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FINAL REPORT

OF

CHEMONICS INTERNATIONAL CONSULTING DIVISION

TECHNICAL ASSISTANCE CONTRACT

FOR THE

NATURAL RESOURCES MANAGEMENT PROJECT

Contract No. 522-0168-C-00-3040-00

PRESENTED TO:

USAID/HONDURAS

OFFICE OF AGRICULTURE AND RURAL DEVELOPMENT

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LIST OF ABBREVIATIONS

HONDURAS NATURAL RESOURCES MANAGEMENT PROJECT
CHEMONICS TECHNICAL ASSISTANCE CONTRACT

BANADESA	Banco Nacional de Desarollo Agropecuario (National Angricultural Development Bank)
CAL	Comite Agrícola Local (Local Agricultural Committee)
Catastro	Programa Nacional de Catastro (National Cadaster Program)
Chemonics	Chemonics International Consulting Division
COP	Chief of Party of the TA team
DRH	Dirección de Recursos Hídricos (Water Resources Directorate) of the Ministry of Natural Resources
GOH	Government of Honduras
LOP	Life of Project
MNR	Ministerio de Recursos Naturales (also SRN, below)
NRMP	Natural Resources Management Project
RFTP	Request for Technical Proposals
SaLUT	Soil and Land Use Technology, Inc. (subcontractor to Chemonics under TA contract)
SRN	Secretaría de Recursos Naturales
TA	Technical Assistance
USAID, USAID/H or USAID/Honduras	United States Agency for International Development Mission to Honduras
WMU	Watershed Management Unit (also referred to as Unidad de Ordenación de Cuenca or UOC)

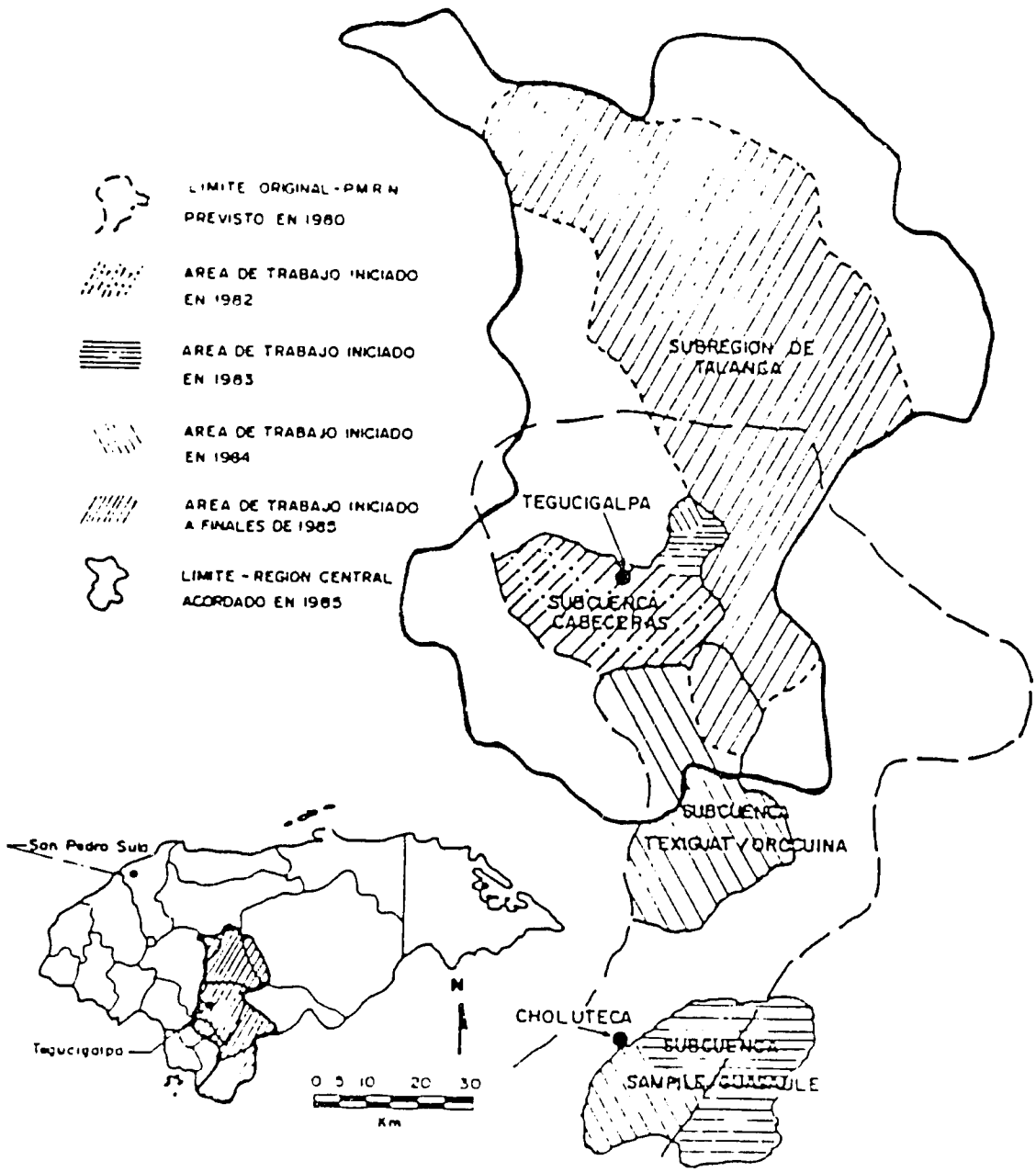


EXHIBIT 1 MAP OF THE PROJECT AREA

PREFACE

This is the final report for technical assistance contract 522-0168-C-00-3040-00, the Natural Resources Management Project (NRMP), presented by Chemonics International Consulting Division to USAID/Honduras and the Natural Resources Ministry of the Government of Honduras (GOH).

The report concentrates on the work carried out by Chemonics through its advisors. It also contains general background information about the NRMP. Further information is available in other documents. A list of relevant documents such as team member reports, evaluations, and the like is presented in Annex A.

The document is divided into four sections to correspond with the information required in the contract. The "Executive Summary" provides a brief statement of Chemonics' work and recommendations. Section II presents the "Project Overview and Contract Scope of Work." Section III provides an accounting of "Activities and Achievements." "Lessons Learned" and "Recommendations" comprise section IV.

Although this final report concentrates on Chemonics' efforts, all advisors worked with national counterparts as an integral part of the NRMP team. As such, the results of technical assistance are a product of this team effort.

Chemonics wishes to express its sincere gratitude to the national NRMP team, the GOH and USAID for a rich and rewarding experience. A particular note of appreciation is due the extension agents who were at the front lines of technological transfer. Chemonics also conveys its thanks to all the project participants, the farm families who willingly shared their experiences and expertise to help develop, apply, and disseminate improved farming systems practices. We agree with the USAID and GOH assessments that the NRMP has been a successful project, and are fortunate to have assisted in this ground-breaking effort.

This report was prepared by Christopher R. Smith, Chemonics' natural resources management specialist, who managed the contract from the home office in Washington, D.C.

SECTION I

EXECUTIVE SUMMARY

"I've learned a lot from the [project] extensionists. Before, I used traditional slash-and-burn planting practices. Now, I use soil conservation practices and better planting techniques. My production in grains has greatly increased. Planting is easier because the soil is richer and softer. I now have fuelwood right on my farm; before we had to go great distances to find it. I've received training which taught me these new things, and I've taught my neighbors and the local group of farmers how to do them on their own land." [Porfirio Licona (pseudonym), farmer and project beneficiary living in the uplands of the southern Choluteca region, May, 1987.]

This statement by a farmer with little land and economic resources indicates the tremendous impact of the Natural Resources Management Project (NRMP) on upland residents of the Choluteca watershed. In less than five years of implementation, the NRMP has reached over 6,000 farm families. Improved technologies have been and continue to be extended to enhance production while conserving soil, water, and forest resources. Below we summarize the NRMP impact to date, and Chemonics' involvement in the project.

Chemonics International Consulting Division signed a direct AID technical assistance (TA) contract with USAID/Honduras in April 1983. The purpose of the contract was to assist the Secretaría de Recursos Naturales (SRN) in carrying out watershed management field work for the Honduras Natural Resources Management Project (NRMP), i.e., designing, installing, and institutionalizing effective upland development interventions to increase production and income for farm families such as the Liconas, while maintaining or enhancing the natural resource base.

The NRMP was signed in 1980, and effective implementation began in 1982. The TA contract which began in 1983 was successfully executed and ended in mid-1987, but the NRMP continues. As a result of its success and the need for similar activities in other areas of the country, a follow-on project is now being considered on a national level.

The problem addressed by the NRMP is the severe degradation of the natural resource base. The goal of the NRMP is to "improve the employment and income of poor hillside farm families through assisting them in the rational and more productive use of their land; and to improve management and use of land, forests and other renewable natural resources." The purpose of the

overall NRMP as amended is to "establish an integrated watershed management program in selected watersheds and areas of the Southern and Central Administrative Regions of the Ministry of Natural Resources, which supports the expanded use of improved agriculture, range and pasture management, agroforestry, forestry, and soil conservation technologies to improve and stabilize income and employment for the hillside farmer."

There were three components to the NRMP. The policy component never really had an institutional home, made little progress in the first four years of the project, and was shelved. The ambitious data collection and analysis component was housed in the National Cadaster Program offices, but outputs were few and untimely; this component was also discontinued.

The third component was the watershed management program. This was the field arm of the NRMP. It was oriented towards the needs of farm families in the Choluteca uplands. This component was very successful in adapting and extending conservation-oriented production enhancement technologies, as documented in two NRMP evaluations.

Chemonics' contribution to this success has been recognized by various AID and GOH documents and testimonials (annex F). More important, farm families and local leaders have become involved in a process that they have come to value, use, and replicate. The training and extension program instituted with Chemonics' assistance was instrumental in bringing this about. Most farmers experienced an increase in production, their first concern in this dry, upland, rainfed area. A further sampling of farmer comments follows.

"I think the training has really helped us. I now know how to do contours for planting, know how to space and fertilize better for grain production. My yields tripled with these new techniques." [Hoche Gonzalez (pseudonym), farmer and project beneficiary, Linaca, headwaters of the Choluteca River watershed, May 1987.]

"The project has been a great help to my family. The soil conservation practices and improvements in fertilization and spacing have doubled my grain yields. The training we received from the project has been very good." [José Sanchez (pseudonym), farm leader and project beneficiary, Tatumbla, headwaters area of the Choluteca River watershed, May 1987.]

The opinions of Hoche Gonzalez and José Sanchez are typical of those of the 6,000 farm families who were beneficiaries of the NRMP. At the same time, numerous pitfalls have been encountered.

"I think the training I received from the project has been the most helpful. I was elected as a productor-enlace by my group [local agricultural committee] and have now trained them in soil conservation and better grain production practices. But I need written materials to help me with this. I know the extensionists won't be coming to visit us as much as before, so I'd like to be better prepared." [Victorino Sanchez (pseudonym), farm leader in a remote region of southern Choluteca region, May 1987.]

"The frequent personnel changes in the project are not good. We no longer have any control of the work they do. There is a lack of confianza." [José Sanchez, May 1987]

"The changes in personnel among the extensionists are causing problems. The farmers would like to advance and learn more, but the extensionists are here barely long enough to learn about our local conditions." [Hoche Gonzalez, May 1987]

The problem of staff turnover has plagued the NRMP since its inception. Lack of farmer-level materials surfaced later in the project as lead farmers took more active control of the extension system. Both the achievements and constraints of NRMP, and Chemonics' recommendations for addressing the constraints, are presented in the following report.

SECTION II

PROJECT OVERVIEW AND CONTRACT SCOPE OF WORK

A. Problem

The NRMP was designed to address the crisis of natural resources degradation on a national basis. Poor institutional and policy systems and inadequate data for policy and planning were cited in the Project Paper (PP) as two key constraints that prevented the problem from being resolved. An institution-building component was therefore designed to strengthen the GOH in this area, and other contractors were secured to provide improvements in the collection and processing of data.

In addition to institutional/policy problems, the pace of resource degradation and the impoverishment of upland farmers continued unabated. Technologies designed to slow, halt, or reverse this process had been tested in other projects in Honduras, but none had been successful, i.e., most farmers had not incorporated such practices into their farming systems. Thus, a targeted watershed field program was designed for the critical Choluteca River watershed to "begin efforts immediately in a manageable segment of the country" (Project Paper, p. 5). Chemonics was contracted to assist with this component, and this final report focuses on the results.

B. Objectives and Development of the NRMP

The NRMP goal was "to improve the employment and income of poor hillside farm families through assisting them in the rational and more productive use of their land; and to improve the management and use of land, forests, and other renewable natural resources." The original project purpose was "to (1) strengthen the institutional capabilities of the GOH to develop and implement policies, mechanisms and programs for management of Honduras' renewable natural resources with special emphasis on soil and water, and (2) establish an integrated watershed management program in the Choluteca River basin which focuses on bringing improved agriculture, agroforestry, forestry and soil conservation technologies to bear in the practice of the hillside farmer and on increasing his income."

Chemonics was contracted largely to help achieve the second purpose, corresponding to the project's watershed management component.

Due to the success of the watershed management field component, and to the demand for project services outside the original watershed area, the second purpose was later modified in Project Implementation Letter No. 104 of June 11, 1985, to expand

the geographic scope and refine the technical focus of the watershed effort: "to establish an integrated watershed management program in selected watersheds and areas of the Southern and Central Administrative Regions of the Ministry of Natural Resources, which supports the expanded use of improved agriculture, range and pasture management, agroforestry, forestry and soil conservation technologies to improve and stabilize income and employment for the hillside farmer."

C. Project Strategy and Development

1. Strategy

The project strategy consisted of three elements: (1) to establish an effective forum in the GOH to give direction to and regulate the management of natural resources; (2) to build a land use classification system to assist in the planning and management of natural resources and agricultural development; and (3) to start work in a specific watershed so as to give "practical expression" to the overall policy, to test approaches before implementing a national effort, and to achieve a practical impact on the problems of the Choluteca River watershed.

These three elements produced a two-track implementation design to confront environmental degradation and low agricultural productivity. The first track focused on policy, institutional and data constraints, and included the first two strategic elements above. The second track was a field-level effort to extend watershed management technologies and provide feedback to the first track, thereby assisting in the institutionalization of national approaches to natural resources management.

a. Track One: Policy and Data Collection Activities

On a national level, the designers created a policy component to clarify and consolidate the direction of natural resources management under a comprehensive institutional umbrella. A number of committees were set up on paper to provide oversight for project processes and activities. These committees would be strengthened and become national (as opposed to project) arbiters of natural resources management policy, planning and implementation. These never really functioned, and the concept was basically shelved.

In addition, improved data collection and analysis capability was to be developed by strengthening existing institutions (DRH and the National Cadaster Program). While some interesting data was produced, the strategy did not work, despite long-term technical assistance from another contractor (Louis Berger, Inc.) working with the National Cadaster Program (Catastro). This element, too, was discontinued.

The institutional design was left open. Initially, a separate project office was to be set up within the MNR. By the third year, "alternative institutional arrangements" were to be analyzed, and a permanent home found for natural resources management policy, land use management and watershed field practices. This objective was not achieved; however, an institutional "home" was created for the project activities in 1985, and a number of methodologies pioneered by the NRMP were institutionalized in the MNR.

b. Track Two: Field Watershed Management Program

Track two was designed as an extension project. The basic objective was to alter existing deleterious land-use practices, including slash-and-burn agriculture, and extensive grazing and cropping practices resulting in severe erosion. The strategy was to identify critical areas, organize teams of extensionists (Watershed Management Units or WMUs), organize local groups of farmers (Local Agricultural Committees or CALs) and transfer conservation-oriented production technologies through the system. The WMU extension team would consist of a core group comprising an agronomist, a forester and a promotor or promotora. Credits and subsidies would be provided to CALs or directly to farmers to assist in financing inputs for new practices. Training of NRMP staff and farmers was planned to set up and permit implementation of the extension system. Commodities would be procured to support field activities.

Chemonics was hired to assist in the implementation of this component. It is worth noting that this component succeeded in accomplishing most of its objectives. As noted above, as a result of its success, it was expanded geographically during the life-of-project (LOP). This work serves as the foundation for a proposed follow-on project of national scope.

2. Implementation

The NRMP started slowly. The Project Agreement was signed on July 1980, and the GOH began to follow the general project plan. The Catastro started the aerial photography, mapping, and data processing of the Choluteca region. Additional data was to be collected by the Water Resources Directorate (Dirección de Recursos Hídricos or DRH) of the Ministry of Natural Resources (MRN or SRN). The Treasury Ministry (Ministerio de Hacienda y Crédito Público) began arranging for the credit component through the National Agricultural Development Bank (BANADESA). Finally, the MRN created a separate project office and assigned staff to implement the watershed field program.

However, little substantive work had been accomplished nearly two years later. The Catastro effort produced little

useful output. What was produced was delivered too late to be of use. The DRH also ran into problems in implementing its portion of the project. There were no useful field results.

USAID considered terminating the project due to poor performance, giving the GOH a final chance to improve in mid-1982. The project director was replaced with a young, dynamic professional who energized the staff. USAID also appointed a permanent project officer, lending continuity to project management.

These actions bought some breathing room. The technical assistance contract, which had been held up pending improved project performance, was finally signed in April 1983. The team arrived in May to begin work, nearly three years after Project Authorization.

D. Project Setting

The NRMP watershed component is set in the southern region of Honduras. The area's principal river, the Choluteca, has its source in the last remnants of the cloud forests above the capital, Tegucigalpa. The Choluteca flows directly through the city and southward between the eastern border of El Salvador and Nicaragua's troubled western frontier.

The Choluteca River watershed covers approximately 9,000 square kilometers. It is representative of much of the southern and central portions of the country. Much of the land is steep and, until recently, it was thickly forested. Ecological zones range from dry tropical forests in the lowlands, through fertile intermontane valleys, to low and wet montane forest.

Currently, little of the former forest cover remains. Recent deforestation has been severe as a result of increasing pressure from a rapidly expanding population; the conversion of forest land to range for beef production (often export-oriented); and depredation due to the demand for lumber, fuelwood and related forest products.

Migration of rural dwellers to the capital and other regions of the country has not alleviated the problem of population density in the hills. Since the Choluteca River watershed includes both the expanding metropolitan area and the densely populated uplands, demands on the natural resources base (forest, soil and, especially, water) have soared. This situation is complicated by the fact that most rural inhabitants are living at a subsistence level on small parcels, relying on off-farm activities for their cash income.

The distribution of land is unequal; about three-quarters of it is concentrated on one-quarter of the farm holdings. Tenancy

patterns are complex; usufruct rights, tenant farming, sharecropping and barter arrangements are common. Large farms occupy the more fertile lowlands and are oriented towards cattle production. Smallholders occupy the marginal hill lands and focus on basic grain production for subsistence, with the exception of those near the capital and markets, who produce fruit and vegetables.

Rainfall is bimodal in distribution. However, the five- to six-month rainy season is usually interrupted by a pronounced dry period (canicula). The canicula destroys the second crop (postrera) in most years, and severely affects the primary crop in two or three out of every five years. Irrigation has only recently been supported in the region, and faces many biological, logistical, technical, and managerial constraints.

Soil conditions vary widely in the region. Two basic groups predominate. Those of the coastal plains are characterized by deep alluvial deposits. Those of the uplands and interior river valleys are characterized by volcanic parent material, and are usually shallow, rocky, eroded and generally acidic.

The intense pressure of smallholders, existing land-use patterns, and traditional technologies have led to a series of interrelated crises. These include rampant soil erosion, siltation of reservoirs, and the diminution of groundwater and surface water for drinking, irrigation and other commercial uses.

The limited agricultural capacity and isolated nature of this area effectively excluded local farm households from receiving government-sponsored technical assistance and other basic services until the recent past. In the mid- to late 1970s, however, the severe degradation of the natural resources base and the acute poverty of the region received international attention. Conflicts on Honduras' borders also served to create an awareness of this strategic area. In this environment, a project concept was developed to address the symptoms of underdevelopment (poverty) and some of the immediate causes (lack of productivity and resource degredation).

E. Scope of Work

1. Summary

Chemonics was contracted to provide assistance in the implementation of the watershed management component of the NRMP. All assistance was negotiated directly with the GOH's NRMP officials and USAID. The original Request for Technical Proposals (RFTP) specified a three-year host-country contract with 236 person-months of effort. The contracting method was changed to a direct-AID contract and an initial level of 130 person-months of effort over two years. There was no short-term

advisory effort in the original contract per GOH demands at that time. The contract was later modified to cover four years and 222 person-months of effort, including a small amount of short-term effort.

The Scope of Work specified that technical assistance (TA) be provided "to advise, assist, and collaborate with the Project Office in the management, supervision, and implementation of the Natural Resources Management Project" in six areas:

- Management of the Choluteca Watershed
- Assistance in Natural Resources Management Policy and Planning (limited in scope to the immediate watershed region)
- Collection and Analysis of Data (limited to data already assembled by Catastro and other agencies, with no primary data collection responsibilities specified)
- Support for Project Management and Administration
- Design of a Training Program for Project Personnel and Participating Farmers
- Evaluations

The Scope of Work specified that the watershed management area receive a higher priority than other areas.

2. Comments on the Scope of Work

During negotiations, Chemonics sought to strengthen the project design. These negotiations were successful in obtaining sufficient effort for watershed, soil conservation, livestock/pasture, extension/outreach and general management, training and administrative support. However, a number of proposals to refocus the project design to permit more effective implementation were not accepted.

Below we give three examples where we tried to include some level of effort for critical activities. In all three cases, the GOH rejected the proposals citing higher priorities or other reasons. In cases where some short-term effort was later reprogrammed, it was often very late in the project cycle. It should be noted that the USAID was usually very supportive of such proposals, but allowed the GOH to negotiate directly with the contractor. This approach was positive in that it allowed more control by the NRMP director and created a sense that this was indeed a Honduran project but it was perhaps less effective in certain areas of implementation.

For example, Chemonics believed that the credit and subsidy program was overly ambitious, poorly focused, conflicted with elements of project strategy, and contained inappropriate administrative and delivery systems. Chemonics proposed that a credit specialist work to redesign this component to make it responsive to the watershed field program and the realities of small, upland farm families in the southern region. This proposal was rejected by the GOH, largely because the then-deputy director of the NRMP was a credit specialist (formerly employed with BANADESA) who was to handle this part of the project. Thus, we were unable to obtain any effort to redesign the NRMP credit and subsidy component. It took nearly four years to straighten this out, via the diligent efforts of Chemonics' long-term advisors and key counterparts "working on the fringes," i.e., without an official mandate, or any level of effort.

Secondly, Chemonics proposed a long-term forestry specialist in the original level of effort and Scope of Work, based on the need for alternative agroforestry approaches to increase on-farm production of wood products and to increase the synergies with livestock and agricultural production. This proposal was also turned down by the GOH, mainly because there were numerous highly qualified local forestry specialists. In 1982, however, none had agroforestry experience of the type needed by the NRMP. It took nearly three years to turn around an "old school" orientation to reforestation through the concerted efforts of Chemonics' team, and the support of the NRMP project director.

A final example was in the area of biophysical monitoring and evaluation. Chemonics proposed to include significant effort in the TA contract to monitor the magnitude of key watershed indicators, and the effects of NRMP interventions on these indicators. Again, no effort was approved. It was not until late 1985 that some effort was agreed to by the GOH and USAID. By that time everyone wanted to know what the effects were of a massive extension effort on the watershed, but it was in fact too late to generate the desired information.

In summary, the Scope of Work for the TA contract provided a critical mass of long-term advisory services. Advisors were nonetheless constrained by a Scope of Work that circumscribed activities in key areas of need. Contract extensions and subsequent reprogramming provided some effort for these areas, but it was usually not as effective as an earlier intervention would have been.

A detailed list of advisory services provided by Chemonics is presented in annex C.

SECTION III

ACTIVITIES AND ACHIEVEMENTS

A. Introduction

Chemonics International Consulting Division provided three types of contract services: technical assistance, training and procurement. Technical assistance (TA) and training were accomplished by the field team, and were provided in the following fields:

- Watershed Management
- Extension and Community Development
- Soil Conservation (initially provided by SaLUT under subcontract to Chemonics)
- Project Planning, Monitoring, and Evaluation
- Institution Building
- Livestock and Pasture Development
- Agroforestry
- Women in Development
- Computerization
- Agricultural and Natural Resources Economics
- Environmental Monitoring
- Audiovisual and Graphic Arts Design and Development
- Farming Systems Research and Extension
- Horticulture and Fruit Tree Development

Technical assistance and training were provided mainly to NRMP personnel and participating farm families. However, as a result of the success of the NRMP team in developing and delivering appropriate watershed management techniques and outreach methodologies, Chemonics' advisors and some of the national technical specialists were requested to help the GOH and projects outside the Scope of Work and the geographic project area. Such assistance was in keeping with overall project objectives, and it was supplied as time and project circumstances allowed.

Procurement services were provided by Chemonics' home-office Procurement Department upon specific request of USAID. Requests were infrequent and occurred late in the contract, often on an "emergency" basis. Commodities included audiovisual equipment, computers, and office equipment. Standard AID regulations and Chemonics' in-house procedures were followed. Chemonics was commended by USAID and the GOH for rapid-response procurement. Since procurement was a relatively small portion of the effort, however, it will not be discussed in detail.

The following discussion focusses only on Chemonics' technical assistance and training activities. An explanation of Chemonics' general approach to the work is followed by a description of the six areas of activity in the Scope of Work.

B. General Approach

1. Team Approach and Integration with the NRMP

Chemonics provided a team--not individual advisors--to the NRMP counterparts. It used team management to present a coherent approach, and to deal with issues that were multidisciplinary in nature or required the participation of more than one advisor.

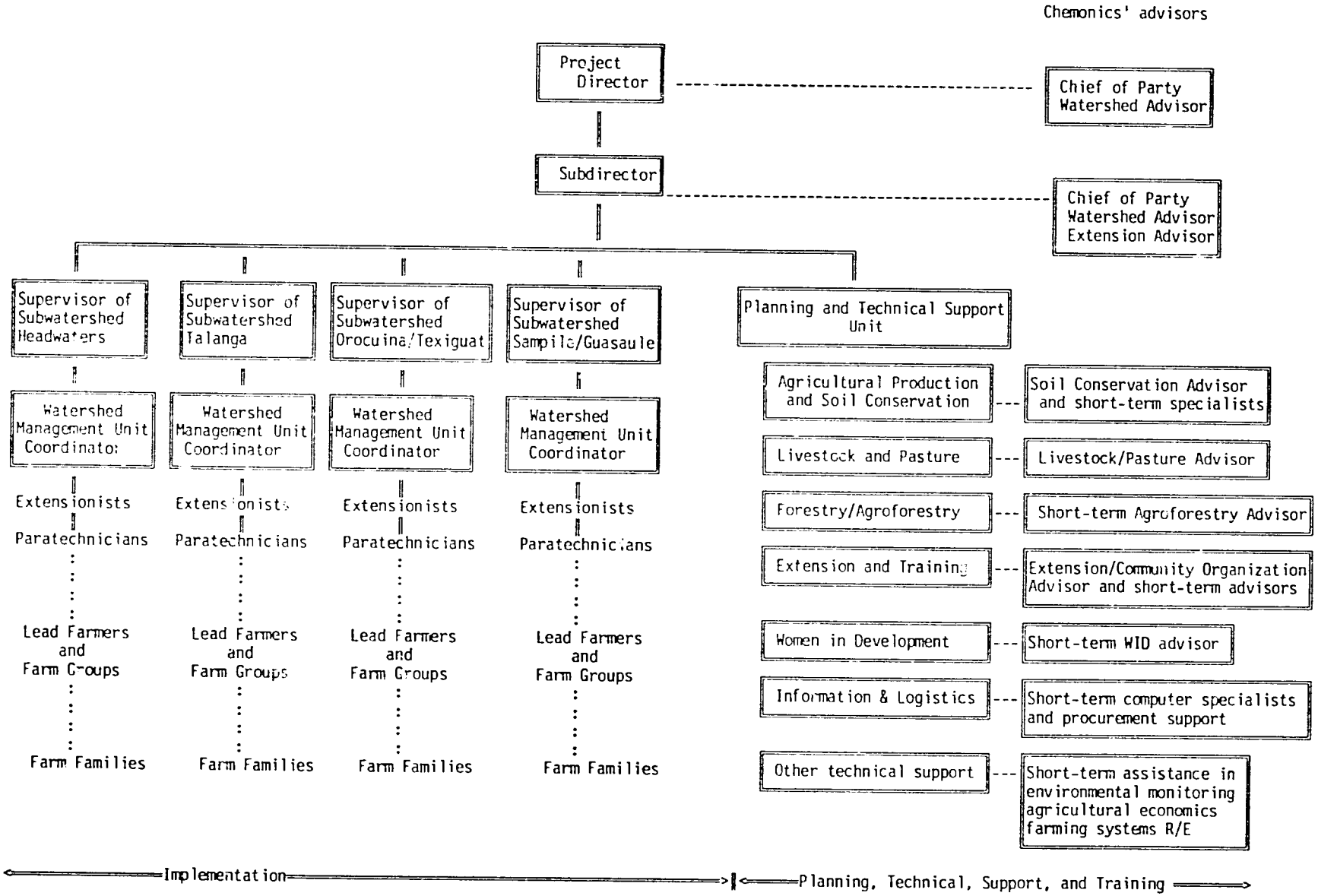
Chemonics integrated its team, its work plan and all operational matters into the NRMP framework. Integration was achieved through conscientious use of work plans, and monitoring and evaluation of the work's progress. Particular attention was given to "learning by doing" or on-the-job training. This example served to set the tone for central-level operations as well as WMU operations. Exhibit 2 shows the relationship between the TA team and NRMP staff.

A comprehensive training focus was promoted and accepted as the basis for upgrading the NRMP staff, and for designing and implementing improved systems of management, supervision, extension and outreach. Team teaching was used in training trainers, and also served to enhance Chemonics' integration in the NRMP.

2. Design and Implementation of a Systems Approach

Key processes were defined in the various stages of watershed management planning, implementation and evaluation, and collaborative efforts took place to design systems to improve practices in these areas. Systems were therefore developed for project planning, project monitoring, project evaluation, extension/outreach, field supervision, and various technical areas (agroforestry, watershed management, soil conservation, and

EXHIBIT 2 ORGANIZATIONAL CHART OF THE NRMP AND RELATIONSHIP OF CHEMONICS' TA ADVISORS TO COUNTERPARTS



so on). A variety of methods--planning, training and direct assistance--were used to implement and institutionalize these systems.

3. Emphasis on Extension

From the beginning, Chemonics emphasized the development of an effective extension system. It was the focus of the primary agricultural extension and community development advisor, supported by the other long-term advisors.

4. Training

Training was perhaps the most important element in Chemonics' approach. Most of the NRMP staff were new recruits with little experience with conservation-oriented production systems or farmer-oriented extension practices. Nor were project directors familiar with effective project planning, monitoring, and evaluation practices. Chemonics developed intensive training programs to strengthen these skills.

5. Judicious Use of Plans

Chemonics followed an orderly pattern of strategizing, planning, monitoring, reporting and evaluating to guide TA efforts, detect problems early, and arrange alternative courses of action.

6. Flexibility

An experimental effort such as the NRMP demands a flexible approach. Chemonics' systematic approach, as described above, and its participatory management style fostered an open environment, ample debate of concepts, testing and redefinition of approaches, and consensus-building for a chosen course of action. The evaluation system promoted by Chemonics' chief-of-party (COP) and the other long-term advisors permitted the rapid detection of anomalies and their prompt rectification.

7. Coordination with other Organizations

Chemonics' approach was to assist in achieving interinstitutional coordination on a watershed and national level, and to develop international coordination with projects and other entities for the good of ongoing and future activities. Chemonics' advisors often had an advantage in that they were removed from the normal political and sociocultural constraints to which local professionals are often subject. Advisors were helpful in developing lasting linkages between counterparts and other local and international organizations.

8. Mixed Advisory, Implementation, and Advocacy Roles

Chemonics' general approach was to act in an advisory capacity to GOH counterparts. However, since counterparts often came and went, and Chemonics was often in the position of putting pressure on the GOH to assign counterparts, long-term advisors were called upon to perform certain line functions and to implement certain project tasks directly. This was done for the sake of program continuity but was not the preferred approach.

In some cases, the advisors acted in advocacy roles. to mobilize support for courses of action, build coalitions to achieve objectives, develop appropriate skills and perform surrogate leadership roles. A good example of this approach was the leadership exercised by the extension advisor in the development of a farmer-oriented extension methodology. This approach institutionalized local participation in all project extension activities.

In brief, Chemonics made effective use of advisory, advocacy and implementation roles to deliver technical assistance and to transfer skills and technology. It should be noted that the host-country project director was effective in using the expatriate advisors in their different roles to help bring about needed changes.

9. Creative Use of Technical Assistance

Chemonics used an effective mix of local professionals on its TA team. Host-country advisors often have the capability and the respect of their colleagues to perform advisory or advocacy functions. In-depth knowledge of local socioeconomic, cultural and political environments is especially helpful in overcoming obstacles to effective project implementation. Also, the use of local advisors strengthens the experience of the local advisor and provides a source of local technical assistance once the expatriate team leaves.

In addition to the use of local professionals, good use of short-term advisors was achieved later in the contract. Advisors were fielded in specific technical areas that required outside help (e.g., the design of agroforestry interventions).

Finally, Chemonics began to phase out its services towards the end of the contract. Each long-term advisor began to document more and implement less as his counterpart assumed control of all functions. Emphasis was placed on the development of manuals and materials as references for future implementation.

C. Watershed Management Activities and Achievements

Most of this work was led by the watershed management advisor, with key roles played by the extension/community organization advisor and the soil conservation advisor. Their activities, conclusions and recommendations are summarized in their final reports. The important processes, work methodologies and achievements in the watershed management area are described below.

1. Principal Advisors

Watershed management is an interdisciplinary process. Chemonics followed a multidisciplinary team approach under the leadership of the watershed advisor. He coordinated the inputs of the other Chemonics team members, notably the extension/community organization advisor and the soil conservation advisor. Together, these three long-term advisors formed a core group devising, applying and adapting a watershed approach to reach the project purpose for the field program.

The watershed management advisor (watershed advisor) was the principal advisor in this area. He was also designated chief of party (COP) and so became the counterpart to the NRMP project director and liaison to the USAID project officer. This was a convenient arrangement, as watershed plans for the Choluteca and other rivers needed a commitment at the highest level in the NRMP.

Unfortunately, there was no permanent watershed management counterpart for most of the LOP. A technical specialist was hired for one year but did not continue with the NRMP. The project director and subdirector (in charge of field implementation) became the de facto counterparts.

Later in the contract, in 1986, the watershed advisor turned over watershed planning functions to a team of national specialists (without a designated counterpart). The extension advisor took over COP duties and, together with the soil conservation advisor, provided a final year of TA backstopping the watershed program.

2. Watershed Planning

Since this activity is not well documented in any prior report, we present it in some detail here. Chemonics' method entailed plans and linkages at five levels. First, a global watershed plan was developed to guide the NRMP over its LOP. Second, annual work plans for the NRMP were based on the global plan. Third, training needs were identified on an annual basis in an evaluation/planning system, creating a "demand led" strategy. Fourth, work plans for each WMU were tied to the

global and annual work plans. Finally, farm plans flowed from a combination of WMU plans and strategies, and farm family needs and willingness to cooperate. This system is described below and presented graphically in exhibit 3.

a. Global Watershed Plan

In watershed planning, Chemonics' advisor installed a participatory planning, implementation and evaluation process that has worked well. The overall "Plan de Manejo de las Cuencas de los Ríos Choluteca y Sampile/Guasaule" was an important output. This plan codified objectives, implementation strategies and local plans for NRMP operation. It made effective use of data that existed at the time and identified inherent weaknesses in the data collection component of the NRMP, which was managed by Catastro. Most important, it served as a vehicle to clarify and solidify the organization, direction and technical focus of the NRMP, an important contribution as these elements were deficient in 1983, despite more than one year of implementation.

b. Linkage with Annual Work Plans

The watershed planning system was linked with the annual implementation plans and evaluations of all NRMP personnel. This linkage helped in monitoring progress on a monthly basis, and the feedback allowed mid-course corrections. The system was very effective and is summarized in the manual produced by the watershed advisor titled "Procedimientos para el Manejo de Proyectos de Recursos Naturales."

c. Linkage with Training Plans

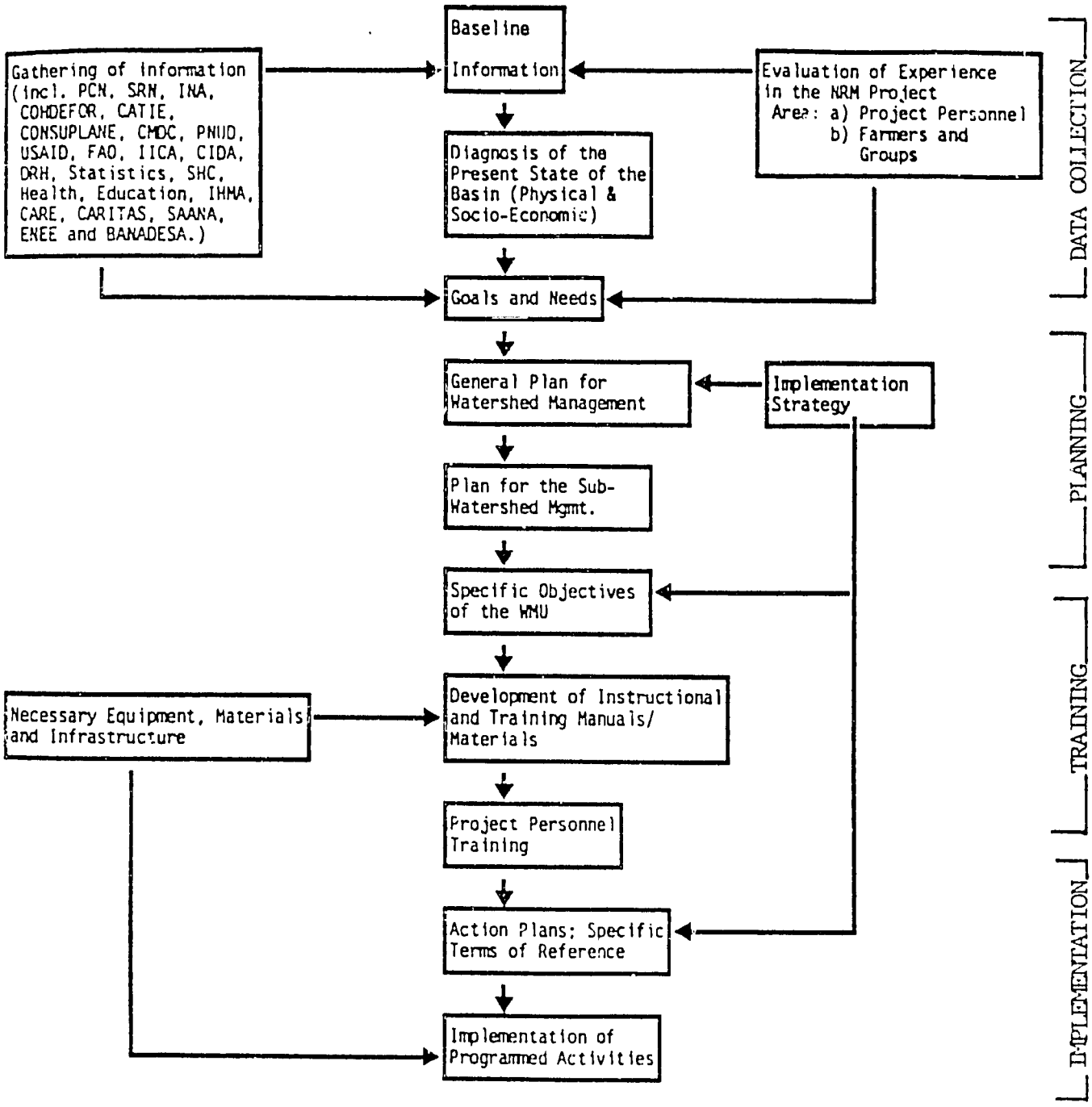
Training needs were identified on an annual basis. The watershed advisor assisted the extension advisor in formulating the training approach for the NRMP, and participated in delivering numerous workshops and training sessions.

d. Linkage with Field Implementation

At the field level, annual management plans were developed for each WMU. These flowed from the overall watershed plan, and were supplemented by local needs and priorities. Technologies were developed focusing on soil-conservation and production enhancement technologies appropriate to each agroecological zone and local farming systems. The advisor was instrumental in prioritizing watershed actions and in training counterparts in the use of objective, technical criteria to supplement political and socioeconomic considerations in subwatershed selection.

EXHIBIT 3

A WORK FLOWCHART: OPERATING PLAN FOR THE MANAGEMENT OF THE CHOLUTECA, SAMPILE AND GUASAULE RIVER WATERSHEDS



e. Linkage with Farm Needs and Conservation

At the farmer level, farm plans were developed focusing not only on production enhancement, but also on conservation measures to sustain productivity. These plans followed the general format developed with the assistance of the watershed advisor and other Chemonics team members.

f. Summary

The planning process was successful in providing the overall framework for an effective extension program. An indication of the success of the watershed planning system was the tremendous demand from other projects, ministries and agencies for training in and use of the system. A list of these projects and agencies can be found in the watershed advisor's final report and in Chemonics' bimonthly and annual reports.

Another measure of success was the expansion of the original Scope of Work for Chemonics' contract that specified plans for only three subwatersheds of the Choluteca River. In fact, Chemonics assisted in planning (and implementing) for an area twice the specified size. It covered four subwatersheds of the Choluteca River basin (Headwaters, Texiguat, Orocuina and Sampile subwatersheds) and two areas of other rivers outside the Choluteca River watershed (Guasaule River and Talanga region). The map in exhibit 1 at the beginning of this report shows these subwatersheds and the advance of the NRMP over the LOP.

3. Implementation of Watershed Plans

Implementation of watershed plans was an integral part of the overall project management system installed by the COP/watershed advisor and the extension system developed by the extension advisor. These systems are discussed later.

4. Development of Watershed Management Practices

From the beginning Chemonics proposed to maximize output of existing farming systems using a variety of practical methods. These included agricultural treatments, soil conservation techniques, improved livestock and pasture management, and improved forestry/agroforestry practices. Three principles were used by Chemonics' advisors in developing these practices:

- Sustainability--link production enhancement technologies to conservation practices (sustainable agriculture)

- Farmer Orientation--use a holistic farming systems approach

- Appropriateness--key interventions to appropriate agroecological zones

a. Sustainability

Chemonics stressed two key objectives for technical interventions: (1) that they enhance production for the farm family in the short term and (2) that they stabilize, conserve, protect and/or rehabilitate on-farm soil and water resources. Sustainability was viewed from a biological standpoint (conserving the natural resource base) and from a socioeconomic perspective (whether or not farmers continue the practice). Thus, technologies were evaluated not only from their soil conservation standpoint, but also as to whether or not the farmer would obtain a noticeable benefit in terms of production. Chemonics' approach was, and continues to be, that unless the conservation practice is incorporated into the farming system and maintained and/or replicated, there is little chance of a sustained impact on degradation and poverty. Thus, the linkage to production is both obvious and indispensable. A graphic representation of the linkages between conservation and production is represented in exhibit 4.

b. Farming Systems Approach

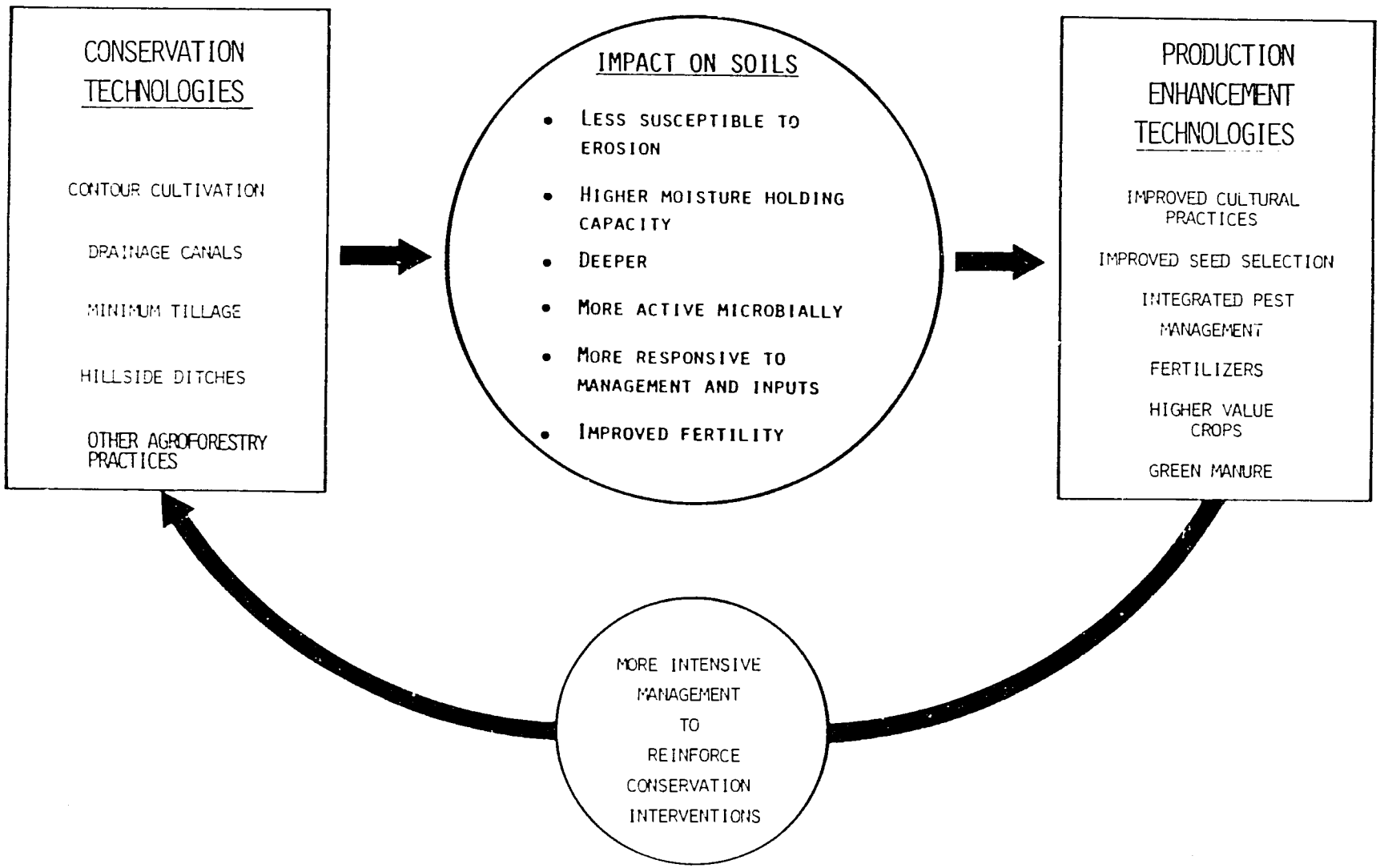
Chemonics tried to incorporate a "farming systems" approach to identify constraints to production at the farm family level. However, once identified, there was no research system to assist the NRMP in overcoming such constraints. On-farm testing and trials of existing technologies was the only avenue open to the NRMP. A hybrid farming systems extension program was the result. The methods used for extension are described in the extension section of this text.

Team members concentrated on enhancing the complementarities of the various components of the farm system (livestock, crops, trees, etc.) and on minimizing competition among these components. Agroforestry, silvopastoral, and similar technologies were promoted to this end. In annex E we present a visual depiction of the complementarities and competitive aspects of the farming system, and a schematic representation of the dominant subsistence farm system in the NRMP.

c. Keying Practices to Agroecological Zones

Chemonics used the watershed planning process to identify possible needs for conservation-oriented practices, keying shelf technologies to local conditions, a straightforward process. However, the challenge came in the field, where base maps, guides and directives had to be translated into action. Use of trials and demonstrations to adapt technologies to local agroecological zones is discussed below in the extension section.

EXHIBIT 4 LINKAGES BETWEEN CONSERVATION AND PRODUCTION ENHANCEMENT TECHNOLOGIES IN THE NRMP



A summary list of the actual technologies and practices is presented in annex D. Below we highlight some of the important innovations or applications of technologies promoted by Chemonics.

5. Extension System

The NRMP evolved from a national policy and regulatory project with a watershed component for testing methodologies, into a field extension project promoting sustainable agriculture in a watershed context. This fundamental change in focus allowed resources to be concentrated on the critical task of arresting the massive destruction of a major watershed--the Choluteca--that holds about one-quarter of the nation's population. In this very visible environment, Chemonics developed an extension methodology in close collaboration with counterparts and farm families. This method, and its successful application through 1986, had tremendous impact and was adopted by the GOH as the standard extension model. Due largely to the success of this extension system, the NRMP advanced quickly in terms of ouputs generated (see exhibit 5).

a. Principal Advisors

Chemonics' agriculture extension/community organization advisor (extension advisor) was the chief architect of the extension system. He was assisted by the other long-term advisors, particularly the watershed advisor and the soil conservation advisor, in formulating, adapting and implementing the system. He was also assisted by a number of short-term specialists in farming systems research/extension; audiovisual and graphic arts design and development; and specialists in women's participation in development.

The extension advisor had three different counterparts over his four-year term. The longest term for a counterpart was only 18 months. There were two instances when a gap in counterpart coverage occurred and the advisor served as a line officer for those periods. One counterpart eventually became the head of the national extension service.

b. Strategy

The reorientation of the extension system was facilitated by a combination of interconnected strategies, both "process" strategies and technical strategies. These were developed over the four-year contract term as part of the normal internal planning and evaluation process used by Chemonics. While the TA contract has ended, there remain a number of key areas where TA is needed to reinforce the system and complete certain aspects of materials development at the farmer level.

EXHIBIT 5

ADVANCES IN THE NRMP
1982-1986

PROJECT ELEMENT/ OUTPUT	YEAR					TOTAL
	1982	1983	1984	1985	1986	
Field Technicians (#)	8	29	52	100	150	150
Participants (families)	391	694	2,344	3,541	6,370	6,370
Soil Conservation ha	7	129	344	377	425	1,282
Production Assist. ha		410	832	1,289	3,188	3,188
Improved Pasture ha			101	167	334	602
Agro-forestry (# trees)		42,400	68,896	606,884	543,027	1,261,207
Plantations (ha)	3	452	414	181	121	1,171
Forest Mgmt. (ha)				241	293	293
Forest Protection (ha)				19	30,927	30,927

These are discussed in section IV on lessons learned and recommendations.

The process strategies included (1) integrating the TA team with NRMP staff, (2) promoting counterpart initiative, (3) using watershed planning as a vehicle for interdisciplinary discussion, and (4) promoting technical and field integration. First, the close integration of the TA team with counterparts allowed a healthy sharing of experience among expatriates and local specialists and fostered an environment of trust and acceptance. Second, the initiative taken by counterparts to improve the extension system was encouraged, and their own ideas and methods were utilized even if less than ideal in a particular case. Third, the watershed planning process was used as a vehicle for interdisciplinary discussion of common extension issues, e.g., use of credit/subsidies, technology limitations, site selection criteria, and the like. Finally, opportunities were created to maximize collaboration among central technical departments (e.g., forestry, soil conservation, extension, women in development), and between central technical specialists and field extensionists.

The technical strategies used to improve the system included: (1) use of systematic planning and evaluation system; (2) use of demonstration plots; (3) use of contact or lead farmers; (4) use of incentives; (5) development of user-oriented training and extension materials; (6) more technically-oriented site selection criteria; and (7) frequent training and retraining of NRMP staff at all levels. Each of these is summarized below. The reader is referred to the extension advisor's final report for a complete account.

c. Use of Systematic Planning and Evaluation

A comprehensive annual planning and evaluation system was developed jointly in 1983-84 with the watershed advisor and other team members and counterparts. The system included a quantitative and qualitative evaluation of each technical component, and performance at the WMU, supervisory (subwatershed), and central levels. Annual evaluation/planning workshops were complemented by monthly evaluation/planning meetings at the subwatershed level. The system provided direction and performance targets, and assigned responsibilities to each member of the NRMP. It also programmed evaluations to ensure rapid feedback for refocussing technical strategies and redirecting resources on a monthly and annual basis. A full description of this system is presented in subsection F below, entitled "Support for Project Management and Administration."

d. Use of Demonstration Plots

Prior to the arrival of the TA team, demonstration plots were not emphasized. The assumption was that farmers would simply follow the extensionists' advice, which was made more attractive by credit and other incentives. While this approach may work with larger farmers who are used to credit and government TA, the small farmers of the Choluteca region do not respond well to it. They need to see that recommended practices will actually produce results before they will try them.

Thus, the extension advisor incorporated local demonstration plots as an integral part of the extension methodology. The plots were located on a participating farmer's land, in theory on the lead farmer's plot. The positive response of farmers in 1984 in the Texiguat/Oricuina subwatershed resulted in the adoption of this method on a project-wide basis. By 1987, it had become the national standard.

This method assumes that there is a successful technology to demonstrate. In the case of agricultural technology, the farmers in the south were less advanced than those in the headwaters regions near the capital. Thus, simple techniques such as improved seed selection and planting densities produced significant increases in production of basic grains.

However, the NRMP did not have any proven technologies for the improvement of vegetable and fruit production, an immediate need of the farmers. Consequently, production impacts in this area lagged until 1986-87, when the NRMP finally developed simple fruit and vegetable enhancement interventions. This imbalance in technologies also applied to the reforestation/agroforesty and the range/pasture components.

In summary, while use of demonstration plots became a highly successful extension method, the lack of proven technologies appropriate to the particular agroecological zones delayed effective use of the method.

e. Use of Contact or Lead Farmers

The NRMP design included the use of paraprofessionals as the local link for extension outreach. In practice, paraprofessionals were hired at low wages by the NRMP and became additional members of the WMU team. (See chart in exhibit 2.) This arrangement weakened the local link; the paraprofessional represented the interests of the NRMP, and not necessarily those of the farmers.

The extension advisor and soil conservation advisor promoted the use of locally selected lead farmers (productores-enlace) as

the key local link for extension outreach. The reason this method is preferred is that it provides for greater continuity of the extension process. The contact farmer becomes the local expert, often training new GOH extensionists, who normally last only 12 to 18 months. The lead farmer also continues to exercise his leadership role when the NRMP ceases.

This method was instituted in 1985 when the technical staff of the southern subwatersheds requested assistance in training contact farmers. It was a convenient opportunity to demonstrate the utility of the method and extend it to the rest of the project area. As a result, all 1987 plans include the use of lead farmers as an integral part of the extension methodology.

f. Use of Incentives

Chemonics raised the issue of credit and subsidies at the negotiation stage. We believe that sustainable increases in production using conservation-oriented practices are possible without elaborate "give-away" subsidies or complex credit arrangements. Farm families must be convinced of the value of the practice and incorporate it into their farming system. In this way, practices become self-replicating and sustainable. Incentives can be helpful in achieving this objective, but they must be used in carefully controlled conditions under conscientiously applied criteria. Unfortunately, the GOH did not consider this area an appropriate one for expatriate assistance. As such, it was not included in the Scope of Work, nor was any effort allocated to it.

Incentives were heavily used in 1982 as a means of getting quick results to save the project. There were also other projects operating in the area (one of them also funded by USAID/Honduras) offering different types and levels of incentives, creating competition for project participants. In fact, the NRMP lost participants to other projects, and there were cases where families were "playing the field," obtaining multiple benefits from different projects for the same practices.

The TA team, with no direct responsibility in this area, spent four years trying to bring some measure of order to this chaos. The extension advisor presented the terms of the debates waged between pro-subsidists and anti-subsidists (Hughes-Hallett final report, p. 15). Though lacking specific authority in this area, Chemonics' advisors were partially successful in improving the content and focus of incentives.

First, with regard to subsidies, a degree of interproject coordination was achieved to limit the total subsidy value per beneficiary and to focus incentives on production enhancing elements, e.g., inputs. Also, within the NRMP, reforestation subsidies were eliminated, and half the value of soil

conservation practice support grants are now given in the form of in-kind inputs for production.

Second, with regard to credit policy, Chemonics sought to modify the NRMP policy of providing only group credit (to the CALs), because (1) the livestock/pasture improvement component could not expand unless credit was available to individual farmers, and (2) group responsibility for credit often led to defaults and disintegration of the CAL. In mid-1985, this unsatisfactory credit policy was changed.

g. Development of Training and Extension Materials

It was necessary to document technical information and process-oriented tasks for training and extension purposes, because appropriate reference materials were non-existent, and there was a very large expansion and subsequent turnover of NRMP staff. Chemonics exceeded the requirements of the Scope of Work by assisting in the development of a large body of diverse audiovisual materials (see below).

This task was accomplished through the combined efforts of TA advisors, counterparts and participants, and was led by the extension advisor. Significant assistance from Chemonics' home-office audiovisual/graphics specialist was provided on three occasions. Over the four-year contract term, the team was successful in instituting a system of documentation and materials development to strengthen training and extension. The system documented important processes, techniques and technical content of the training and extension programs. The outputs of this task are listed in exhibit 6 below.

EXHIBIT 6

LIST OF NRMP MATERIALS DEVELOPED WITH CHEMONICS ASSISTANCE

- Extensive slide library (over 5,000 slides) widely used for training and promotional purposes by the NRMP and outside staff

- Flip charts for
  * Soil conservation practices
  * Livestock and pasture practices
  * Improved local seed selection practices
  * Agroforestry (preliminary stage)
  * Control of cattle parasites

- Filmstrips on
  * Soil conservation practices
  * Planting of "King Grass" for improved fodder and conservation
  * Establishment and maintenance of tree nurseries
  * Forest management
  * Agroforestry
  * Nursery management

- Technical field guides on
  * Agroforestry practices
  * Livestock and pasture practices
  * Use of gandul in forage production
  * Use of Leucaena in fodder production
  * Aging of cattle by tooth growth
  * Introduction to range management

- Manuals on
  * Soil conservation (2 editions)
  * Extension methodology and system (2 editions)
  * Procedures for the administration of natural resources management projects
  * Livestock and pasture improvement
  * Agroforestry practices

- Videos on the NRMP and its activities

- Procurement of appropriate a/v equipment and training in use

h. Development of Technical Site Selection Criteria

Site selection criteria were developed to the extent possible, though many of the siting decisions had been made by NRMP staff prior to fielding of Chemonics' team in mid-1983. Technical criteria were recommended and rapid reconnaissance methods used for selecting sites from 1984 onward Unfortunately, technical criteria were often ignored or rejected by NRMP staff, who responded to political pressures.

i. Frequent Training and Retraining of Project Staff

Training is an integral part of extension and local group organization. Training was needed to (1) upgrade basic technical and extension skills, (2) incorporate new experience into the NRMP extensionists' repertoire as the project advanced, (3) ensure relative uniformity in technology transfer methodology, and (4) continuity of service to the CALs and contact farmers. The extension advisor succeeded in institutionalizing a pedagogically sound methodology to train all project staff, concentrating on extension personnel. This activity is described later under subsection G, training program.

6. Agricultural Productivity and Soil Conservation

The original project design envisioned soil and water conservation and improved agricultural practices as the primary indicators of increased production and stabilization of hillside farmland (NRMP Project Paper, annex E, page 3). However, when the Chemonics advisors arrived in mid-1983, there was little emphasis placed on production enhancement. There was a significant priority placed on highly visible soil conservation protection practices, and much effort was being expended on these without adequate consideration as to their appropriateness, efficacy, and impact on production.

a. Principal Advisors

The soil and water conservation specialist (conservation advisor) was the key TA team member for this technical component. Other advisors included a specialist in horticulture and fruit tree development for about one year, a short-term environmental monitoring specialist, and the long-term extension advisor.

b. Strategy

As explained previously, Chemonics' approach was to integrate production and conservation technologies at the farm level. Extensionists had to be redirected from the "implementor" role they were exercising to that of supervisor/trainer for lead farmers and other participating farm families. Other improved

farm family practices for post-harvest management, fuelwood consumption, and household production systems needed to be identified and integrated at the farm level. In sum, Chemonics' strategy was to identify and promote the adoption of a systems approach to farm-level interventions, with the purpose of sustaining and improving productivity through the integration of agronomic production enhancement measures and conservationist cropping techniques, as well as protective conservation structures.

This strategy required the reorientation of NRMP technical practices and policies. First, the integrated watershed planning exercise in late 1984-early 1985 was used to introduce the need for and scope of reorientation. It was reinforced through annual evaluation and planning sessions. Second, at the extensionist level, existing conservation-oriented production practices were systematically tested and extended. The use of demonstration plots and contact farmers were key strategies to leverage scarce extension resources and promote locally-sustainable systems. Third, practical training of field personnel and farmers was crucial to ensure that practices would deliver the desired result. Training materials were developed to assist in this process. Fourth, a system of monitoring and evaluation of conservation-oriented production practices was installed. The watershed planning process was previously described; our following discussion focuses on the last three steps.

c. Systematization of Conservation/Production Methods

Initially, the conservation advisor conducted an in-depth evaluation of conservation practices in use in Honduras and an analysis of limiting factors in the production systems of targeted subwatersheds. The evaluation showed that farmers were willing and able to implement better conservation practices if they improved production. NRMP policies and strategies were not directed at those needs, however, and there were insufficient technical skills among NRMP staff to test and extend appropriate techniques. Thus, the conservation advisor focused on the identification of appropriate conservation and production practices and their transfer to farmers. This process was carried out by:

- Incorporating agronomic measures and cropping techniques into the conservation practices

- Systematizing selection and implementating a menu of more appropriate conservation practices based on on-farm land-use capability criteria and emphasizing improvement of existing farming systems

- Incorporating farmers in the selection and implementation process using simple procedures and equipment

- Supervising of installation and maintenance of practices

- Using demonstration plots to test and adapt practices and as a training and extension tool

d. Practical Training of Farmers and Technical Staff

The conservation advisor, assisted by the extension advisor and in conjunction with counterpart staff, developed and implemented a modular, practical training program in four critical areas, listed below. The modules were developed in response to needs articulated at the annual evaluation meetings and followed the annual training plans. Participants were locally selected according to need. The training used the "learning by doing" method, and trainers were trained to multiply the outreach potential of each module and its contents. Demonstration plots were used as training and testing sites. Use of contact farmers (productores-enlace) was promoted as explained under the extension section above.

The four sections of the practical training program included:

- Conservation Structures (I)--basic site analysis, selection of practices, implementation, maintenance, and supervision

- Agronomic Measures--contour cultivation, minimum tillage, use of organic fertilizers and agroforestry practices

- Basic Grains Cropping Practices--spacing, seed selection and pest management

- Conservation Structures (II)--evaluation of specific interventions and impact on production

In addition, significant on-the-job training of central level and field staff was conducted by the various advisors.

e. Development of Training Materials

Standardization and documentation of conservation and production enhancement practices was necessary because of the high staff turnover, demands due to expansion, and the variety of practices and procedures that existed in the early stages of the project. Chemonics' conservation advisor managed the development of a package of training materials. Materials included flip charts, filmstrips, slides, technical guides, manuals, and videos (see exhibit 6). Demand for these materials has been high. Recently, a second edition of the soil conservation manual was printed by the MNR for use at the national level. It has also been widely used outside the NRMP.

f. Monitoring and Evaluation of Conservation/Production Practices

The focus of the NRMP was on the testing and extension of existing technologies. As such, there were no resources for on-farm research per se. Until 1987, conservation/production practices were monitored and evaluated by NRMP extension staff using production registers. These were developed by the conservation advisor early in the contract (1984). Unfortunately, this activity was given a low priority by project directors and supervisors; rather, the emphasis was on producing visible field results, not applied research data.

Chemonics proposed to use the contact farmers to maintain the production registers, and began simplifying them for this purpose. By 1986, registers were being used for only 25% of the demonstration plots, a disappointing outcome.

However, as a result of NRMP success in mounting an extension system with limited shelf technologies, gaps in applied research were easily identified. The conservation and extension advisors assisted the NRMP in developing a proposal for an on-farm applied research program to address the needs of hillside farmers. This proposal was approved, and an applied research subsection was established in early 1987. Unfortunately, there was no effort or scope in the TA contract to assist this new unit. It will require continued outside support during this initial phase of development.

Finally, a successful system for technical supervision of conservation/production practices was implemented, based on a competitive peer review of performance at monthly meetings in each subwatershed. It includes a site visit to verify procedures, technical recommendations, and results of a visit to a randomly-selected farmer's field. This system has improved the supervisors' and central specialists' capacity to identify training needs and monitor results of recommended practices.

7. Livestock and Pasture Management

a. Principal Advisors

The long-term livestock and pasture management advisor (livestock advisor) was the main advisor in this area, serving a three-year term (1983-86). One year later, in March 1987, a short-term range and pasture specialist was contracted to follow up on work in this area and focus more on range management. Recommendations were presented and a manual developed on improved range and pasture management.

b. Strategy

The proposed global strategy was to identify the key causes of overgrazing and erosion, and to link farmers' needs for improved livestock and fodder production with conservation-oriented practices. The potential impact of this technical component was extremely high, as livestock is often the most important income-generating activity of the farming system. The strategic objective was to increase on-farm production of forage and fodder, especially during the five-to-six-month dry season, to relieve pressure on overgrazed private and common lands, and to increase production.

In practice, the long-term livestock and pasture advisor focused more on the production aspects of the assignment, although there was progress on the conservation side, particularly in the introduction of improved pasture and forage crops.

The operational strategy stratified farms by the size and orientation of livestock management. A rapid survey of each subwatershed was conducted. From the rapid survey, the role of livestock in the various farming systems was described, and the limiting factors to increased production identified. Practices were developed based on this analysis. After testing, the most appropriate practices were extended to target farm families in the subwatershed.

Two principal practices were promoted. First, forage and fodder species were promoted as living fences, live barriers and silvopastoral plantings. Cut-and-carry forage and fodder practices were promoted. Second, planting of improved pasture, generally favoring stoloniferous grasses for their soil binding characteristics, was promoted on medium-sized farms (up to 20 has.). This was usually done in combination with efforts to improve animal husbandry to increase milk production for off-farm sales. Such practices normally required credit.

c. Stratification of Farmers

Three types of livestock holders were identified, and a separate set of improved practices developed for each. Most of these were tested; others were not because the livestock program was not given the priority it deserved, and suffered from lack of clarity and technical direction. Furthermore, the livestock situation was extremely complex, and there were insufficient resources to address constraints in all subwatersheds. A key reason for the lackluster performance in this area was that most WMUs did not have livestock specialists until late 1986. Some still do not have any extensionists with a livestock background.

Farms were categorized as follows:

- o Type A: small farmer (under 5 has.) with few large livestock of criollo breed; no use of inputs.
- o Type B: medium-sized farmer (5-10 has.); 5-20 head of cattle; use of minimal inputs; limited pasture.
- o Type C: larger farmer (>20 has.); mainly a rancher (>20 head of cattle).

Primary emphasis was given to Type B, as this group appeared to have the best chance for improvement, a strategy that was never validated, as no systematic follow-up was possible due to limited resources. Validation should occur as part of a follow-on project.

d. Development of Improved Practices

(1) Dry Season Forage and Fodder

The key constraint to production in the zone is the lack of dry season feed. Thus, efforts focused on ways to increase dry season forage and fodder. A series of tests was done on indicated pasture species. King grass (*Pennisetum purpureum*) was found to be acceptable, as was African star (*Cynodon nlemfuensis*) and jaragúa (*Hyparrhenia rufa*). Less intensive tests were performed on gandul (*Cajanus cajan*) and *Leucaena spp.* as fodder sources. An attempt to promote silvopastoral systems was made, but there were no clear production improvement practices to transfer and no trained extensionists; this element did not go as far as it could have. In summary, some of the improved pasture species were widely accepted and did increase dry season forage availability (e.g., King grass); however, resources were insufficient to make this a self-sustaining activity. The recommendations of the short-term range management specialist deserve careful consideration in any follow-on effort (Final Report, Range and Livestock Specialist, L.C. Fierro, 1987).

(2) Secondary Management and Production Practices

A secondary set of practices was promoted. These included improved pasture management (fencing and rotation); weed control; silage; and infrastructure for household dairy production. Some of these were successful on an individual basis; however, most farmers were insufficiently experienced to sustain the practices.

(3) Other Opportunities

At least three opportunities were not adequately addressed in the NRMP, the main reason being lack of support from the project directors. However, there was also resistance from the livestock/pasture advisor, who was more comfortable with production technologies than with conservation practices. The following areas hold significant promise for the future development of the region.

First, overgrazing is rampant on common and public lands. This practice generates significant erosion and runoff; however, almost no attention was given to this aspect of the livestock system in the watershed. Strategies need to be developed to decrease grazing pressure. Some excellent recommendations can be found in the Range/Livestock Report (Fierro, op. cit.).

Second, practices were not "fine-tuned" to the various farming systems in the zone. For example, cut-and-carry operations require significant labor inputs. While farmers currently maintain King grass and other forage/fodder plantings with NRMP encouragement and support, they may discontinue the process after NRMP support decreases. Another example is that King grass needs to be lopped before it becomes too tall and tough for animal consumption. Many farmers allow the grass to grow too tall, thus losing the fodder advantage; the conservation advantage, if planted on the contour, of course continues, but this would be so even if lopped properly. There are other species more appropriate for the zone that offer conservation benefits, higher nutritive value, are more productive, and are easier to manage (Fierro, op. cit.).

Third, the lack of vision and coordination in integrating livestock and forestry components caused valuable opportunities to be missed to promote silvopastoral practices. The farmers already use high quantities of woody fodder during the dry period. The NRMP did not adequately build on this experience using the same testing and extending procedures used for pasture species.

Despite the disappointing impact of this component, three achievements form the basis for continued development. First, King grass is now widely accepted as a source of dry season fodder. More important, cut-and-carry fodder schemes, which are normal elements of existing farming systems, have been reinforced with new species. Second, Star grass was successfully introduced on medium-sized farms as an improved pasture species. Since Star grass is stoloniferous, there is less potential for soil erosion. Finally, a complete package of technology was extended for small-scale dairy cattle operations. It was oriented to increase the quantity and duration of milk production. As of 1986, repayments for livestock, pasture and dairy improvements were running at

100%, indicating acceptance of the technology and initial profitability.

e. Use of Incentives

The livestock/pasture advisor developed practices according to the needs of farmers as stratified above. Stratification was convenient and helped the team design appropriate incentives. For example, Type B farmers were accustomed to credit, and a credit component was included for this group. Type A farmers lacked credit experience, and had insufficient assets to secure a loan. Thus, small in-kind subsidies, such as barbed wire for pasture management, were provided. Unfortunately, use of incentives was not adequately analyzed during NRMP implementation or evaluation, and should be done as part of any follow-up project development.

f. Training and Materials Development

As with other technical sections, the livestock and pasture advisor assisted in the development and implementation of a training program, including the design and publication of a variety of training and extension materials, listed below:

- Practical Manual on improved livestock and pasture management
- Guide on the use of gandul in fodder production
- Guide on the use of Leucaena spp. in fodder production
- Filmstrip on the establishment and management of King grass
- Flip chart on vaccinations and parasite control
- Pamphlet on determining the age of animals by their teeth
- Introductory guide for range management (by short-term range and livestock specialist, L.C. Fierro)

The various training events organized and delivered by the livestock/pasture advisor are listed in his final report and Chemonics' annual and bimonthly progress reports.

8. Women's Participation in Development Activities

This task was not part of Chemonics' Scope of Work. Upon arrival of the TA team, the project had only five female extensionists (promotoras). Their efforts were isolated from the mainstream of the NRMP, and focused on the traditional areas of sewing, cooking and food processing. The role of campesino women

in production and natural resources management issues was largely ignored, as were the promotoras.

Chemonics' TA team recognized the importance of women in the farming systems of the target watershed. In order to achieve the project purpose of sustainable increases in household production and income, the pivotal role of women in the farm production system had to be recognized. Fortunately, the project director also understood this role and supported efforts by the team to explore strategies to better incorporate women into the NRMP.

Chemonics' long-term advisors articulated a strategy to include women in the development and implementation of improved farm system practices. Chemonics proposed that a formal technical component be created to promote the participation of women in the NRMP. An agreement was reached in mid-1984 to permit Chemonics to field a short-term advisor in women's participation (WID).

The advisor conducted a rapid appraisal of the current role of women in production and in the use of natural resources across the various subwatersheds of the NRMP. Based on this analysis and the opportunities for strengthening the NRMP's operational strategy for reaching the project goals, Chemonics' advisor recommended a major expansion and redirection of the women's component. This proposal was largely accepted, and in 1985, the NRMP contracted a total of 22 promotoras (female extensionists), representing a quadrupling of effort in this area.

In 1985 and 1986, Chemonics sought to incorporate the recommendations of the first short-term advisor into the NRMP. The first strategic element was to redirect promotoras' efforts towards production. This change was brought about through the normal planning, monitoring and evaluation system.

The second strategic element was to incorporate the promotoras into the NRMP systems so that they would be accepted as coworkers, not as a "special unit." Unfortunately, this objective was not achieved. Despite excellent output from the promotoras, and despite specific recommendations to that effect in March 1986 (Second Evaluation Report, op. cit.), their value to the NRMP was neither fully recognized nor rewarded. By April 1987, there were only 13 promotoras working in the field and outputs are expected to be reduced for 1987.

Chemonics fielded an expatriate advisor in WID issues in March 1987 to review progress and constraints in this technical area. The report summarized accomplishments of the WID component and offered guidance for resolving problems and expanding the program to include 30 promotoras. It is unlikely that these recommendations will be followed, given recent trends in priorities by NRMP directors. This is unfortunate, given the

excellent performance of the promotoras and the strategic multiplier effects of the WID work in terms of economic improvement and enhanced quality-of-life indicators in participating families.

D. Support for Natural Resources Management Policy and Planning

1. Overview

This activity was part of the first component of the NRMP. The PP design strategy was to provide TA to assist in restructuring the natural resources management institutional constellation and in the revision of natural resources legislation, policy and planning. The TA would assist in analyzing the existing natural resources management policy and planning environment, and in proposing alternatives. The operational experience of the NRMP data collection and processing activities (through Catastro) and watershed activities (through a separate project office) would be used to assist in reform.

This strategy was too ambitious and proved unfeasible. The component was discontinued in 1985.

2. Chemonics' Strategy

Chemonics initially proposed that an agricultural economist be fielded to assist in an economic analysis of NRMP interventions. He would be assisted at the policy and planning levels by a natural resources policy and planning advisor who would arrive late in the project. The strategy was to carry out data collection and conduct some preliminary analysis in the first years of the TA contract. Project managers could then determine the priority assigned by the GOH and USAID to the natural resources policy/planning element before fielding the policy advisor. This strategy would leave an escape hatch should the GOH/USAID not wish to pursue the component. An estimated 24 work-months for the economist and 12 work-months for the policy advisor were proposed.

3. Development

Clearly defined GOH and USAID objectives were lacking in this area. The GOH did not want an expatriate agricultural economist on the TA team, and converted the effort to obtain a horticulture and fruit specialist. Thus, little preparatory work could be done prior to the policy advisor's work later in the LOP.

Furthermore, the GOH and USAID gave a low priority to the policy component. Political realities relegated the component to the back burner (see The Natural Resources Management Project: A Status Summary, op. cit., page 6). However, both the GOH and

USAID wanted to try to do something in this area, and Chemonics had a contractual responsibility to field a specialist.

Recruiting for the position was difficult. There are extremely few experts with experience in natural resources management policy and planning in a watershed context, and in legislation in natural resources management.

Chemonics ultimately fielded an economist with natural resources and agricultural experience. In any event, given the lack of support, the advisor himself was unable to create a new direction for this component. He accomplished little and was repatriated early to save the level of effort for higher priority areas.

The COP then took over policy and planning responsibilities. He assisted the NRMP director in refocusing activities in this area to the confines of the Choluteca area, as opposed to the national level. The strategy was to try to achieve interinstitutional coordination and planning at a watershed level. This also proved extremely difficult to do; the coordination that did occur was often the result of informal networks, not of formal policy or legislative reform.

In fact, there were a number of good proposals for improving the planning, coordination, and conduct of natural resources management policies and programs. Some of them came from the watershed advisor/COP, who was responsible for helping to coordinate watershed planning. For example, Chemonics' advisor attempted to focus attention on three critical geographical areas, and developed a proposal to coordinate field programs to enhance conservation objectives (La Tigra national park and hydrologic reserve, the Río Grande WMU area, and the Guanacaure hydrologic reserve). These areas contain the last remmants of forests that protect the water-producing areas of Tegucigalpa and Choluteca.

As with other initiatives, the interinstitutional coordination desired was never achieved as a result of GOH politics, bureaucratic inertia, turf guarding, professional jealousies, and lack of interest. Any future project must carefully assess to what degree the project depends on interinstitutional cooperation, and exactly how it is to be achieved.

E. Collection and Analysis of Data

Chemonics' responsibility was to make the best use of the data coming from Catastro and DRH to formulate watershed and subwatershed plans. The task was carried out largely by the watershed advisor/COP, and is described in the watershed management subsection above.

It is important to note that the data from Catastro and DRH was not very timely and was of limited use. It often fell to the TA team and NRMP personnel to point out the inaccuracies of the data. For example, rainfall data reported by DRH was off by a factor of three, and did not take into account obvious orographic effects. There was little effective dialogue between the NRMP directors and responsible officials at DRH and Catastro. Efforts at improving data delivery from these institutions were not productive. Formal DRH data collection activities funded under NRMP were discontinued in 1985. Catastro was also unable to produce adequate data and maps in a timely fashion; NRMP funding for their activities was also terminated in 1985.

In this environment, the NRMP began to use existing data to carry out watershed planning tasks. Chemonics helped develop a library and data information center for the NRMP. Its main purpose was to collect and categorize existing information for use in the day-to-day operations of the NRMP.

A limited number of maps and primary data were produced and Chemonics assisted in their production. However, most of the information produced by NRMP personnel was based on secondary sources. The exceptions, where primary data was generated through NRMP watershed management activity, were (1) rainfall information for the watershed, which was produced using simple raingauges in subwatershed areas; (2) farm-level data, which were collected beginning in 1984; and (3) rapid appraisals of the different subwatersheds and WMUs.

F. Support for Project Management and Administration

1. Principal Advisors

The person acting as COP was responsible for this task. For the majority of the TA contract, this was the watershed advisor (1983-86). In the final year, the extension advisor was team leader and the soil conservation advisor was deputy team leader; together they supported project management. Long-term field advisors were backstopped from Chemonics' home office by supervisory and administrative staff, who completed the TA support team for NRMP operations.

2. Strategy

a. Scope

Chemonics was given a broad mandate to assist the project office in all project management and adminstrative areas. This was an unusual situation. When TA is provided on an advisory basis, advisors are usually not given such close access to day-to-day management decisions. However, the project was poorly organized and managed in 1983, and it is to the project director's credit that he allowed participation in all areas of management in the scope of work.

b. Selection of Appropriate Advisor and Role

Given this opportunity, it was important to select an advisor whose ability would make him suitable to lead a multidisciplinary team and whose position had project management scope. Chemonics selected the watershed advisor, who had previously worked in Honduras in watershed projects. This proved to be a wise choice.

Operationally, the COP functioned as confidante and sounding board for the project director. The COP developed a relationship of trust and confidence, so that NRMP counterparts soon began to request management guidance. Assistance was not force-fed; indeed, that approach does not work.

The COP is usually the prime liaison between the contractor and USAID on TA matters. In the NRMP, the liaison between USAID and the contractor developed into a liaison between USAID and the project. This may be an efficient means to monitor a project, but it is not a healthy situation for the donor nor for the host-country.

c. Implementation Strategy

When the TA team arrived, the NRMP was operating according to the traditional SRN approach for managing field extension projects: the technicians would preach to the farmers on the current technical theme and expect the farmer to follow such advice blindly. The traditional approach was being used because the field director came from this school of experience, as did the national technical specialists. The project director wanted to introduce a more dynamic watershed-oriented approach. However, he had not consolidated his power to effect a change from the SRN mode. Also, he lacked a viable alternative.

Thus, Chemonics arrived at a moment when the director wanted to modify the management strategy. The existing procedures were still not clearly defined. Furthermore, there was momentum for a

large expansion of extension activities. This situation provided an opportunity for Chemonics to have a quick impact on NRMP management and administrative organization.

Chemonics' advisors pursued three complementary strategies to promote NRMP management coherence and field operational ability. First, a systems approach to management was developed and installed. Second, a decentralized approach to field operations was promoted and institutionalized. Third, methods to prioritize work at all levels were incorporated into the management system. The incorporation of these three elements into the NRMP allowed for (1) control at the central level; (2) an open environment and decentralized field operations that encouraged exceptional involvement by the extensionists; and (3) flexibility in responding to internal feedback and external needs.

3. Activities and Achievements

a. Systematization of Project Management

The COP, with support from the rest of the TA team, was instrumental in developing a successful management approach for the NRMP. A planning, monitoring, and evaluation system was designed, tested, and re-tested. It became the basis for running the project as early as 1984. The system is codified in the "Manual de Procedimientos para el Manejo de Proyectos de Recursos Naturales." The system is detailed below, since a good description of the process in English is lacking.

This system is a "bottom up" approach to management of a multidisciplinary field project working in various regions simultaneously. It is based on full participation of the extensionists, who must prepare and carry out annual work plans. These plans are based on an overall watershed management plan that provides the general direction, technical areas of concentration, and work methods.

Annual plans are approved by the project director, SRN, and USAID. They contain bar charts showing what is to be done and where, and assign responsibility by WMU and WMU team member. These plans are then carried out. Monitoring and supervision are carried out by the supervisors of each subwatershed (see exhibit 2). Monthly meetings are conducted to review monthly progress and plan for the following period.

Annual evaluations are held in November or December. These allow frank review of the performance of central level support from technical and management staff, as well as middle management (supervisors) and field extensionists. The annual work plan for the following year is worked out in the same meeting.

This planning, monitoring, and evaluations process is shown graphically in exhibit 7.

EXHIBIT 7

PLANNING, MONITORING, AND EVALUATION PROCESS

EVENT	TIMING											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Annual Plan												x
Monthly Plans	x	x	x	x	x	x	x	x	x	x	x	x
Weekly Plans	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx											
Supervision	_____continuous_____											
Update Farmer Files	---------as farmers are visited----------											
Evaluations (mo)	x	x	x	x	x	x	x	x	x	x	x	x
Annual Evaluation												x

b. Decentralized Field Approach

Chemonics' advisors advocated the policy of delegating authority to permit effective field implementation. Delegating is a common principle of modern management, but it is not often followed in development projects. It is a vital element in an implementation-oriented project such as the NRMP. Chemonics was partially successful in institutionalizing this approach. However, the project directors often contradicted the approach by overruling subordinates' decisions.

In general, it can be said that a decentralized approach was installed and was the active mode of operation from 1984-86. It remains to be seen if this approach will continue without external encouragement, either from a TA source or from the USAID project officer. Any follow-on project should carefully analyze the performance of the NRMP in this regard.

c. Prioritization of Activities

Successful management of the NRMP essentially entailed the ability to prioritize and focus resources to generate desired outputs. Chemonics' advisors assisted in establishing more technically-based methods for prioritizing

actions and resource allocations. These were included in the management system for planning, monitoring, and evaluation. For example, technology selection was dependent on two criteria: the needs of the campesino and the agroecological site factors (dinámica de los recursos naturales). A set of subcriteria were developed with Chemonics' assistance to guide extensionists and support specialists in this task.

More important, Chemonics advisors developed technical criteria for selection of work sites and prioritization of technical areas. Since most of the NRMP effort took place in the field, selection of WMU sites (agencias) was critical. Simple technical guidelines were developed based on population, soil and water resource conditions, accessability, and other factors. Similarly, Chemonics' advisors were able to focus attention on appropriate technical areas for work such as agroforestry, grain production in the south, and selected soil conservation practices.

Technical recommendations of Chemonics' advisors and their counterparts were not always accepted by NRMP management however. For example, Chemonics recommended working on protection of the water sources for Tegucigalpa and Choluteca. This task was not given priorty. As a consequence, water supply crises have become more aggravated in the watershed over the years, instead of lessening, as one would hope for in a watershed project. This situation was due in some degree to political pressures to work in areas with higher concentrations of campesinos (who, after all, vote and have party affiliations; trees and forests do not).

Similarly, Chemonics' advisors argued against inclusion of aquaculture activities in the NRMP because it was not an area of felt need on the part of the target population, nor did it satisfy the technical selection criteria that NRMP management espoused. The NRMP went ahead with this technical area regardless, only to abort activities later.

The follow-on project should consider site selection and technical focus carefully. Poor selection can take a killing toll on human, financial, and organizational resources.

G. Training Program for Project Personnel and Participating Farmers

1. Principal Advisors

The extension advisor was the prime motivator in the development of a systematic training program. He had considerable support from the project director and the rest of Chemonics' TA team. This effort was reinforced with short-term advisors in materials development, both local and expatriate. It

is important to note that the success of the training program was the result of close cooperation with and active participation of counterparts at every level.

2. Strategy

Chemonics' advisors gave training activities the highest priority. The training program was designed to reach all NRMP staff and as many participating farm families as possible. The method used was the training of trainers. Counterpart specialists in the central office were trained as technical or subject matter trainers. Similarly, extensionists were trained to train productores de enlace and other farmers to carry out and maintain the watershed management interventions.

Support for field personnel remained the focus of the program throughout the LOP. Since the extensionists in the WMU were in direct contact with the farm families, they could make or break the NRMP. This focus is in contrast to other SRN projects, where training opportunities often go first to central level staff.

User-oriented materials for training and follow-up were also a key element of the training strategy, as was the productor de enlace concept. Both of these methods were explained above under the extension system.

3. Activities

The system now used by the NRMP covers five types of training activities:

- In-country training courses
- In-country workshops
- On-the-job training
- Third-country workshops and seminars
- Third-country and U S. formal training

A full description of the technical areas, frequency, and number of training activities is given in Chemonics' periodic reports and summarized in the final reports of each long-term advisor.

Since heavy emphasis is placed on the transfer of basic skills to extensionists and from them to farmers, this process is summarized below.

- Field personnel express training needs in annual evaluation
- Extension section consults with supervisors and specialists on the need for training of field personnel and the timing and methodology for training events
- Extension section writes and circulates a project-wide training plan for the year
- A combined meeting is held of specialists, supervisors, and project directors to discuss and modify the plan
- Extension section assists other specialists in programming, evaluating, and sometimes conducting the training events

4. Achievements

a. Institutionalization of Training for all Staff

Perhaps the most important contribution of Chemonics was made in the area of training. The institutionalization of training for all project personnel has had a positive impact down to the farmer level. Training of all new employees, and the retraining of employees in-service is now an accepted practice for the NRMP. As a consequence, training was consistently mentioned by all farmers and extensionists interviewed as one of the most important benefits received from the NRMP. The constant demand for training services from inside and outside the project is a good indicator of the impact of the method and performance of Chemonics' advisors.

b. Field Orientation

The practical field orientation to the training process given by Chemonics advisors and counterparts produced excellent results. Chemonics used simple language and graphics, directed to the level of the target audience. As an indicator of the success of this orientation, there has been a tremendous demand for the materials produced by the advisors and counterparts. Some guides and manuals are in their third printing.

One area that was not addressed because of time and level of effort is the development of materials for the farmers themselves. This constraint was mentioned earlier in the extension section.

c. Reinforcement of Key NRMP Strategies

Chemonics' approach was to train all NRMP personnel in all relevant technical skills and in those areas

that reinforced key strategies for NRMP operations: extension methods; training methods; planning, monitoring, and evaluation methods; and technologies such as agricultural production and soil conservation. In this manner, NRMP personnel would be equipped to carry on planning, monitoring, and evaluation activities independently.

H. Evaluations

Chemonics was charged in the Scope of Work to help with internal and external evaluations. There were two external evaluations conducted, one completed in January 1984 and the second in March 1986. Both commented on the excellent support received from Chemonics. In addition, Chemonics assisted in the design and implementation of a planning, monitoring, and evaluation system to provide annual internal evaluations, described in subsection F above.

A significant achievement in this area was the design and institutionalization of the planning, monitoring, and evaluation system. The system was invaluable in providing feedback to NRMP staff for refocusing and redirecting efforts, and in providing data for outside evaluators to assess inputs, outputs, processes, and general project progress. The success of the NRMP during the period 1983-86 is partially due to this system, and its effective use by NRMP personnel.

SECTION IV

LESSONS LEARNED AND RECOMMENDATIONS

A. Introduction

In this section, we present lessons learned from Chemonics' contract and recommendations for future activities. The section constitutes a summary of our assessment of the strong and weak points encountered in the implementing the NRMP. The recommendations are intended for project managers for the remainder of the NRMP, and designers of any follow-on project. It is hoped that other projects in natural resources or watershed management in the region can avoid some of the pitfalls encountered in the NRMP, and learn from some of the more successful experiences.

We have divided the section into three parts. First, we present lessons learned regarding project design, strategy and approach. Next, we describe experiences in technical implementation. Finally, we offer our analysis of the project management experience.

B. Lessons Learned and Recommendations Concerning Design

1. National Level Natural Resources Policy and Planning

Clearly, this component was a non-starter. The design was overambitious. It is not feasible to achieve a unified natural resources policy or planning system in the current Honduran political and bureaucratic environment. There are simply too many institutions with overlapping and contradictory mandates. Reform of the policy process can only take place if there is a sustained, shared political will at the highest levels to reconfigure institutional, legal, and administrative systems. Shared political will is a precondition. If it should exist, a parallel effort would be required among technical specialists to offer sound alternatives to the present system.

Policy reform is not a precondition to progress in implementing field programs in natural resources management. Policy constraints are sufficiently removed from field operations to permit sustainable improvements in conservation and production among smallholders, where the majority of deleterious land use occurs.

RECOMMENDATION: Concentrate on policy dialogue as the primary vehicle for change in natural resources policy and planning, and regulatory processes and procedures. This work should be done <u>outside</u> any implementation-oriented field project. Field

projects can proceed and have positive impacts, since they can present alternative approaches to current practices, such as has occurred in some technical areas in the NRMP.

2. Data Collection and Processing

The data collection and processing component was also overly ambitious in scope and strategically naive. Catastro and DRH exist for reasons other than to serve the SRN field program, and they did not produce the products needed for the field program when required.

The data needed for watershed and natural resources management planning and field implementation was generated using existing information supplemented by limited primary data collection. The latter was carried out using rapid surveys (sondeos and diagnosticos).

There was insufficient emphasis by project managers and directors on generating baseline information at the start of the NRMP; emphasis was on project survival until 1984. An attempt was made by Chemonics in late 1984 to design and implement an impact evaluation system. However, the GOH, USAID and Chemonics did not give this activity priority status. Consequently, now, near the end of the NRMP when managers and policy makers wish to understand the impact of the project, there is inadequate data to respond with scientifically sound results.

Particularly deficient are indicators of changes in biophysical factors (soil erosion, sedimentation, forest cover, and land use) and farm family income.

RECOMMENDATION: Data collection and processing activities for the remainder of the NRMP should focus on (1) refocusing data processing and analysis to respond to the objectives of the watershed plan and to the NRMP; (2) refining the existing system of on-farm data collection; and (3) ensuring better supervision and quality control in administering and reporting data.

RECOMMENDATION: Any follow-on project should not deny the resources needed to set up baseline data systems for monitoring biophysical systems and target populations. The monitoring and evaluation system must generate useful data to indicate whether or not the project in fact is having the desired impact.

3. Watershed Management Field Program

The design strategy was again overambitious, but had an appropriate orientation, adequate resources, and sufficient flexibility to be workable. The credit component was unfeasible ($8 million of institutional credit through BANADESA for a target

population that did not use credit nor have collateral to secure loans). However, the focus on farm-level interventions to conserve soil and water resources using production enhancement practices was sound, but suffered from lack of shelf technologies to extend, and lack of an applied research component to generate and systematically test new technologies.

The strategy of creating a separate project office with no clear plan to incorporate NRMP activities into a sustainable system was extremely risky. The design left the question of incorporation hanging; the project itself was tasked with the institutionalization of project processes, methodologies, and personnel. Deft maneuvering by the GOH project director and others created the "bureaucratic space" in the SRN organization into which the the NRMP project activities were inserted in 1985.

However, the purpose of this strategy was to find a permanent home for natural resources management policy, land use management, and watershed field practices. The Region Central that was created to house NRMP activities is not a national program or home for such issues. Thus, this arrangement merely avoided the final resolution of the issue: should/will all SRN regions now adopt the NRMP extension methodology (and will the SRN thus become the "permanent home"), or was the creation of the Region Central a temporary maneuvre to win outside support (AID) for a "pet project?"

Finally, the concept that this effort was a testing ground for a national-level program was never fully articulated. Since there were no resources to test hypotheses and approaches systematically, there is little comparative data to use to design a national program.

In fact, the NRMP works because the implementation strategy is appropriate for the uplands of the Choluteca River watershed. Great care must be taken in extending NRMP interventions, systems, and processes to other agroecological zones, to other socioeconomic and sociocultural groups, and to other political fiefdoms. Designers and planners should keep in mind that the NRMP was not successful in extending advanced technologies in cash crops (fruits and vegetables) to the more technically advanced farmers in the central region.

RECOMMENDATION: Any follow-on project should carefully assess the institutional organization required to implement a national program. To date, there is no successful institutional model in Honduras. There is no successful model anywhere, to our knowledge, of a national program which has authority for integrated watershed management nationwide. However, there are national programs in some countries that promote conservation production extension programs (e.g. Guatemala-INAFOR/CARE

Highland Development Project, Peru-Programa Nacional de Conservación de Suelos y Aguas en Cuencas Hidrográficas). These should be studied during project development.

RECOMMENDATION: Any national-level natural resources management project in Honduras based on NRMP experience should carefully assess the applicability of the NRMP systems, methodologies, processes, and technical interventions to other areas, groups, and bureaucracies.

C. Lessons Learned and Recommendations on Technical Implementation Issues

1. Incorporation of Farmers into the Design and Implementation of the Extension System

The extension methodology incorporates farmers in design and implementation of the extension system. This improves the appropriateness of the design and enhances local participation. The system and techniques extended are also more likely to be sustainable.

RECOMMENDATION: Any watershed or conservation program must include the target population in the design and implementation of the extension system and in the selection of interventions to be extended.

2. Field Orientation

Extensionists were acknowledged in the NRMP strategy as the key link to achieve field results. They were specifically trained for the job. Central level specialists' jobs were designed to support field extensionists, not vice versa.

RECOMMENDATION: Reinforce the NRMP field orientation through continued support for training of field extensionists.

3. Successful Extension Methodology

Considerable progress was made in the development and application of appropriate extension methods and techniques. These include annual and monthly evaluation/planning procedures, training of extensionists, use of rapid appraisals for area assessments, use of demonstration plots, and the production of appropriate audiovisual aids. As shown in section III, these have shown their effectiveness over the last three years.

RECOMMENDATION: The NRMP should strengthen this system, affording it the highest priority. At least three core personnel are needed at the central level given current project scope.

Any follow-on project should consider a similar approach and level of effort (core central staff of three nationals and one LT expatriate advisor for four years and roughly 150 field extensionists) to reach 6,000 families in five years spread over three separate subwatersheds.

4. Incentive Structure

There was a definitive assessment of incentives for the NRMP done in 1981 by USAID. It was not used. Rather, the NRMP stuck to old school methods and PP instructions. This set the project back. Actual local needs for credit and subsidies were not adequately considered in 1982-3. An elaborate give-away and credit scheme was installed. It took three years to reverse this design flaw to make the need for credit and subsidies demand-driven, rather than imposed by central-level specialists.

RECOMMENDATION: Create a credit component for NRMP to assess effectiveness and supervise credit, subsidies, and input activities.

RECOMMENDATION: Any follow-on activity should carefully assess the need for credit or subsidy for each set of practices to be extended. Elaborate credit schemes and subsidies should be avoided if possible; reliance on existing incentive structures is preferred. A thorough survey of each target area must be conducted so that local needs will be met.

5. Sustainability of Interventions and Systems

Sustainability was a consideration of most TA advisors, but the project did not focus on sustainability (technology and extension system). It needs to be addressed by the NRMP: how can local increases be generated for reinvestment locally to ensure local sustainability?

RECOMMENDATION: Sustainability of interventions, supply of inputs, and continued local technical support should be a primary objective of any natural resources conservation follow-on project.

6. Use of Contact Farmers

Use of contact farmers proved most effective. The multiplier effect can leverage scarce extension resources. The contact farmer also provides a source of future TA for neighbors.

RECOMMENDATION: Replicate this approach on a national level, testing and tailoring it to local settings.

RECOMMENDATION: Study the differential performance of headwaters subwatersheds versus southern subwatersheds and do a with/without analysis. Apply lessons learned to a follow-on and national program.

RECOMMENDATION: Continue the training of contact farmers. Assign a full-time person to the NRMP Extension Section whose prime responsibility would be to coordinate the training of contact farmers.

7. Development of Comprehensive Training Program Including Appropriate User-Oriented Materials

Training was a major reason for the ability of the NRMP to expand so rapidly and produce tremendous outputs. The extension program is people-intensive, comprehensive training program. Demand-driven training by extension agents is the best approach.

RECOMMENDATION: Continue this same approach, and consider using it on a national level.

RECOMMENDATION: Complete materials development on the farmer level for the project, and consider a separate grant to a PVO to develop materials for national application in concert with NRMP staff.

RECOMMENDATION: Periodically assess the use and impact of the program post-technical assistance.

8. Conservation Production Practices

Chemonics assisted in the development and systematization of conservation-oriented production technologies. These were rapidly accepted by farmers, who reported experiencing significant yield and production increases while experiencing less soil erosion. Key strategies were (1) the incorporation of the farmer in selecting and implementing of technologies; (2) simple practices which built on existing farming systems; (3) use of trained extensionists in a supportive extension system geared toward the small farmer. While not scientifically documented, a sound base has been established for sustainable hillside agriculture in southern and, perhaps, central Honduras.

RECOMMENDATION: The NRMP should establish increased yield as the primary parameter for success of conservation practices.

REDCOMMENDATION: The effectiveness of current and future practices must be realistically assessed using yield increases as the objective.

RECOMMENDATION: Sustainability should be a primary criterion in selecting a set of interventions. Sustainability must be viewed in terms of inputs, farmer adoption, local TA availability, fit with existing farming systems, and market conditions.

9. Improved Range and Pasture Management

Some progress was made on improved pasture management. Improved forage and fodder sources were developed. However, little was done to improve management of common or public lands used for grazing. Since a large percentage of land is in this category and severely overgrazed, it is an area that must be improved to reach watershed management and production objectives.

RECOMMENDATION: Broaden the scope of the livestock and pasture section to include range management activities.

RECOMMENDATION: Provide training to NRMP central and field staff in range management techniques.

RECOMMENDATION: Develop a menu of interventions following the successful example of the soil conservation practices and the extension methodology. It must be carefully applied, however, as much of the grazing land is off-farm and governed by more complex usufruct rights and informal access agreements.

REDCOMMENDATION: Systematically test and validate interventions, extending the successful ones.

10. Farmer-Level Materials

There was inadequate time for this task; yet, farmer-level materials are needed for local reference.

RECOMMENDATION: A discrete project activity or separate project should be considered to develop farmer-level materials. The activity should incorporate farm families identify materials needed, content, and distribution.

11. Agroforestry

After many years of gentle persuasion, some progress has been made in agroforesty techniques. However, old traditions die hard, and most of the "old school" notions of forestry still persist in Honduras. In order for the NRMP to obtain significant increases in both agricultural and forest tree production on-farm, more emphasis should be placed on agroforestry versus plantation forestry.

RECOMMENDATION: Follow-up on the recommendations of Chemonics' short-term agroforester (April 1987).

RECOMMENDATION: Provide at least one short-term visit per year by an expatriate agroforestry advisor to assess progress and provide direction.

RECOMMENDATION: Any follow-on project should recognize the predisposition of most Honduran foresters to follow traditional forestry practices. Practical training in agroforestry principles and practices is required. However, there are very few competent agroforesters, so planning for such events should project at least one year ahead to obtain adequate technical assistance.

12. Tree, Crop, and Livestock Linkages

Inadequate attention was given in the NRMP to the complementary linkages across the production components of the farm system. Tree, crop, and livestock components should be viewed as interrelated parts of a system, parts that can compete with or complement each other, depending on how they are managed (see annex E for a graphic depiction of these relationships). The NRMP failed to take sufficient advantage of agroforestry, agropastoral, silvopastoral, and agrosilvopastoral interventions to increase production and simultaneously conserve the natural resources base.

RECOMMENDATION: The NRMP would benefit from a broader focus in agricultural production to include tree, crop, and livestock linkages in each subwatershed. This focus should be considered for any follow-on activities.

13. Insufficient Level of Effort for TA

The final level of effort (LOE) in the TA contract was less than the original specified in the RFTP. Chemorics economized greatly by using local advisors, and per work-month cost was low. The original estimates of TA contract length (39 months) were exceeded only slightly (48), but the project was extended by four years. TA stopped in mid-1987 with two years of implementation left and a follow-on in sight. Project personnel perceived a need for more TA and requested continuation. Legitimate ST needs exist in agroforestry, materials development, management systems, fruit/vegetable development, market linkages, and so on.

RECOMMENDATION: Program TA for the NRMP based on annual needs/work plan. Obtain TA through IQCs, PSCs, and other mechanisms as required.

RECOMMENDATION: In any follow-on project, a higher LOE is recommended. Consider a better mix of LT/ST. More local

advisors should be targeted for some technical support roles (e.g., soil conservation).

14. Technical Focus of TA

The TA was too broadly focused. This led to problems in implementation. For example, lack of credit/subsidy TA, lack of an economist to set up baseline data for a cost/benefit analysis, and lack of environmental monitoring for impact analysis caused setbacks in field implementation.

RECOMMENDATION: Any follow-on initiative should sharply focus the technical interventions. Lessons learned should be applied in the design. The TA package should relate directly to field implementation needs.

15. Lack of Available Technology for Hill Lands

Only basic grains technology was found to be applicable in the south, and good use of it was made, doubling and tripling yields with simple practices. However, no technology was available for the more complex production requirements of headwaters, e.g., for fruit and vegetable production. This hampered effectiveness in outreach and impact.

RECOMMENDATION: Link field implementation of the NRMP and any follow-on activity to applied research programs focusing exclusively on areas of need. T lor programs to each watershed. Applied research should respond to client needs, not arbitrary national programs or academic interests or capabilities of trained personnel. Let the local demand drive the technology testing trials.

RECOMMENDATION: Identification of technical alternatives to existing farm system practices should be done between extensionists and subject matter specialists following a common set of criteria. This activity should be coordinated by a well-respected technical generalist (agronomist) on the NRMP central staff. The newly-formed research unit in NRMP should lead this effort.

D. Lessons Learned and Recommendations for Project Management

1. GOH Support

When and where the NRMP had GOH support, activities had a chance of progressing without undue political interference. Without it, major problems resulted. For example, the NRMP almost died in 1982 from neglect during the transition from military government (1980-82).

Another example can be taken from the recent transition in government (late 1986, early 1987). There was a nearly total replacement of staff. There was approximately a 75% turnover in field positions. The NRMP became another basket into which political appointees were placed. This set the NRMP back about one year.

If the NRMP is producing politically promising outputs, the NRMP should have a stronger basis from which to maintain the human resources and systems that generate those outputs. Project planners should also calculate the phenomenon of turnover into any project that spans a transitional period.

RECOMMENDATION: SRN must continue to place a high priority on the NRMP, and allow it sufficient autonomy and authority to continue its pioneering role.

RECOMMENDATION: Any follow-on design must include covenants and safeguards on key personnel assignments. USAID should analyze experience of other donors in Honduras who use more technical criteria for assignation of project personnel.

2. Need for Capable, Stable Leadership

The NRMP had the same director for four years (after removal of the first director who was an inappropriate selection), the same core TA team of Chemonics' long-term advisors for four years, and the same AID project officer since 1982. These key individuals were capable technical personnel with leadership ability. Their long tenure together permitted a close working relationship and fostered trust and flexibility to implement the NRMP.

RECOMMENDATION: Changes in the project director position should be minimized. In designing any follow-on or similar project, safeguards should be installed to permit removal of inappropriate personnel following accepted procedures for this task.

3. Flexibility

The project director and USAID project officer maintained a flexible, participatory management approach. The Chemonics TA contract was designed as a flexible document with broad scope and detailed annual work plans. These conditions enabled participants to respond to the inevitable changes required in a complex project such as the NRMP.

4. Negotiating Scopes of Work

The practice of allowing the project director to negotiate the scope of work for the TA contract was a good one.

It gave the director technical control and responsibility for the selection of advisors and their integration into the NRMP.

5. Recognizing Performance in the TA Team

Good TA experiences were documented. Negative experiences were terminated, even though GOH management direction shared blame. Chemonics made the necessary hard decisions. This factor should be considered a positive one, and it was.

6. Planning, Monitoring, and Evaluation System

The planning, monitoring and evaluation system was developed for NRMP and was adequate for the moment. However, inherent deficiencies were (1) lack of quality control due to reliance on rather rigid plans and monitoring procedures; (2) inadequate supervision of reporting; and (3) sporadic application and inconclusive results for on-farm practices.

RECOMMENDATION: Supervisors are key to this system. Instead, they have often acted as bottlenecks. They need to be committed and capable and should be selected from among field personnel on the basis of demonstrated work performance, and technical and interpersonal skills. Political appointees should be discouraged, although the practice is unavoidable at the higher echelons.

RECOMMENDATION: On-farm monitoring needs to be strengthened. The current NRMP information-gathering systems for on-farm data (farmer index, demonstration plot registers, and production registers) need to be consolidated into a single system. This system should systematically generate data to select and evaluate practices. The agency-level farm file system should be reinforced through frequent supervisory visits. The annual evaluation should include a quantitative analysis of practices to provide feedback for selection or deselection of interventions. Additional short-term TA may be required to accomplish this objective in 1988/89.

7. USAID Oversight

There was an overreliance on the COP and project director for project oversight. The positive result was that the NRMP became more of a GOH project, not an AID project or a Chemonics project. However, staff turnover hurt.

With a new project director, there is very little perceived influence from USAID's project officer that can result in unintended misuse of resources by the NRMP staff.

There is a need for a management systems support person, either a full-time project officer or PSC advisor.

RECOMMENDATION: USAID should cultivate a closer counterpart role with NRMP staff by (1) attending and fully participating in a yearly evaluation/planning excercise; (2) using the work plan to guide performance monitoring; (3) maintaining a desk in NRMP; and (4) maintaining hours/scheduled meetings. A full-time project officer or PSC management advisor should be assigned.

8. Insufficient Coordination Among NRMP and Other AID-Financed Projects

There are other projects that complement the NRMP. However, since portfolio program management was not emphasized, little synergy was developed. For example, the Rural Technologies Project had inputs to offer, as did the FHIA project. What cooperation and transfer that did occur was a matter of personal initiative. However, we understand that a new Agriculture Sector Strategy was recently completed, and an improved management program initiated. These will lead to a more focused sector program and better inter-project coordination.

10. Complexities of USAID and GOH Regulations

Problems in procurement, financial management, and budgeting hampered NRMP effectiveness. USAID rules are standard, but change frequently. They are perceived by NRMP staff as complex.

RECOMMENDATION: Because of the complexity and frequent staff turnover, a standard procedures guide is needed. A training module should be developed. Then, admin/finance and project management personnel should be trained and updated annually, as should be the guide/module.

ANNEX A

HONDURAS NATURAL RESOURCES MANAGEMENT PROJECT
CHEMONICS TECHNICAL ASSISTANCE CONTRACT

REPORTS, PUBLICATIONS AND RELATED DOCUMENTS

1980

Project Paper, Natural Resources Management Project, July 1980.

1981

Request for Proposals, Natural Resources Management Project, November 1981.

1982

Plan de Reactivación Preliminar Projecto Manejo de Recursos Naturales, SRN, August 1982.

Plan Preliminar de Ordenación y Manejo de la Subcuenca del Rio Guacerique, Proyecto Manejo de Recursos Naturales, Plan para 1982-1985, by Humberto Hernández, 1982.

1983

Technical Assistance Contract for the Natural Resources Management Project between USAID/Honduras and Chemonics International Consulting Division, April 1983.

Report on Activities of Chemonics Technical Assistance Team on the Natural Resources Management Project, May - December, 1983.

1984

First Formulative Evaluation of the Natural Resources Management Project, IDS 84-1, USAID/Honduras, January 1984.

Proyecto Manejo de la Cuenca del Rio Choluteca: Componente Ganadero, by Rafael Ledesma and Humberto Gaekel, February 1984.

Work Strategy Plan for 1984, Chemonics Technical Assistance Team, Natural Resources Management Project, February 1984.

Seminario Móvil: Memoria, Proyecto Manejo de Recursos Naturales, August 1984.

Manual Práctico de Pastos y Ganado, by Rafael Ledesma, 1984.

Plan de Trabajo Para Asistencia Técnica en la Producción de Materiales Audiovisuales Para el Proyecto Manejo de Recursos Naturales, Omar Serritella, editor, August 1984.

The Natural Resources Management Project: A Status Summary, by John P. Warren, USAID/Honduras, October, 1984.

Plan de Manejo de las Cuencas de los Rios Choluteca y Sampile/Guasaule, Natural Resources Management Project, Siguatepeque, November 1984.

Primera Evaluación Interna del Proyecto, Natural Resources Management Project, Siguatepeque, November 1984.

Annual Report on Activities of Chemonics Technical Assistance Team on the Natural Resources Management Project, January - December, 1984.

1985

Informe Final de la Consultoria en Mercadéo y Distribución de Productos Agrícolas, by Ramón Serna, January 1985.

Work Strategy Plan for 1985, Chemonics Technical Assistance Team, Natural Resources Management Project, February 1985.

Formación de Productores Enlace, by Cecilio Ferrufino, A. Oviedo, and P. Hughes-Hallett, Región Sur, SRN, 1985.

La Incorporación de Técnicas Agroforestales en el Proyecto Manejo de Recursos Naturales, by Robert Peck, May 1985.

Semi-Annual Report on Activities of Chemonics Technical Assistance Team on the Natural Resources Management Project, January-June 1985.

La Reforestación en las Pequeñas Fincas de Ladera: Experiencias en Honduras, by Paul Dulin, July 1985.

Manual Práctico de Manejo de Pastos Y Ganado, by Rafael Ledesma and H. Gaekel, Natural Resources Management Project, August 1985.

Annual Report on Activities of Chemonics Technical Assistance Team on the Natural Resources Management Project, January - December, 1985.

Metodología de Extensión y la Incorporación del Agricultor en el Manejo de Recursos Naturales, by Peter Hughes-Hallett, December 1985.

1986

Work Strategies/Plans for 1986, by individual Chemonics advisors, January 1986.

Folleto de Campo: Conservación de Suelos, by Frederick Tracy and Ricardo Pérez, January 1986.

Metodología de Seguimiento de Productores Enlace, by Cecilio Ferrufino, A. Oviedo, and Peter Hughes-Hallett, Región Sur, SRN, 1986.

Manual Práctico de Extensión, by Peter Hughes-Hallett, Proyecto Manejo de Recursos Naturales, 1986.

Final Report of Technical Assistance Consultancy of Paul Dulin, Watershed Management Specialist/Chief of Party, Chemonics International Consulting Division, June 1983 - December, 1986.

Proyecto Manejo de Recursos Naturales, 1982 - 1985, Tegucigalpa, D.C., 1986.

Second Evaluation of The Natural Resources Management Project, by Tropical Research and Development, Inc. (Joshua Dickinson et. al.), 1986.

Manual Práctico de Conservación de Suelos, by Frederick Tracy and R. Pérez, Proyecto Manejo de Recursos Naturales, 1986.

Manual Práctico de Piscicultura, by Manuel Paz, Proyecto Manejo de Recursos Naturales, 1986.

Procedimientos Para el Manejo de Proyectos de Recursos Naturales, by Paul Dulin, June 1986.

Recommendaciones para un Programa de Investigación dentro el Proyecto Manejo de Recursos Naturales, by Miguel Angel Bonilla, May 1986.

Annual Report on Activities of Chemonics Technical Assistance Team on the Natural Resources Management Project, January-December, 1986.

1987

Manual Forestal: Esquema Anotado, by Paul Dulin, January 1987.

Memoria de Evaluación Interna Anual 1986 - Plan 1987, Proyecto Manejo de Recursos Naturales, January 1987.

Informe: Component de la Mujer, Proyecto Manejo de Recursos Naturales, by Cornelia Butler Flora, April 1987.

Final Report, Short Term Assignment by L.C. Fierro (Range Management and Livestock Specialist), April 1987.

Final Report of Technical Assistance Consultancy of Peter Hughes-Hallett, Extension and Community Organization Specialist, Chemonics International Consulting Division, May 1983 - May 1987.

Final Report of Technical Assistance Consultancy of Frederick Tracy, Soil Conservation and Land Use Specialist, Chemonics International Consulting Division, November 1983 - May 1987.

Undated

Folleto de Campo: Prácticas Agroforestales, Proyecto Manejo de Recursos Naturales.

Folleto de Campo: Manejo de Arboles en Lotes Agroforestales, by José Ricardo Fasquelle and Paul Dulin.

ANNEX B

HONDURAS NATURAL RESOURCES MANAGEMENT PROJECT
CHEMONICS TECHNICAL ASSISTANCE CONTRACT

A Brief Chronological History of the NRMP: 1981-1987

1980 Project Authorized
Project Agreement signed

1981 Project Start-up: Roberto Ruiz assumes Directorship.
Rent offices and hire key personnel.
Project personnel visit some Headwaters sub-region communities.
National Elections (November).

1982 Change in Government (February).
Conditions precedent fulfilled.
2 week training session held for project personnel.
Host country technical assistance contract negotiated with Chemonics; USAID delays its processing (March).
Carlos Rivas named as new Project Director.
USAID assigns full permanent Project Officer (John Warren). Ultimatum given to NRMP - Get some results!
Field personnel distributed in extension agencies in Headwaters.
Soil conservation promoted by cash subsidies and production credit offered to groups.

1983 Soil conservation and forestry nursery work continues in Headwaters.
Expansion into Sampile-Guasaule (South): 4 new agencies.
Direct AID contract negotiated with Chemonics (April).
Project holds problem-solving confrontation-type workshop.
2 of the original national specialists leave (April).
Chemonics begins activities (May).
Orientation trip to other projects.
Watershed management plan written.

1984 Expansion into Texiguat-Orocuina area in Soil Conservation.
2 more agencies in Headwaters area.
Completion of management plans.
USAID/CARE project steamrolls into Southern Region.
Commencement of field-level livestock and pasture management activities.
Training courses given to field personnel.
Monthly planning and yearly evaluation introduced.
Introduction of extension methodology, including

demonstration plot use, film-strips, promotion visits and short courses for farmers.
Limitation of cattle technology according to producer type.
1° Project level "Annual Evaluation and Planning Meeting".

1985 Central Region created.
NRMP expands in 7 Talanga agencies.
NRMP personnel training plan produced and carried out.
Project-wide use of extension methodology.
Contact-farmers (productores enlace) trained in Southern Region.
Film-strips and flip-charts made. Slide library expanded.
Increased attention paid to agronomic practices.
Focus of forestry component changes to agroforestry.
King grass heavily promoted in livestock/pasture component.
Livestock/Pasture manual printed. Drafts of extension and soil conservation manuals produced.
3 regional annual evaluation and programming events.
National elections (November).

1986 Change in Government (February).
Changes in Government cause considerable administrative delays (especially for contracts, inputs and training).
External evaluation and USAID audit.
Publication of soil conservation and extension manuals.
Follow-up for Contact-Farmer methodology.
Continued use of monthly planning formats.
Experienced NRMP personnel leave project on USAID scholarships, others are sacked for political reasons.
Big influx of new personnel - many training events.
Wilfredo Córdova named Project Director.
Drought in south.
Investigation element introduced into project.
Greater coordination with other projects technical).
2 long-term Chemonics members leave (Watershed management and livestock).
3 regional annual evaluation and programming events.

1987 Greater consolidation of all components.
Procedures manual published.
1° project level supervisors workshop held.
Introduction of computerized data management system.
Expansion into southwestern El Paraiso region.
Greater attention given to area characterization as a basis for planning activities.
Chemonics field activities terminate (May).
Investigation component established within agriculture section.

ANNEX C

HONDURAS NATURAL RESOURCES MANAGEMENT PROJECT
CHEMONICS TECHNICAL ASSISTANCE CONTRACT

ADVISORY SERVICES SUPPLIED BY CHEMONICS TO NRMP PROJECT

LONG TERM SPECIALTIES (2 years or more)

Watershed Mgt. Advisor and Chief of Party (COP)	May 83-July 86
Agricultural Extension & Community Organization Specialist *	May 83-June 87
Soil and Water** Conservation Specialist	Nov 83-June 87
Livestock and Range Management Specialist	May 83-May 86

* Also COP from July 86-June 87
** Also Deputy COP from July 86-June 87; services originally supplied under subcontract through Soil and Land Use Technologies, Inc. (11/83-5/86)

SHORT TERM SPECIALTIES

Horticulture/Fruits	May 83-May 84
Natural Resources & Agricultural Economics	Mar 84-Mar 85
Audiovisual Planning and Materials Development	3 assignments 1984-1985
Agroforestry Specialist	April-May 85 Mar-April 87
Women in Development Specialist	Mar-April 87
Women in Development Specialist	Sept-Oct 84
Range and Pasture Specialist	Feb-April 87

Marketing and Distribution Spec.	Aug-Dec 84
Agricultural Research Specialist	1986
Farming Systems Spec.	Aug-Sept 84 Jan-Feb 85
Environmental Monitoring Specialist	Nov-Dec 85 Feb-Jun 86
Graphic Artist	Mar-May 85

HOME OFFICE MANAGEMENT SUPPORT

Project Supervisor	April 83-Dec 86
Project Manager	April 83-Aug 84 Jan 87-July 87
Project Administrator	July 86-July 87

ANNEX D

HONDURAS NATURAL RESOURCES MANAGEMENT PROJECT
CHEMONICS TECHNICAL ASSISTANCE CONTRACT

NRMP TECHNOLOGIES, TECHNIQUES, AND INTERVENTIONS

The following list is a summary of the technical interventions, technologies, and techniques promoted by Chemonics under the NRMP. It is understood that these were developed in close collaboration with national counterparts and with the extensionists and farmers themselves. It is worth noting that each item listed here was not applied uniformly across the entire NRMP project area. Rather, practices were keyed to local needs and local agroecological zones.

A. Agricultural Practices

1. Agronomic Practices

a. Improved spacing/planting densities in grains

b. Minimum tillage

c. Green manuring

d. Composting and fertilizer inputs

e. On-farm small scale irrigation

f. Alternative cash crops (mainly vegetables)

g. Integrated pest management

h. Improved native seed selection

2. Soil Conservation Techniques--these were incorporated into the farming system and not applied separately.

a. Contour cultivation

b. Absorption ditches (with live barriers)

c. Live and dead barriers (emphasis on incorporation of forage and fodder species)

d. Grassed waterways

e. Individual terraces (e.g. for fruit trees)

f. Narrow-base terraces (<u>asequias</u>)

g. Bench terraces (only where high value crop justified expensive labor costs of installation and maintenance)

h. Drainage canals

B. Livestock and Pasture Management Practices

1. Pasture/Range Improvement

a. Dry season forage (e.g.: king grass)

b. Improved herd management (fencing, stall feeding, cut and carry, etc.)

c. Better grazing management under forests

2. Improved Livestock Management

a. Improved production (better feed, forage, fodder)

b. Improved animal health (vaccination, supplements)

c. Better mix of farm animals to maximize output

C. Forestry and Agroforestry Practices

1. Improved Forest Management

a. Enrichment plantings

b. Thinnings, pruning and other timber stand improvement work

c. Better fire control

d. Better resination practices

e. Coppice growth

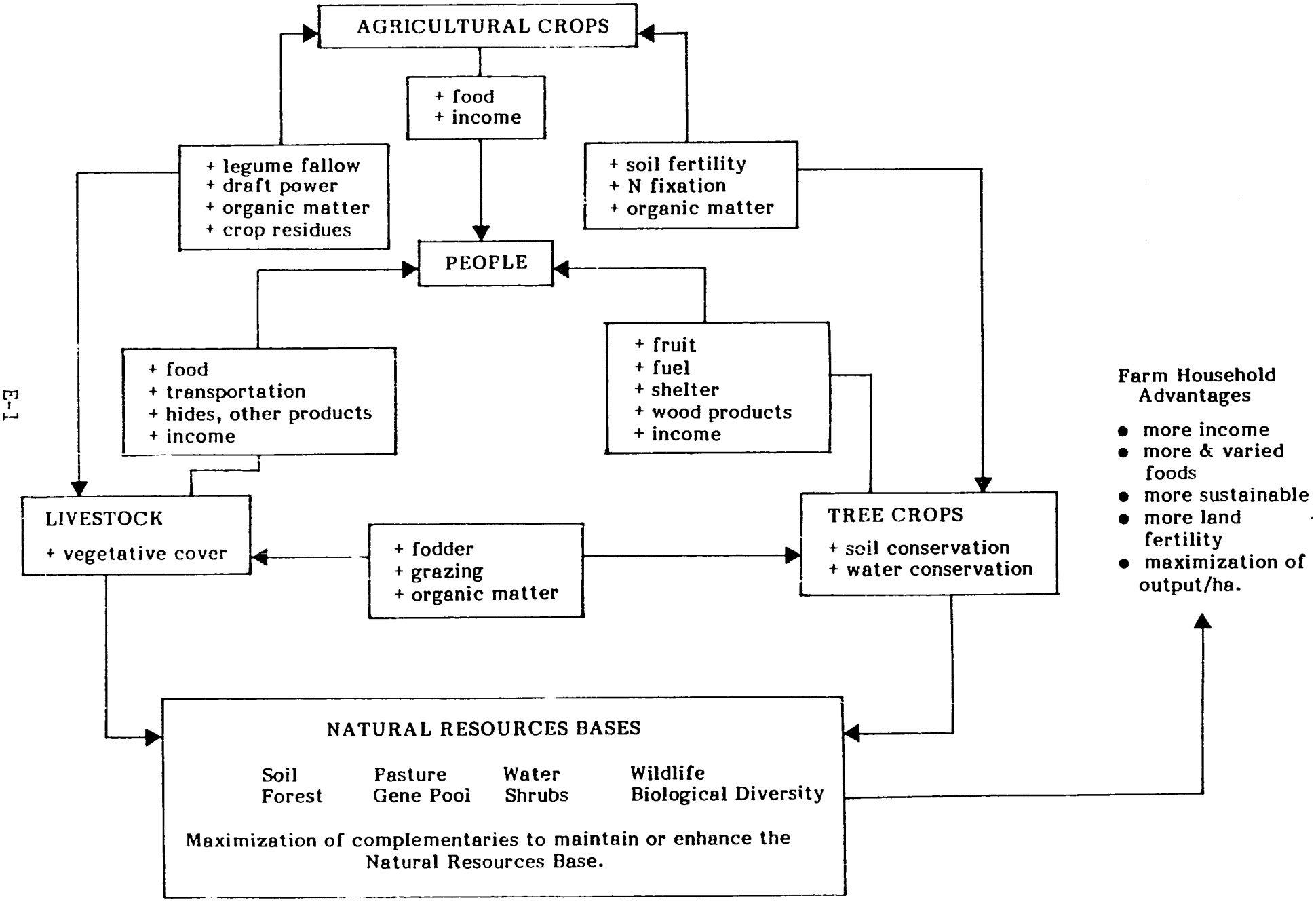
2. Improved Reforestation

a. Better species selection, favoring farmer-preferred varieties

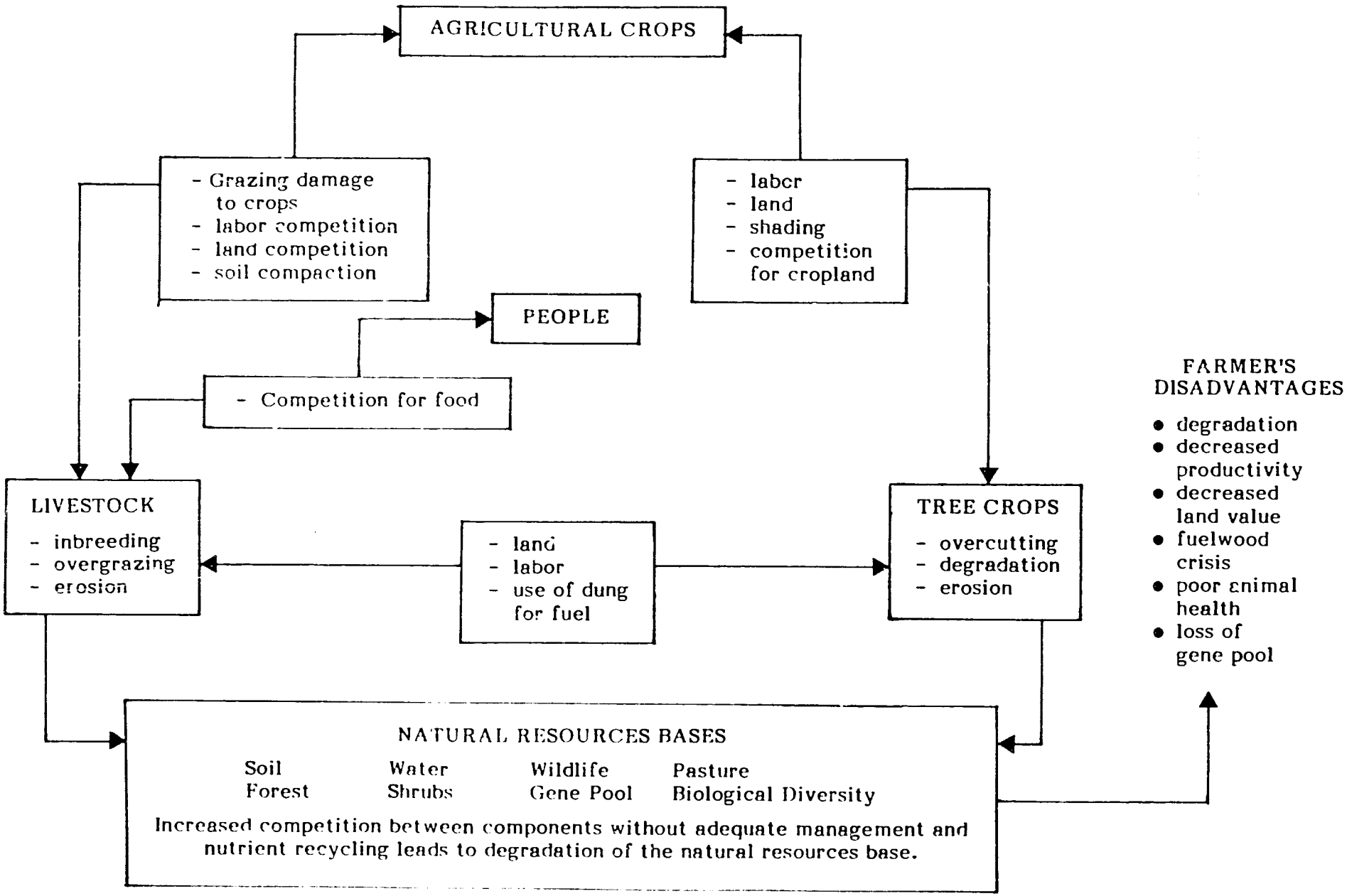
b. Improved focus on agroforesty, live fencing, and multipurpose trees

c. Agroforestry promotion for better on-farm production of fodder, fuelwood, and other products

EXHIBIT F-1 COMPLEMENTARY RELATIONSHIPS AMONG AGRICULTURE, LIVESTOCK, AND TREE CROPS FROM FARMER AND NATURAL RESOURCES PERSPECTIVE



COMPETITIVE RELATIONSHIPS AMONG AGRICULTURE, LIVESTOCK, AND TREE CROPS FROM FARMER AND NATURAL RESOURCES PERSPECTIVE



SISTEMA DE PRODUCCION DE FINCA

PROCESO DE UTILIZACION Y PRODUCCION

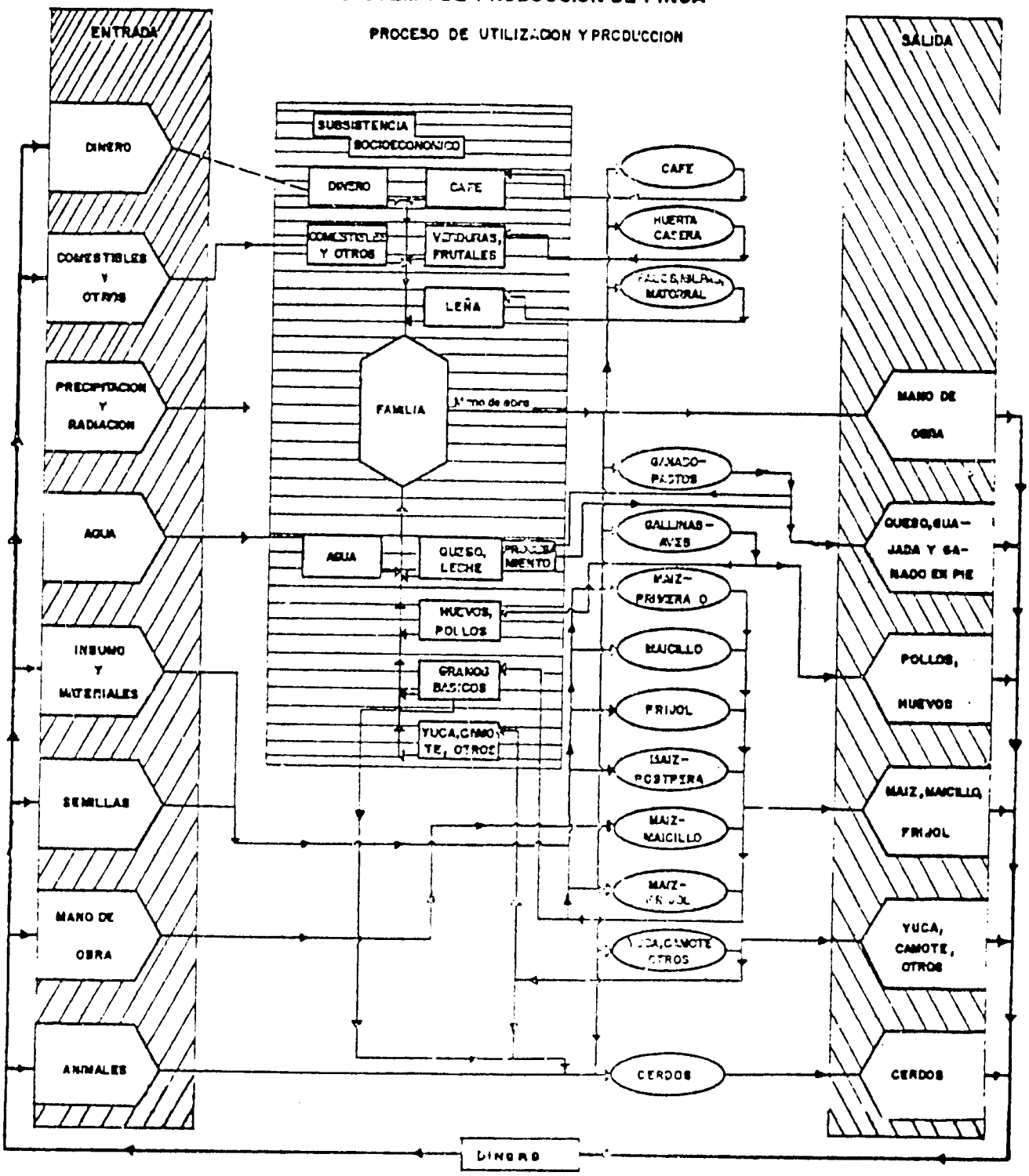
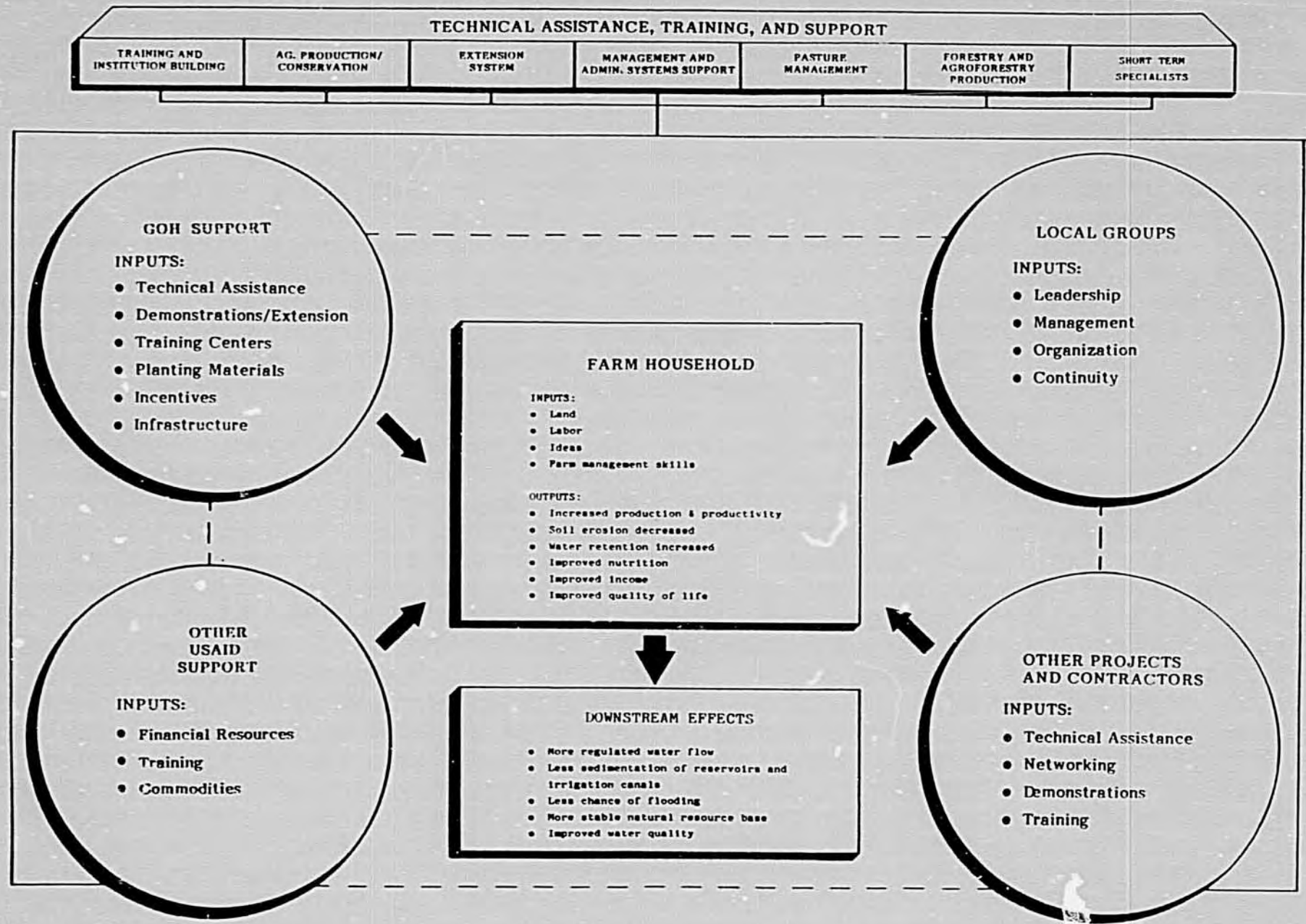


EXHIBIT E-4 FLOW CHART OF INPUTS AND POSSIBLE OUTPUTS FOR NRMP



E-4

ANNEX F

REFERENCES ON CHEMONICS' PERFORMANCE

References on Chemonics' performance under the Honduras Natural Resources Management Project may be checked at any time with the following individuals who were responsible for the technical and management direction of the IQC contract. Following the list we present a sampling of comments from the various NRMP evaluations and other project documents refering to Chemonics performance.

USAID REFERENCES

Dr. John Warren, Project Officer
Office of Agriculture and Rural Development
USAID/Honduras
APO, Miami 34002 Telephone: 504/323096 or 326232

Mr. Richard Peters, Chief
Office of Agriculture and Rural Development
USAID/Honduras
APO, Miami 34002 Telephone: 504/323096 or 326232

GOH REFERENCES

Ing. Carlos Rivas, Project Director (1982-86)
Proyecto Manejo de Recursos Naturales
Apartado Postal 168-C
Tegucigalpa, D.C.
Honduras Telephone: 504/333671 or 74

Ing. Wifredo Cordova, Project Director (1987-)
Proyecto Manejo de Recursos Naturales
Apartado Postal 168-C
Tegucigalpa, D.C.
Honduras Telephone: 504/333671 or 74

Ing. Luís Alvarez, Project Subdirector (1986-)
Proyecto Manejo de Recursos Naturales
Apartado Postal 168-C
Tegucigalpa, D.C.
Honduras Telephone: 504/333671 or 74

CITATIONS FROM PROJECT EVALUATIONS AND USAID DOCUMENTS

"Arrival of the Chemonics team [has] provided a significant impetus to the Project and the NRMP continues to gain momentum day by day."(First Evaluation of the NRMP, IDS 84-1, January 1984)

"[The evaluators] are impressed with the quality of personnel employed by Chemonics as technical advisors to the team." (Ibid, p. 30)

"Arrival of the Technical Assistance team [Chemonics] in mid-1983 was another critical step toward full implementation... A great deal of this progress has been achieved in the time period since June, 1983, indicating the current dynamism and growth within the NRMP. The Chemonics TA team has been instrumental in the positive achievements of the watershed management activities. (The NRMP, A Status Summary, USAID/Honduras, October 1984.)

"Essential, high quality technical assistance has been provided to the project through a contract with Chemonics International... The Chemonics TA team has done an excellent job and has made a major contribution to project success... The dedication of the TA team has contributed substantially to the project's accomplishments." (Second Evaluation Report of the NRMP, Tropical Research and Development, Inc., March 1986.)