3 day courses are at the campesino level.	1	1	30	10	300	
	1	1	20	3	60	
	2	1	10	21	210	
	2	1	30	10	300	
	2	1	20	3	60	
	3	1	10	15	150	
	3	1	30	5	150	
	3	1	20	3	60	
	4	1	10	15	150	
	4	1	30	5	150	
	4	1	20	3	60	
<b>Monitoring:</b>						Short term TA is 3 months of outside consultants.
For SV staffers	2	1	4	30	120	
<b>TOTAL</b>		<b>124</b>	<b>431</b>	<b>361</b>	<b>6545</b>	
<b>Average:</b>			<b>15</b>	<b>13</b>		

Note: All international travel is to cooperating US Federal or State institutions for hands on training.

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SANIDAD VEGETAL  
METHODS OF PROJECT IMPLEMENTATION AND FINANCING  
(US\$/USAID CONTRIBUTION)

<u>Line Item</u>	<u>Implementation Method</u>	<u>Financing Method</u>	<u>Amount</u>
Techn. Assistance	USAID Direct/Profit Making Institution	Direct Payment	148,000
Commodities Vehicles	USAID Direct/Profit Making Institution	Direct Payment	195,000
Equipment	USAID Direct/Profit Making Institution	Direct Payment	211,000
Office Equip- ment	Institutional Pro- cedures/Pro-Forma Invoices	Advances	\$35,000
Training			
US Training	Placed by Mission/ Direct Placement	Direct Payment	70,000
In Country (SV/DIGESA)	Institutional Pro- cedures/Contractor or Inter-institu- tional	Advances	256,000
Operating & Sup- port Costs	Institutional Pro- cedures/Separate Invoices	Advances/ Direct Reimbursement	305,000
Evaluations & Audits	USAID Direct/Profit Making Institution	Direct Payment	80,000
Infl. & Conting.	-----	-----	200,000
TOTAL			1,500,000

4629C

CARE  
PROCUREMENT PLAN

<u>COMMODITIES</u>	<u>YR 1</u>	<u>YR 2</u>	<u>YR 3</u>	<u>YR 4</u>
Vehicles, US	7	1	2	-
Vehicles, Other	-	13	-	-
Horses, Mules, Bicycles	10	20	4	4
Equipment	Misc.	Misc.	Misc.	Misc.
Storerooms	4	12	4	-
Computers/Printers	4	-	-	-
Airphotos, Maps Drafting Supplies	Misc.	Misc.	Misc.	Misc.
Software, Reference Materials	Misc.	Misc.	Misc.	Misc.
Cameras, Photo Supplies	2	1	Misc.	Misc.

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CARE

TECHNICAL ASSISTANCE PLAN  
(Weeks of short term TA)

<u>Area of Technical Specialization</u>	YR 1		YR 2		YR 3		YR 4	
	<u>US</u>	<u>Local</u>	<u>US</u>	<u>Local</u>	<u>US</u>	<u>Local</u>	<u>US</u>	<u>Local</u>
Watershed Site Feasibility and Baseline Study	4	8	8	-	-	-	-	-
Forestry Micro- enterprise	-	-	3	-	2	-	2	-
Forestry Manage- ment Planning	-	-	2	-	2	-	2	-
Communications	-	-	-	-	4	-	-	-

Note: CARE will do all Procurement

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CARE

TRAINING PLAN

SUBJECT	<u>YR 1</u>		<u>YR 2</u>		<u>YR 3</u>		<u>YR 4</u>	
	<u>Days</u>	<u>Train-ees</u>	<u>Days</u>	<u>Train-ees</u>	<u>Days</u>	<u>Train-ees</u>	<u>Days</u>	<u>Train-ees</u>
In-Country Watershed Planning & Forestry Mgmt.	31	27	31	27	31	27	31	27

	<u>Course Train-ees</u>		<u>Course Train-ees</u>		<u>Course Train-ees</u>		<u>Course Train-ees</u>	
Third Country at CATIE in Agro-Forestry and Forestry Mgmt.	1	2	1	2	1	2	1	1

Note: CARE will do all Procurement

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LOCAL PROCUREMENT BY GREMIAL

Year 1

1. Uninterruptable power source in stand-alone configuration 1000 watt capacity	1
2. Video camera recorder and playback equipment	1
3. Voltage Regulators (8) 500 Watt capacity	8
4. 1 carousel slide projector	1

TRAINING PLAN

GREMIAL COMPONENT

SUBJECT	YR 1	YR 2	YR 3	YR 4
Univ. Exchanges	8	8	8	8
Coop. Export. Training	4	4	4	4
Coop. Tech. Training	4	4	4	4
Agroindustrial Admin.	1	1	1	1
New Product Marketing	1	1	1	
Staff Training	4	4	4	4
Field Days	4	4	4	4
Quality cont.	1	1	1	1
Post-Harvest Handling	1	1	1	1
Greenhouse Production	1	1	1	1
Soil Prep. & Fertility	1	1	1	1
Flower prod.	1	1	1	1

4629C

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LAC-IEE-90-05

ENVIRONMENTAL THRESHOLD DECISION

Project Location : Guatemala

Project Title : Highlands Agricultural  
Development, Phase III

Project Number : 520-0274

Funding : \$7 million

Life of Project : Three years

IEE Prepared by : Alfred Nakatsuma  
USAID/Guatemala

Recommended Threshold Decision : Negative Determination

Bureau Threshold Decision : Concur with Recommendation

Comments : Concurrence contingent upon the  
use of native tree species being  
promoted in addition to exotics  
in the watershed management  
component. This is important  
because the replacement of native  
species with exotics can have a  
negative effect on biodiversity.  
Concurrence granted because all  
proposed activities either  
qualify for categorical  
exclusions (Section 216.2(c) of  
22 CFR), or respond directly to  
mitigation measures contained in  
the Environmental Assessment of  
the HAD Phase II Amendment.

Copy to : Anthony J. Cauterucci, Director  
USAID/Guatemala

Copy to : Gordon Straub, USAID/Guatemala

Copy to : Alfred Nakatsuma, USAID/Guatemala

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Copy to

: Mark Silverman, LAC/DR/CEN

Copy to

: Frank Zadroga, ROCAP/San Jose

Copy to

: IEE File

John O Wilson Date DEC 21 1989

John O. Wilson  
Deputy Environmental Officer  
Bureau for Latin America  
and the Caribbean

## INITIAL ENVIRONMENTAL EXAMINATION

Project Location : Guatemala  
Project Title : Highlands Agricultural  
Development Phase III  
Funding: \$7,000,000

### I PROJECT DESCRIPTION

The goal of the overall HAD Project is to enable the rural sector to make a greater contribution to national economic growth. The purpose of this Amendment is to enhance the sustainability of rural agricultural productivity and commercial crop diversification through the improvement of pest and pesticide management, watershed conservation, directed research and continued support for export-oriented marketing services.

The Amendment creates one new component, Environment and Natural Resource Management (\$4 million), and adds resources to two existing components of the HAD Phase II Project: Adaptive Research (\$1 million) and Marketing (\$2 million). The design of this Amendment responds directly to the environmental issues raised by the CY88 Environmental Impact Assessment (EA) of HAD II and constraints identified in the 1989 Cross-cutting Evaluation of USAID projects in the Guatemala Highlands. This Amendment also seeks to consolidate a series of activities jointly financed by USAID and the GOG during the past 15 years to address development problems of small farmers in the Highlands. The Mission and the GOG envision this Amendment as part of a strategy to enhance the long-term sustainability of the HAD Project activities.

This proposed Amendment will extend the current Project to September 1993, and will increase the DA grant funding by \$7 million. Brief descriptions of the components are provided below.

The Environment and Natural Resource Management Component is comprised of two sub-components: Watershed Management and the Institutional Strengthening of the Plant Protection Division of the Ministry of Agriculture. The first subcomponent will provide technical and organizational skills in watershed management to farmers in HAD Project irrigation areas. Training and strengthening of extension capabilities for promoters will also be supported. The second subcomponent will provide technical assistance, training and commodities to the Plant Protection Division to enhance its ability to guarantee the safety and compliance with pesticide regulations of all agricultural produce in Guatemala.

The Research Fund for Non-Traditional Agricultural Exports (NTAEs) Component will increase the quantity, quality, range and access of NTAE-related research through a matching-fund research grant mechanism to be administered by a Research Advisory Council established by the Non-Traditional Products Exporter's Guild (Gremial).

The Institutional Strengthening of the Gremial Component will continue to provide technical and institutional support for the market information and investment promotion activities that were initiated under the Agribusiness Development Project (520-0276).

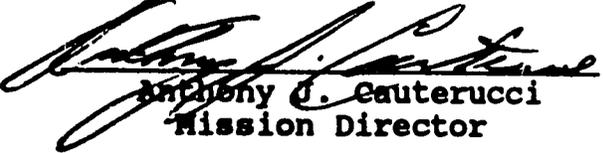
II ENVIRONMENTAL IMPACT

The activities to be carried out under this Amendment either qualify for a categorical exclusion according to Section 216.2 (c) of 22 CFR (Research Fund for NTAEs and Institutional Strengthening of the Gremial), or are activities that directly respond to the recommendations contained in the HAD Phase II Environmental Assessment submitted to USAID in FY 1989 (Environment and Natural Resource Management Component).

III RECOMMENDATION

Based on the categorical exclusion discussed above and the implementation of activities recommended in the HAD II Environmental Assessment, the Mission recommends that this Amendment of the Highlands Agricultural Development Project be given a Negative Determination requiring no further environmental review.

Concurrence:

  
Anthony G. Cauterucci  
Mission Director

12/8/89  
Date

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