

**APPENDIX D
A.I.D. EVALUATION SUMMARY - PART I**

PD-ARF-893
82345

1. BEFORE FILING OUT THIS FORM READ THE ATTACHED INSTRUCTIONS
2. USE LETTER QUALITY TYPE "DOT MATRIX" TYPEWRITER

IDENTIFICATION DATA

A. Reporting A.I.D. Unit: Mission or AID/W Office <u>ROCAP</u> (ES# _____)		B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan? Yes <input type="checkbox"/> Skipped <input type="checkbox"/> Ad hoc <input checked="" type="checkbox"/> Evaluation Plan Submission Date: FY <u>NA</u> <u>0</u>	C. Evaluation Timing Interim <input type="checkbox"/> Final <input type="checkbox"/> Ex Post <input type="checkbox"/> Other <input type="checkbox"/>
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D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated. If not applicable list title and date of the evaluation report.)

Project No.	Project /Program Title	First PROAG or Equivalent (FY)	Most Recent PACD (Mo/Yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
596-0150	Regional Environmental and Natural Resources Management. Wood Utilization and Market Development Activity Component.	89	09/30/95	50,200.000	31,948,430

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director Action(s) Required	Name of Officer Responsible for Action	Date Action to be Completed
1. Proceed with design of RENARM Project Paper Supplement: Wood Utilization and Market Development Activity; integrating findings of the evaluation.	William Sugrue	1 Jun 1992
2. Carry out Mission review of PP Supplement.	Lars Klassen	11 Jun 1992
3. Circulate PP Supplement to CA Mission Directors for comments.	Irenemaree Castillo	10 Jul 1992

(Attach extra sheets if necessary)

APPROVALS

F. Date Of Mission Or AID/W Office Review Of Evaluation: (Month) June (Day) 11 (Year) 1992

G. Approvals of Evaluation Summary And Action Decisions:

	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director
Name (Typed)	William Sugrue	N/A	Nancy Hooff	Lars Klassen
Signature				
Date	4/2/93			4/2/93

[Handwritten mark]

ABSTRACT

H Evaluation Abstract (Do not exceed 20 pages)

The goal of the "Wood Utilization and Market Development Activity" is to simultaneously develop higher-valued products for many underutilized species and to develop the markets for those products. The result will be the development of market links providing for ecologically and economically sustainable forest management. The project aims to show how market forces can be powerful allies to conservation and reforestation. A variety of demonstration activities are to help make the role of production forestry and its associated industries better understood by decision-makers and the producing and consuming public.

The Activity was implemented by IMCC under a contract with ROCAP in Guatemala. All of IMCC's activities in Guatemala during the previous 1-1/2 years as well as their plans to finalize the contracted work by July, 1992 were evaluated by a one-person team during a 15-day visit to Guatemala in March 1992.

Included in the evaluation report is a detailed analysis of all 20 activities proposed by IMCC. Also, the evaluator makes suggestions for adjustments in the program that will help demonstrate more clearly why and how wood utilization and market development are an integral and indispensable part of successful sustainable forest management.

The evaluator concludes that the wood utilization and market development programs being developed by ROCAP are an important, perhaps essential, element in any program aimed at helping the forests of Central America recuperate and survive. The progress made by ROCAP's contractor in the first 1-1/2 years has been significant both in terms of the amount of work achieved and in terms of the development of a clear picture of what aspects of the overall program should be continued in Guatemala and the region in general.

The only significant criticism that many people had of the program was that, because IMCC was working on short (6-month) contract deadlines, it was impossible for it to develop any activities in depth and that, because there was a chance that the contract and development work would not be renewed, potential cooperators were only willing to invest a modicum of resources in the programs IMCC was promoting.

Based on the largely positive responses to the various activities, the evaluator strongly suggests that the work ROCAP has started be continued.

COSTS

1. Evaluation Costs

1. Evaluation Team		Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. \$)	Source of Funds
Name	Affiliation			
Mr. Stewart Holmes	Stewart Holmes & Associates	20 Days		Project Funded.

2. Mission/Office Professional Staff
Person-Days (Estimate) 10

3. Borrower/Grantee Professional
Staff Person-Days (Estimate) 10

A.I.D. EVALUATION SUMMARY - PART II

SUMMARY

J. Summary of Evaluation Findings, Conclusions and Recommendations (Try not to exceed the three (3) pages provided)

Address the following items:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Purpose of evaluation and methodology used • Purpose of activity(ies) evaluated • Findings and conclusions (relate to questions) | <ul style="list-style-type: none"> • Principal recommendations • Lessons learned |
|--|--|

Mission or Office: ROCAP	Date This Summary Prepared: 31 MAR 1993	Title And Date Of Full Evaluation Report: Wood Utilization and Market Development Activity Sustainable Agriculture and Forestry Com-
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ponent of the Regional Environmental & Nat. Res. Management Project.

The "Wood Utilization and Market Development Activity" implemented by IMCC under a contract with ROCAP was evaluated in Guatemala. All of IMCC's activities in Guatemala during the previous 1-1/2 years were reviewed as were their plans to finalize the contracted work by July, 1992. The evaluator spent 15 days in Guatemala meeting with more than three dozen individuals from wood using industries, NGOs, government agencies, cooperatives, and environmental organizations. Represented were sawmillers, furniture makers, artisans, forest land owner-managers, training and research institute managers, and associations of producers and consumers of a wide range of forest products. Also interviewed were representatives of U.S. organizations associated with the activities of ROCAP. Everyone interviewed had worked with IMCC. Approximately two dozen publications were studied for background information.

The desired result of this program is the sustained management of the forests of Guatemala, and ultimately all of Central America, through the development of wood utilization and marketing activities aimed at all sectors of the population and industry. In the region there are large numbers of tree species whose uses and values are not known or recognized. As the only market/end use for most wood presently is firewood, that is what most of it is used for. The result has been deforestation on a massive scale throughout the region.

The goal is to simultaneously develop higher-valued products for many underutilized species and to develop the markets for those products. The result will be the development of market links providing for ecologically and economically sustainable forest management. The project aims to show how market forces can be powerful allies to the long ongoing conservation and reforestation activities.

The contractor's objectives include a variety of demonstration activities that will help make the role of production forestry and its associated industries better understood by decision-makers and the producing and consuming public. In addition, outreach activities will be developed to improve communications among the forestry, wood products and environmental sectors for the purpose of stimulating more effective and efficient policy decisions.

ROCAP contracted with IMCC in part due to significant achievements made in Ecuador by Mr. Molinos, then under contract with NCSU, doing some of the same type of work. Although IMCC (now Mr. Molinos' contractor) has been in Guatemala only 2-1/2 years, the evaluator found that IMCC had been involved in nearly 20 activities and had developed a significant and positive presence in the minds of key people in those

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sectors. IMCC's manager, Mr. Molinos, played a key role in the development of a new forestry law in Guatemala by getting and keeping key players talking with one another. This early involvement has helped IMCC in all its efforts.

The only significant criticism that many people had of the program was that, because IMCC was working on short (6-month) contract deadlines, it was impossible for it to develop any activities in depth and that, because there was a chance that the contract and development work would not be renewed, potential cooperators were only willing to invest a modicum of resources in the programs IMCC was promoting. This situation could change for the better if the time frame for ROCAP's contractor was three or more years.

Included in this report is a detailed analysis of all 20 activities proposed by IMCC. Also, the evaluator makes suggestions for adjustments in the program that will help demonstrate more clearly to host country nationals why and how wood utilization and market development are an integral and indispensable part of successful sustainable forest management.

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Based on the largely positive responses to the various activities, the evaluator strongly suggests that the work ROCAP has started be continued. A higher level of funding is warranted given the positive and significant results from Phases I-III. A minimum contract period of three years is suggested.

ATTACHMENTS

K. Attachments (List attachments submitted with the Evaluation Summary. Always attach copy of full evaluation report even if one was submitted earlier. Attach studies, surveys, etc. from "ongoing" evaluation if relevant to the evaluation report.)

1. Full Evaluation Report
2. RENARM draft PP Supplement

COMMENTS

L. Comments By Mission, AID/W Office and Borrower/Grantee On Full Report

1. Given the short time allowed for the evaluation of a complex activity, the evaluation report is of good quality, is quite objective and lays a good foundation for design of an extension of this activity. The report was utilized to prepare the RENARM PP Supplement which is attached. Comments received on the Supplement by USAID Missions in Costa Rica, Panama, Belize and from A.I.D./LAC tended to be positive.
2. The Regional Contracting Office decided not to accept the offer of IMCC to continue to execute this activity for four months beyond 30 SEP 92 until the Supplement was expected to become operational (PIO/T No. 596-0150-3-20072). The IMCC contract No. 596-015-C-00-11309-00) was allowed to reach its natural termination on this date. Consequently the PP Supplement was shelved.

XD-ABF-893-A
82346

Evaluation of the

Wood Utilization and Market Development Activity
Sustainable Agriculture and Forestry Component of the
Regional Environmental & Natural Resources Management Project

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EXECUTIVE SUMMARY

The "Wood Utilization and Market Development Activities" being implemented by IMCC under a contract with ROCAP was evaluated in Guatemala. All of IMCC's activities in Guatemala during the past 1-1/2 years were reviewed as were their plans to finalize the contracted work by July, 1992. The evaluator spent 15 days in Guatemala meeting with more than three dozen individuals from wood using industries, NGOs, government agencies, cooperatives, and environmental organizations. Represented were sawmillers, furniture makers, artisans, forest land owner-managers, training and research institute managers, and associations of producers and consumers of a wide range of forest products. Also interviewed were representatives of U.S. organizations associated with the activities of ROCAP. Everyone interviewed had worked with IMCC. Approximately two dozen publications were studied for background information.

The desired result of this program is the sustained management of the forests of Guatemala, and ultimately all of Central America, through the development of wood utilization and marketing activities aimed at all sectors of the population and industry. In the region there are large numbers tree species whose uses and values are not known or recognized. As the only market/end use for most wood presently is firewood, that is what most of it is used for. The result has been deforestation on a massive scale throughout the region.

The goal is to simultaneously develop higher-valued products for many underutilized species and to develop the markets for those products. The result will be the development of market links providing for ecologically and economically sustainable forest management. The project will show how market forces can be powerful allies to the long ongoing conservation and reforestation activities.

The contractor's objectives include a variety of demonstration activities that will help make the role of production forestry and its associated industries better understood by decision-makers and the producing and consuming public. In addition, outreach activities will be developed to improve communications among the forestry, wood products and environmental sectors for the purpose of stimulating more effective and efficient policy decisions.

ROCAP contracted with IMCC in part due to significant achievements made in Ecuador by Mr. Molinos, then under contract with NCSU, doing some of the same type of work. Although IMCC (now Mr. Molinos' contractor) has been in Guatemala only 2-1/2 years, the evaluator found that IMCC had been involved in nearly 20 activities and had developed a significant and positive presence in the minds of key people in those sectors. IMCC's manager, Mr. Molinos, played a key role in the development of a new forestry law in Guatemala by getting and keeping key players talking with one another. This early involvement has helped IMCC in all its efforts.

The only significant criticism that many people had of the program was that, because IMCC was working on short (6-month) contract deadlines, it was impossible for it to develop any activities in depth and that, because there was a chance that the contract and development work would not be renewed, potential cooperators were only willing to invest a modicum of resources in the programs IMCC was promoting. This situation could change for the better if the time frame for ROCAP's contractor was three or more years.

Included in this report is a detailed analysis of all 20 activities proposed by IMCC. Also, the evaluator makes suggestions for adjustments in the program that will help demonstrate more clearly to host country nationals why and how wood utilization and market development are an integral and indispensable part of successful sustainable forest management.

The evaluator concludes that the wood utilization and market development programs being developed by ROCAP are an important, perhaps essential, element in any program aimed at helping the forests of Central America recuperate and survive. The progress made by ROCAP's contractor in the first 1-1/2 years has been significant both in terms of the amount of work achieved and in terms of the development of a clear picture of what aspects of the overall program should be continued in Guatemala and the region in general.

Based on the largely positive responses to the various activities, the evaluator strongly suggests that the work ROCAP has started be continued. A higher level of funding is warranted given the positive and significant results from Phases I-III. A minimum contract period of three years is suggested.

INTRODUCTION

The following is an evaluation of the "Wood Utilization and Market Development Activity" being implemented by IMCC under AID Contract No. 596-0150-C-00-1309-00 for the RENARM project. (The acronym INFORDE is sometimes used by IMCC and in Central America to refer to the work being done by IMCC.) The evaluation is based on the IMCC Scope of Work and concentrates on IMCC planning and strategy, as well as on activities undertaken and results achieved. The evaluation suggests adjustments in the program that will help demonstrate why and how wood utilization and market development are an integral and indispensable part of successful sustainable forest management.

Sustainable management of forests, especially those such as the lowland forests of Central America, (probably) requires a wood utilization and market development activity aimed at all sectors of the population, i.e., small, medium and large land owner/managers and consumers. This requirement comes from the fact that, because there exist a large number tree species whose uses and values are not (widely) recognized, especially by the small- and medium-sized land owner/managers and industries, there is no market for most of the species except for use as fuel for cooking and heating. Wood used as fuel and for heating, while being an absolute necessity of life for most people in the world, also usually constitutes its lowest-valued possible use. However, because no markets exist for most species in these forests, there are no reasons for most land owners to harvest the trees in a sustainable fashion let alone to replace them with potentially more valuable species.

If the forests of Central America are to be saved, markets for the many and varied species must be developed to provide the economic stimulus to the land owner/managers and industries just mentioned. That is the goal of the ROCAP project under evaluation.

This project is aimed at developing and showing higher-valued end uses for different species and for developing the markets for those end products. The desired result will be the market links that will provide for ecologically and economically sustainable forest management.

By the end, the project will have shown how market forces can be powerful allies to conservation and reforestation activities. It will do this through a variety of demonstration activities that will help make the role of production forestry and its associated industries better understood by decision-makers and the producing and consuming public. In addition, an improved awareness and communication among the forestry, wood products and environmental sectors (hopefully) will lead to more effective and efficient policy decisions.

When evaluating projects like this one it is essential to keep in mind that the principal reasons these projects are necessary are the results of social and cultural activities that have developed over the past 400 years as well as characteristics of the natural environment.

For example, one reason that Guatemalans don't live in wood houses is that treated lumber that could survive termite attacks and rot has never been available. People lived on the plains of the U.S. in "adobe" (sod) houses for the same reasons. Guatemalans don't cut trees of a wide variety of species to make furniture and other products because they have always had enough of the traditionally-used species. Now those species have run out. Guatemalans can't be expected to react favorably to forest management programs in two years if it takes 5 years for the forests to react to management activities.

Old habits die hard in Guatemala, as elsewhere. Ancient forests take time to recuperate from decades or centuries of abuse. Funding agencies need to consider these factors when determining whether, how much, and for how long to fund programs dealing with forests. Central American countries don't have much except the forests to rely on in the long run. Their people and economies depend on them. If the countries are going to be self sufficient in the long run, everything possible must be done to help them develop and manage the forests and forest products related industries.

In conclusion, I believe the wood utilization and market development programs in question are absolutely essential to the survival and recuperation of the forests of Central America. I think that the progress made by ROCAP's contractor has been significant both in terms of the amount of work achieved and in terms of the development of a clear picture of what aspects of the overall program should be continued in Guatemala and the region in general. I suggest that the program receive further funding.

**SIGNIFICANT ACHIEVEMENTS, IMPACTS AND FINDINGS
DURING PHASES I-III**

The following is a resume of the more significant accomplishments of Phase I-III in terms of objectives and positive changes in the operations of suppliers, consumers, regulatory and cooperating agencies. Also included are thoughts regarding factors that may help move forward or impede the progress of RENARIM's programs in Guatemala (and perhaps elsewhere in the region).

Perhaps the most significant achievement of IMCC was the amount of recognition it developed for the programs ROCAP is fomenting. It did this by starting a large number of small programs. By starting so many programs, and doing at least some work in each of them, IMCC brought itself and ROCAP into the view of a large number of people and agencies who wouldn't have been reached by a less adventurous program. Also, by doing at least a small amount of work in many areas, IMCC and ROCAP were able to discover where their efforts in the future would yield the greatest return on investment. The downside of having done a little work in many areas has been the criticism received for not having finished many programs and none of those in depth. Some of that criticism can be answered in Phases IV --> by focussing more attention on fewer programs and finishing those programs in depth.

IMCC gained a great deal of recognition for itself and ROCAP through the involvement of IMCC's manager, Mr. Molinos. Mr. Molinos acted as a facilitator and mediator to the many groups involved, keeping the process going and resulting in the passage of a vastly improved Forestry Law. Mr. Molinos has left a lasting impression on Guatemala. In the same way, Mr. Molinos left a negative lasting impression on people in some U.S. agencies for his supposed work in the "political" arena.

IMCC apparently can be credited with the introduction of the borate treatment of wood products in Guatemala. Borate treatment, if widely adopted, could be a key factor in changing peoples' attitudes towards wood as a long lasting and renewable resource and towards effectively extending the forest resource base. However, to have a truly lasting effect on the forests of the region, the work with borate treatment probably will require a great deal of effort on ROCAP's part in Guatemala and elsewhere.

IMCC stimulated the interest of many artisans and larger industrialists towards the increased use of lumber from non- or underutilized species like alder and oak. Some work was done in Phase I with ramon, Santa Maria, and other species from the Peten. This program could be stimulated enormously if the U.S. and other more industrialized countries ban the importation of several key species like Spanish cedar and mahogany except in finished products.

IMCC developed the basis for managing existing forest stands for multiple and sustained use through the creation of alternative (to firewood) markets for more of the products from the forest. As with so many of the other programs IMCC started,

however, to have any lasting effect this program will require an enormous amount of work with many local people, government, and non-government agencies over a long period of time (decades).

Important offshoots of this program could be the development of alternative uses for thinnings (intermediate cuttings to stimulate the growth of the remaining trees) from the fuelwood plantations started during the past couple of decades all over Central America. IMCC's work on demonstration house and building constructions using both sawed lumber and the stems of small trees were key activities. Much work needs to be done to assure that these results will not be lost due to a lack of outreach activities.

IMCC provided a limited amount of technical assistance in air and kiln drying to some producers of construction lumber. Drying will allow these companies to add value to their products and will open new markets to those companies as a result. This work must be followed up with outreach programs, publications, and site visits to make sure the people are performing the required tasks properly. Also, markets must be developed for the higher valued products quickly if those thinking about getting into the business are to realize at least a minimum of profit from the outset.

IMCC showed many sawmillers the benefits of proper care and filing of saws. This should help increase the quality and quantity of lumber produced from every log. The intent of the program is to develop a group of technically trained Guatemalans within INTECAP (training institute). IMCC's resources were spent in a consultant, tools and equipment, and the salaries of local trainees.

WHAT RENARM CAN DO NEXT TO MAXIMIZE THE POTENTIAL DEVELOPED IN PHASES I-III

Based on the accomplishments and observations just discussed, I think RENARM could make the greatest impact on Guatemala and the region by concentrating its efforts on the activity areas discussed below. The focus should be on low technology and low cost products and services for widespread and widely recognized needs. In addition to the comments that follow, more detailed suggestions for individual PRODUCTS (objectives) may be found at the end of the discussion of each of the PRODUCTS under "Considerations for Project Continuation."

A simple caveat needs repeating. The forests in Guatemala and elsewhere in the region are essentially ageless. Guatemalans have been living in them and from them for centuries. No agency from an industrialized country can expect to change quickly old habits and ways, especially the habits of peoples more closely tied to the forests than peoples in industrialized countries. Agencies like ROCAP, and their funding sources, must think in terms of decades, not one to three year periods, when trying to determine where to spend their resources. Monies spent to save the forest resources in Guatemala in the long run are monies spent to improve the quality of life in the industrialized countries.

During the development of each project, a great deal of attention should be paid to what gets noticed and what doesn't, who willingly accepts the "help" and who doesn't, etc. Based on those observations, made as frequently as weekly and certainly no less frequently than monthly, appropriate changes should be made in the projects immediately. All activity needs to focus on willing collaborators. Time and resources are in too short supply to be wasted on unwilling collaborators and unsuccessful programs regardless of how well intentioned the "helpers" (ROCAP, AID, etc.) are.

Develop a Board of Directors.--ROCAP (and most other foreign agencies) needs to develop a "board of directors" of Guatemalans to help ROCAP decide what needs to be done, by whom, in what time frame, etc. ROCAP needs to work to get local NGOs, government agencies, business individuals and groups, etc. to sign on for all programs. It is essential that the "hosts" think and feel that they are getting what they want and need, not what some external agency thinks they should get. ROCAP (hopefully) understands that the hosts know better what they will and won't work towards than ROCAP does.

Develop In-country capabilities in the key needs areas.--Until host-country professionals become capacitated in the key needs areas, it will be impossible to develop self-sustaining programs of any type. By definition, self-sustaining programs are the only ones that will serve the host and helping countries in the long run. More attention needs to be put on developing this "project" than any other. As expected, it is possible and a wise use of resources to develop these capabilities in conjunction with any of the other programs.

Develop a Central Clearing House or Source of Information.--A great service provided by IMCC/Mr. Molinos was the transfer of information, contacts, tips-and-tricks, etc. to anyone and everyone contacted. ROCAP can foster the development of such a clearinghouse of information not just in Guatemala but everywhere throughout the region.

Wood preservation techniques.--The proper methods for borate treatment of wood products should be taught nationwide. A "model" publication treating the subject in a way that (almost) any person could understand should be published. This publication could be used all over the region. The publication should be developed only with a great deal of input from potential users from the first page to the last. The message could be spread via radio, TV and newspaper stories. Proper methods need to be taught throughout the country by trained personnel. Treating facilities should be made available only to persons properly trained to assure that the wood will be properly treated.

Use of preservative-treated wood products.--As with the treating methods program, a great deal of effort should be put into creating useful and usable training materials and properly trained teachers. More model constructions should be put up by local people and organizations all over the country. A great deal of effort should be put into outreach to make sure the story is well told. The programs should focus not just on the use of wood in construction but the combined use of wood and adobe or concrete. Attention should be put on using treated lumber for the site construction of doors, windows, furniture, etc.

Use of Prefabricated Components In Construction.--Work should be continued with one of the existing manufacturers of floor and roof trusses or other building components to help them further develop their capabilities and markets. Or work might be started with a new and (more) willing company or agency. The potential savings in lumber are significant. In this regard, this does not imply that work should continue in the sawmill improvement program. That program will develop of and on its own accord in response to a demand for better quality raw materials for the prefabricated-components industries.

"One-stop-shopping" Program for Forest Management Plans and Cutting Permits.--Tremendous regulatory barriers exist in this essential area. The successes in Phases I-III should be built on until the products and services required are cut and dried and understood by everyone from the smallest landowner to the head of the forest service.

Reduce Barriers In the Regulatory Network.--Work to reduce any other barriers that impede the progress of all wood utilization and sustainable forest management activities needs to be fomented.

Develop a Sawmill Management Improvement Program.--One enormous barrier to the acceptance and implementation of many of ROCAP's plans and programs has been the (apparent) inability of many sawmillers, prefabricated home builders, forest land owners, and others, to calculate and otherwise rationally evaluate the benefits and costs of changing their ways to doing business. ROCAP could (should) develop a simple program to teach basic bookkeeping and cost accounting methods to people. Actual examples from IMCC's activities could be used to illustrate with numbers and calculations the advantages and other benefits of adopting some of the changes proposed by IMCC.

ROCAPS MANAGEMENT OF IMCC'S ACTIVITIES

ROCAP's managers didn't seem to have as good an understanding of the specifics of IMCC's activities as they could (should) have had given the level of concern the managers expressed about the (apparent) lack of progress by IMCC on many projects. I assume the reason for this was ROCAP's failure to let IMCC know about its concerns and IMCC's failure to let ROCAP know about its progress. I understand these failures perfectly as I am guilty of the same thing from both the supplier and the consumer standpoints. That doesn't excuse the lack of communication, however, it simply means that both parties need to do a better job in the future of meeting their obligations.

I found IMCC's staff open and willing to share their reports, thoughts and feelings about all the work they and others had done under contract to ROCAP over the past two years. They were pleased with the attention being paid to their activities by the evaluator. They also were pleased to have someone show interest in what they thought IMCC (or ROCAP's next contractor) could do in the following three years to capitalize on IMCC's accomplishments and contacts. Most of the information contained in this evaluation was acquired through a reading of their reports, two days of meetings with the staff, and several days of travel to some of the work sites.

Quarterly reports by IMCC to ROCAP, and subsequent field trips by ROCAP's managers to the work sites, would help alleviate some of the concerns and generate more enthusiasm and understanding among the parties.

As far as "management", i.e., administration, of specific activities is concerned, I think the IMCC staff felt that their activities were hindered at times by ROCAP's administrative reporting and accounting requirements and that perhaps more work could have been accomplished had fewer such administrative tasks been required. I see no solution to that problem given the reporting requirements most government agencies require of their contractors.

WHETHER THE BUDGET AND TIME FRAME PROVIDED FOR IMCC'S ACTIVITIES
ARE COMMENSURATE WITH THE STATED OBJECTIVES
AND IF BOTH ARE BEING USED TO MAXIMUM EFFICIENCY

First, a statement of the obvious. Given the time allowed, the fact that one person was expected to do all the evaluation work (If I worked this hard all the time my business would be a lot further along than it is!), the lack of time to gather adequate information regarding the budget and costs of doing business in this part of the world (from both ROCAP and IMCC), and the similar lack of understanding about institutional obstacles to doing business in this part of the world, it would be impossible for an evaluator to do anything but make slightly educated guesses as to the answers to these "questions".

My slightly educated guesses regarding individual projects were made in the text of the analysis of these projects. The following are some general comments about budgeting for projects.

Following this section is another in which I describe what I consider the advantages and disadvantages for ROCAP, if it so decides, to do business with IMCC and in particular with Mr. Molinos.

It can be so expensive, and the budgeting of time for projects can be so variable and difficult, for anything having to do with doing business, carrying on development projects, etc. in Central America, that it often seems advisable for funding agencies to focus on the value of deliverables and not on the individual costs of projects or people required to produce the deliverables. That is, ROCAP might be better able to manage its requirements better, by deciding how much a particular result, program, publication, etc. is worth in terms of money and then budget for that. Once that decision is made, ROCAP should then focus on whether the product or service paid for was delivered and not whether a particular person or project seems to cost too much or too little.

HOW FOLLOW-ON ACTIVITIES MIGHT BE PERFORMED AT A LOWER COST

First and foremost, ROCAP needs to work with IMCC or its other contractor(s) to greatly reduce the number and type of activities undertaken in the next phases. ROCAP needs to develop a clearer sense of what is possible, not what is proposed as possible. This outlook may only be available from outside, noncompeting consultants.

It can be so expensive, and the budgeting of time for large and long-term projects can be so variable and difficult, that it often seems advisable for funding agencies like ROCAP to focus on the value of deliverables and not on the individual costs of projects or people required to produce the deliverables. That is, ROCAP might be better able to manage its requirements more effectively and efficiently (and certainly with fewer headaches) by deciding how much a particular result, program, publication, etc. would be worth and then to budget for that. Once that decision is made, ROCAP could then focus on whether the product or service paid for was delivered and not whether a particular person or project seemed to cost too much or too little.

Partly to that end, ROCAP might want to insist that its contractees provide a time and cost breakdown for the projects proposed. The contractees would break out the time-people-product-service costs on a project or objective basis. ROCAP then would focus its evaluations of proposals on how effectively and efficiently the contractor was proposing to do the work. Contracts would then be let on individual objectives culled from the master list. Unfortunately, while this procedure might allow ROCAP's managers to better "manage" contractors, it might also eliminate some contractors from contention who would not be willing to be managed closely. I'm not sure that would be economically advantageous for ROCAP and I doubt it would improve the working relationship between ROCAP and its contractors.

With regards limiting the scope of future activities, IMCC put forth and ROCAP accepted, an impossibly long and difficult set of objectives. In doing so both parties established unreasonable expectations of the other, which has caused difficulties for persons and agencies in Guatemala. A more reasonable future set of objectives would ease some of the tension that now exists. Unfortunately, the downside potential of such a change is that the IMCC people, especially Mr. Molinos, might not be pushed hard enough to achieve all they are capable of and ROCAP therefore might not think it was getting its "moneys worth".

While I don't advocate it, ROCAP might be in the position to keep on the people IMCC hired to do the work in Phases I-III while not continuing the contract with IMCC for the management of those people. The Guatemalan employees of IMCC have the potential to continue doing the essential activities ROCAP is interested in, including hiring other persons to work with them as supervisees. This would require a very careful definition of the limited scope of activities and a clearcut definition of the new relationship between ROCAP's new management and those people. The downside of this arrangement is that ROCAP's managers would have to take on the management of

projects in fields with which they have little or no practical experience. That could create a difficult and potentially disastrous situation.

ROCAP (and the AID missions) might consider hiring IMCC (or another contractor) to manage programs in wood utilization and market development in Guatemala and throughout Central America using the successes achieved and lessons learned in Guatemala as starting points. IMCC has done a good job of recruiting energetic and intelligent people to work in the IMCC office in Guatemala. It might be possible for IMCC and ROCAP to retain some or all of those people to be in-country program managers for Guatemala. The aim would be for IMCC to establish offices and activities in other countries based on the Guatemala model (where appropriate).

SPECIFIC IMCC DELIVERABLES

The evaluation focuses on the topics described in the scope of work of the IMCC contract as described in the "Verifiable Indicators for Evaluation After 9 Months" (May 9, 1991) and "Description of the State of the Verifiable Indicators After Seven Months" (Feb. 18, 1992). While most of the specific comments relate to the verifiable indicators, the evaluation also concerns all the work done by IMCC during Phases I and II, which were, in some cases, necessary prerequisites to Phase III.

The evaluation is based on discussions with a variety of people and organizations (Appendix A) and careful study of related documents (Appendix B).

Each of the 20 "products" agreed to as verifiable indicators for evaluation of work will be described under one or more of these headings: overall importance of the activity within RENARM, status, project design and management, work needed to achieve the objective by July 8, 1992, and considerations for project continuation. Outreach plans and budgetary considerations are discussed in more general terms following the discussion of the specifics.

PROJECT 1. Product development with underutilized species

SUBPROJECT 1.1 New products adding value to farm forestry species

PRODUCT 1.1.1 Aliso (alder) lumber produced and consumed at a rate of 500 BF per month (through artisans and/or NGOs, small/medium industries).

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

Utilization of underutilized, secondary species like aliso (alder) in new (or traditional) products is a key activity in the overall program of ROCAP. This work with aliso can serve as a model for the development of ROCAP's activities throughout the rest of Central America.

Aliso was chosen for many reasons including the facts that it is a common species, it reproduces by stump sprouts (doesn't require replanting), it fixes nitrogen in the soil (puts something back into the forest environment), and because it is a highly valued species worldwide for use in furniture. Aliso is relatively easy to saw, treat and dry. It does contain silicates that can dull tools, which is slight disadvantage for artisans. It is most commonly used for firewood. If aliso's utility could be shown it would be easy then to move on to work with other species.

STATUS

Aliso lumber was produced and some boards were air dried or dried in a dry kiln. They were given to a carpenter to use to make some computer diskette boxes, desks, and other items. The diskette boxes were produced with good result. The carpenter liked the wood, though he did complain that some of it was hard to work with because it dulled his hand planes. It was determined that this resulted from improper kiln drying. Some lumber then was properly kiln dried, which solved the problem. A paint brush manufacturer is going to try using small pieces of aliso to make paint brush handles. This could be a good local market for this (and other) species.

Some aliso lumber was given to two furniture makers (Bregni and Kronick) who export their products to the U.S. and elsewhere. They kiln dried the lumber and made it into furniture. Bregni said he had no problems kiln drying the lumber and that his people used all the lumber in furniture with no problems. Bregni said that he'd use all the aliso he could get. He said that he could use pieces as small as 2" square for chair legs and internal parts of furniture and mattresses.

Kronick dried the lumber and put some through a molder. The resulting surface was smooth. He said he could use large amounts of it, but that he'd like to get 15,000 BF per month to allow its easy incorporation into his operations. He said he would use it in doors and windows, mostly for export, and that it probably could be finger jointed allowing the use of smaller pieces.

PROJECT DESIGN AND MANAGEMENT

Most of the work contracted has been done or is arranged for. If part of the objective of Phase III was to cement the DIGEBOS-Jarquin (sawmiller)-(IMCC) relationship, this would justify the effort.

I was not surprised by the findings given that alder is produced and used in these ways by U.S., Japanese, German, Italian,... furniture makers. From that standpoint the choice of species was good and it most likely will achieve the end desired. I'm convinced that paying customers exist for all the alder that could be produced by all the sawmills in the area.

Some of this work might ~~be~~ have been unnecessary given the amount of information available in the literature concerning problems that had others had encountered in their use of alder, to determine what commercially viable products alder could be made into, to find an appropriate kiln drying schedule, etc.

I think IMCC could have and could do more to try and develop a set of suppliers of aliso for the local sawmills. If IMCC can help develop a supply of aliso for a market that I'm convinced already exists, that market will absorb all the aliso that will enter it. A program aimed at showing landowners how they would be better off selling their aliso for sawlogs instead of firewood.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

Cut and transport aliso logs from Mr. Jarquin's forest to his or another mill and cut them up. Any small sawmill could produce 6,000 BF in a few days or less.

CONSIDERATIONS FOR PROJECT CONTINUATION

Almost everyone I talked with seemed to understand that aliso was a suitable species from which to make furniture. I think the value of the work was in the demonstration to some craftsmen and furniture makers that aliso was a good wood to work with. I might question the need to do more work with more species at this time if local users say they have worked with it before and are willing to continue doing so if they can get more. On the other hand, if it's determined that more demonstrations are required, I suggest asking local users which woods they would most care to work with and then proceed to work with those.

There were two major related activities in Phase III. The first was the development of the necessary accord with the Forest Service (DIGEBOS) to allow a sawmiller (Mr. Jarquin) to manage his forest and cut the aliso trees for lumber production. The second was the related development of other providers of aliso with the objective of developing a reliable and significant supply of logs for local sawmills. These tasks brought to light the apparent difficulties that might exist for many or most forest owners to obtain permits to remove logs from their properties.

While not the job of IMCC or any other ROCAP contractor, this is a significant enough operation and potential bottleneck in the scheme of things, that I think a lot of attention should be given to determining how significant this bottleneck activity might be and to doing whatever is necessary and possible to facilitate the lowering of any regulatory hurdles that might exist or appear. As much as possible this permit-obtaining work should be formalized with the regulatory agencies. To that end I suggest that at least one, if not several, such working agreements and arrangements be consummated as soon as possible even if just to go through the paces. While IMCC or ROCAP's contractor might not get involved directly, they might want to guide the activity to make sure that it gets done.

PRODUCT 1.1.2 Sawing, treating and drying of species No. 2.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

Sooner or later this sort of work will have to be done with many or most of the species found in the forests in Central America.

STATUS

Several species have been suggested, including eucalyptus, oak and gmelina, though one has not been decided on. Mr. Jarquin has oak logs on his property and could cut the trees and saw the logs. Permits are being sought to harvest both eucalyptus and gmelina trees that have been located.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

All that is needed is to cut down the trees, haul them to the mill, saw them, air dry them, and give them to a carpenter to make into something. Or the lumber could be given to one of the furniture makers to kiln dry and make into something.

CONSIDERATIONS FOR PROJECT CONTINUATION

Trying to determine which of all of the potentially usable species in the Central American forests are the best to foment the utilization and marketing of is an enormous project best undertaken by research or other institutions, not ROCAP or its contractors. This sort of work must be done by well equipped institutions like ICAITI (Guatemalan research institute with a wood utilization department). This sort of work might be paid for by other U.S. institutions like the U.S.F.S. Forest Products Laboratory, which probably has more experience in this work than any other institution in the world, and which could provide any oversight needed to monitor the work of ICAITI or other organizations.) I would be surprised if the properties of many, perhaps most, of the more valuable species in the region were not already known. Mexican research establishments have done a lot of work on the species in the forests contiguous to the Peten (Guatemalan lowland forest area) so information about many of those species may be already exist.

PRODUCT 1.1.3 At least two new products being made by local artisans using the two new species

STATUS

The purpose of this work was to expand on work done in Phases I and II, demonstrating more forcefully the range of products that could be made successfully with aliso. There was and is great hope that one of the products will find a big enough market locally (perhaps internationally) to convince one or more of the artisans or furniture makers to start serving that market.

PROJECT DESIGN AND MANAGEMENT

This is a simple repetition of work already done. As little or no work has been done to date, it appears that this project has received little or no management.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

IMCC needs to provide more dried lumber of aliso and of the new species needs to a cabinet maker and/or a furniture maker so they can make the products. IMCC should decide what products to have them make and then should market the products.

CONSIDERATIONS FOR PROJECT CONTINUATION

Whether to work with artisans, nonexporting, or exporting secondary manufacturers, that is, small, medium, or large users, or all three, will be the determining factor behind the strategy to follow. The bigger the supply to the market the potentially faster the market will develop for the secondary species. For that reason I suggest focussing on the large producers, assuming that they will be the ones best able to serve the market. I assume that the small- and medium-sized producers will start to use the new species once those species are demanded by market.

PROJECT 2 Improved utilization of lumber in construction

SUBPROJECT 2.1 Production of well-sized, (kiln) dried, preserved, and graded lumber for structural use.

PRODUCT 2.1.1 At least two producers selling well-sized, (kiln) dried, preserved, and graded, structural lumber at a combined rate of 100,000 board feet (100 MBF) per year in Guatemala.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

There is an enormous and fast growing (Central American countries have some of the fastest growing populations in the world) shortage of housing throughout the region. Pine is probably the species that will meet most of the needs of the Guatemalan market in the long run, though many hardwoods also may be used in construction, especially in such nonstructural uses like doors, windows, molding, and furniture. Pine may not be the species of choice in all Central American countries because plantations have not been established everywhere at the same rate.

Another reason this project is important is that, even though sawmills have been making pine lumber for decades, the equipment and people doing the work are so poorly equipped for the task that 50% or more of the logs brought into the mills is wasted. Logs are often squared up in the woods with chainsaws leaving the most valuable portion to rot or to be burned as firewood. The lumber is poorly sawed in the mills creating more waste at all stages of the operation. The goal of this project is to increase the yield of the forest resource by reducing the amount of waste in the various sawmilling operations.

Subproject 2.1 was designed to be developed in close coordination with Product 2.2.2 in that the lumber from 2.1 was to be used by the home builders to be developed through 2.2.2. IMCC, after studying the market, determined that this was a chicken and egg situation. The sawmillers capable of producing high quality lumber (the objective of 2.1) didn't do so because it cost more and the home builders they supplied didn't require it (the objective of 2.2.2). The home didn't require it because they didn't appreciate how much better a house they could produce and at a lower cost by using higher quality lumber. Although IMCC realized it was caught in this bind, they decided that they would attack the problem from the two fronts as the only short-term potential solution.

STATUS

During Phase II, three sawmills near Guatemala City took part in the project. Persons at all three mills received training in grading 2 by 4 lumber according to the American Lumber Standards (ALS) rules, and air drying techniques. Unfortunately, however, little of lasting significance has transpired because the home builders have yet to be convinced to use such lumber.

One company, Lignum S.A., "classifies" lumber but only into "lumber-to-treat" and "lumber-not-to-treat" grades and then only according to their rules (adopted from the ALS). They preservative treat moderately-well-sized, air-dried, ungraded, "structural" lumber, utility poles and railroad ties with the OSMOSE (U.S. licensed) process and have standing orders for all their production.

There have been several significant achievements related to this effort by IMCC. Lignum has started reducing its "target sizes" (sizes to which they cut their lumber from the log) based on information provided by IMCC. Duralita (a large home builder buying lumber from Lignum) has started using Lignum's preservative treated lumber almost exclusively in its constructions. Duralita has started placing orders for lumber a quarter in advance. (It used to order lumber at the last minute from Lignum, which now means that Lignum can treat and dry the lumber for Duralita.) Finally, early in Phase I, IMCC shared the cost of having Duralita bring in an Ecuadoran consultant who helped Duralita redesign their basic houses in order to use lumber more effectively and efficiently. The result is that Duralita uses less lumber to make the same amount of house.

PROJECT DESIGN AND MANAGEMENT

Looked at in its entirety, IMCC has designed a project that could take all of its resources for a period of 3 to 5 years. It is the type of project that will take time in part because the concerned parties have to have time to try a little part of it, put that part out in the marketplace, see the marketplace's reaction, try some other small part, etc. You can't expect major and abrupt changes like this on the parts of both producers and consumers in the short term.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

No more than has been done. Lignum is producing all the "graded", preserved, air dried, "structural" lumber it can. The other two producers have decided to keep doing things the way they had been as they didn't have a market for an improved product.

CONSIDERATIONS FOR PROJECT CONTINUATION

One nontechnical hurdle to jump if this project is to be successful is the creation of a change in attitude among other persons and institutions responsible for deciding whether to use wood in construction. Their attitudes, like those of the owners and managers of Lignum and Duralita have to be changed from wood-as-inferior to wood-as-equal-to-or-better-than concrete and steel, especially for construction in earthquake-prone Guatemala. (We experienced a tremor in Guatemala City on March 4.) For that reason, the nontechnical issue of changing users' attitudes should play a major role in Phase IV if this project is to be a success in the longer term.

IMCC has decided to try and work with a company called HODE (a nonprofit organization whose objectives include H^Omes and D^Evelopment), which has been building low-cost, about \$2000, houses since the late 1970s. IMCC decided to work with HODE because HODE builds houses many Guatemalans can afford to buy. (Duralita's houses cost about ten times as much.) Unfortunately, HODE is not oriented towards cost or production efficiency and has been resistant to change. It appears as though the managers and owners of HODE have only a slight or nonexistent idea of their costs of production and are not much affected by the precipitous decline in home sales during the past several years, presumably due to customer dissatisfaction (a census by IMCC found this to be the case).

IMCC's position is that if, by explaining to the owners their true costs of doing business, which IMCC has recently been able to ascertain by studying HODE's accounting journals of the past year, IMCC may be able to convince HODE to change its way of doing business. If IMCC can do that it will be able to create in HODE a great source of low-cost housing in Guatemala. That would be truly a breakthrough for Guatemala (and Central America) since the experience would be a splendid example for other such companies. (On March 17 the Board of Directors of HODE agreed to a written schedule of improvements in their plant and equipment.)

If it is decided that that is a worthwhile venture for Phase IV, I think that ROCAP's contractor should expect to have to dedicate a single person to do that work alone. That person will need patience, should understand cost accounting, should be confident enough to deal with business persons, and should know the home construction business well enough to be able to bring to bear appropriate technology.

PRODUCT 2.1.2 A grading rule book adopted from the American Lumber Standards (ALS) for use by the Guatemalan industry will be printed in Spanish.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

This project is significant in its relationship to the efforts to have sawmills produce better sized ... lumber as a means to the end of saving the forest resource. That is, if structural lumber users are going to design constructions around strength-related grading rules, there has to exist such a set of grading rules. The ALS serves that purpose in the U.S.

STATUS

A Spanish language translation of the ALS grading rule book was obtained from Timber Products Inspection (TPI is a U.S. private lumber inspection agency). IMCC plans to make slight changes in the rules to make them appropriate for the Guatemalan lumber industry due to the fact that a many of the larger pine trees in Guatemala have very large knots. Such large knots are not considered in U.S. standards (the ALS book).

PROJECT DESIGN AND MANAGEMENT

Simply translating a rule book from language to another does not mean that the rules will be applicable. In this case it appears that the ALS rules might not be a good idea. That is, if IMCC intends to create rules regarding the strength effects of large knots on structural lumber grades, IMCC would create two ill advised situations. On the one hand, if IMCC's grades were too lenient IMCC would set themselves up for potential lawsuits when graded lumber failed (broke) at those knots. On the other hand, if IMCC's grades were too strict the result might be a waste of lumber.

I think grading rule books exist in Mexico, Chile, Ecuador, and some other Andean Pact countries. It would be more reasonable to adopt some of those standards instead.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

Lumber structural engineers, in conjunction with industry officials, are the only people capable of creating and modifying grading rule books. If IMCC intends to complete this objective it must contract with such persons.

CONSIDERATIONS FOR PROJECT CONTINUATION

The development of strength-based grading rules for new species is a job for structural engineers working in universities and laboratories, not for ROCAP's contractors. I'm not convinced that this work is as important as simply getting more companies using lumber in constructions, structurally or not.

PRODUCT 2.1.3 A sawmill improvement program will be designed and its implementation started in Guatemala.

STATUS

Plans were created based on the sawmill improvement program (SIP) of the U.S. Forest Service. Based on these plans, an accord was signed with INTECAP (Guatemalan institute charged with technical training in such matters) and the Gremial Forestal (organization of forest products producers) describing the responsibilities of those two organizations and IMCC.

Significant activity so far has centered on a saw filing course given to 20 people in November, 1991. That is discussed in part in Sections 2.1.3 and 2.1.5, the saw filing workshop program.

PROJECT DESIGN AND MANAGEMENT

In the U.S., the SIP is oriented towards improving the quality of the various sawing and other milling operations in sawmills. In Guatemala the "SIP" is oriented towards improving all aspects of the sawmilling operations given that in most mills almost everything could be improved significantly.

The original intent was to involve about three to five mills in the Guatemala City area. These mills were to promise to provide people to attend the saw filing courses and some materials and supplies required to upgrade their mills as they learned how. IMCC's idea was to upgrade the production capability of a few mills, assuming that other mills would follow suit.

On the positive side, it appears that IMCC has done a good job of getting the parties (INTECAP, a number of cooperating sawmill personnel, and an excellent Chilean saw filer) together in a constructive setting (INTECAP's classroom and shop) via the saw filing courses. Twenty people attended the first course and 17 more are projected for the March, 1992 course. A final course is scheduled for May. It seems that the sawmill owners (some of whom attended the course instead of sending their saw filers) appreciated the course and that all the attendees benefitted in some way. Everyone realizes that saw filing, while an important activity, is only one small part of the entire lumber production process. One sawmiller was so impressed with what he learned at the school that he sent one of his employees to a saw filing school in Honduras. Two other sawmillers hired Hondurans from that same school to work for them in Guatemala.

On the negative side, only three people at INTECAP have or are becoming intellectually or mechanically trained to carry on the work. One person is working with IMCC currently. Two are with INTECAP. None of the sawmillers (I talked with) are going to send the people they sent the first time. The disadvantage of that is that none of those people will be able to improve their skills beyond what little they learned in the

first course. Most unfortunately, everyone I talked with criticized IMCC for having created enormous expectations within the industry that weren't going to be realized. This was partly the fault of IMCC for having talked about creating a program much larger than what they could possibly do, and partly the fault of the short-time-frame funding program forced in IMCC by ROCAP. Such training programs can only be developed over several years, with continuous funding over the period.

This is the only AID/ROCAP/IMCC program I would criticize strongly and mostly because I consider it paternalistic. (There are degrees of paternalism in many AID programs; some I consider acceptable under existing conditions, some I reject as inappropriate.) Most of the non-wood industry people I talked with had this same "paternalism" criticism.

Consider the "Letter of Intent" among INTECAP, la Gremial Forestal, and IMCC for technical assistance program. (Bear in mind that the letter of "intent" is a formality, and that it is not an agreement authorizing action and expenditures.) INTECAP was listed, rightly so, as the institution that produces and provides such technical assistance programs (the wood industry pays INTECAP for such programs through a tax on salaries). The Gremial is made up of the most successful and wealthy industrialists who are most able to afford to make the improvements required in a sawmill improvement program.

The agreement calls for INTECAP to provide some space in an old building, which turns out to be a small dark area and a dirty, dingy classroom area, and then only for the first phase of the program. They also will provide tools they already have (that aren't being used in something more important). They will provide printed materials (at minimal cost to them) and gas for the truck ROCAP is to buy. (IMCC is providing a rented truck for the saw filer for the short periods of time he is in Guatemala so that he may visit mills and provide on-site technical assistance.) There is no mention of their paying to have a staff person become skilled at the required tasks and to be dedicated to this work. They claim to have no money or staff available for a sawmill improvement program in the long run.

The Gremial (members) agreed only to send some people though all the sawmill owners I talked with said they would not send the people they sent to the first course because their mills couldn't function well without them now (though they did before the first course was put on). The direct result is that the slightly skilled saw filers who attended the first course would not be able to upgrade their skills. The wood industrial associates also agreed to support the program in spirit.

In all of the meetings, one-on-one or jointly with other people, the sawmill owners voiced their strong opinions that the sawmill improvement program was the most important activity that IMCC could get involved in. At the same, even though they all agreed that they would benefit the most, everyone of them said that they would put up no money to support the program. Finally, they all agreed that IMCC should not put an inordinate amount of time and money into trying to help a small sawmill like Jarquin's to

become a model operation as that would be helping one person to the detriment of the others.

While every mill in Guatemala (and perhaps most in the world) could benefit from an improvement program, to improve requires investments in people, money, materials, time, ... none (or little) of which anyone seemed anxious to provide. I suggest little or no more work be done on this program past July, 1992 without a written agreement from the participants to provide the required inputs. In any case, a great deal more planning needs to be done to make sure that such a program as this, which could take years to develop well, will achieve the desired ends once it is started.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

None. The objective is not achievable.

CONSIDERATIONS FOR PROJECT CONTINUATION

As discussed under PROJECT DESIGN AND MANAGEMENT, and under PROJECT 2.1.1, the first thing that needs to be done is to change user (sawmill owner and INTECAP) attitudes. The development of an ongoing, self-sustaining, sawmill improvement program based on adequately skilled technicians and trainers at INTECAP (and similar institutions in the other countries), could be one of the most important programs ROCAP could support in Central America. In fact, it is one of the few programs that I think warrants serious consideration for development jointly with AID in all of the Central American countries. Sawmill improvement programs are (relatively) easily adapted by almost any sawmill and produce the same desired result, a tremendous savings of forest resources.

Making sawmill owners aware of the potential for cost reductions through increases in production efficiency and decreases in production costs, may constitute sufficient reason for some of them to get involved. However, the supposition is that they understand how to evaluate their production costs. Since that might not be true, I think ROCAP should consider developing, with INTECAP, a course in sawmill management, one part of which would be a course in lumber production cost analysis. This course should come at the same time if not before courses in sawmill improvement.

PRODUCT 2.1.4 At least three producers will have improved their drying facilities with IMCC technical assistance.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

Drying lumber is one of the many activities required in the production of well-sized ... structural and nonstructural lumber and wood products. Most wood products should be dried before they are used, especially if they are to be elaborated in some way such as in the production of furniture and carved items. For that reason, this project is an important activity, especially for artisans who need to be able to air dry their lumber sufficiently well before carving it to prevent its splitting, checking, warping, etc..

STATUS

Three sawmills (Jarquin, Lignum,) were given technical assistance in the form of site visits and verbal and written instructions regarding the air drying of lumber. It appeared that the one sawmill was air drying lumber as a regular activity (Lignum) as a necessary prerequisite to treating the lumber with CCA. The other producers never continued the program because they could sell all their production at the same price, dry or not dry. Quick return on capital was more important, as it should have been the this business setting.

One small producer (Jarquin) picked up on the verbal instruction of INFORDE regarding how to construct an air drying yard. Unfortunately they misinterpreted the verbal instructions and were going to have to redo the yard slightly. Once they solved their working capital needs, they were going to consider treating some of the lumber with borates and then air drying it.

PROJECT DESIGN AND MANAGEMENT

While the intent was good, the design and management were faulty. I have the same general criticism about this program that I have about several others; not enough prior market analysis was done, which would have exposed Jarquin's overriding working capital needs and the lack of a differentiated market for air dried lumber. Also, too little time was allowed for the work planned.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

IMCC probably could achieve the objective by July 8 only if it could create a market that would pay enough more for air-dried lumber to warrant the extra work and investment in lumber inventories required. If IMCC does anything it should create a very simple booklet explaining the principles of air drying and distribute it free to every sawmill they come in contact with. ICAITI has an excellent publication on air drying lumber that IMCC could abstract from. If a sawmill owner agrees to start a program, IMCC should expect to spend a considerable amount of time with the workers helping

them plan the program (See "Considerations..." that follows.) This activity has been postponed indefinitely.

CONSIDERATIONS FOR PROJECT CONTINUATION

As with many (most) of the activities planned by IMCC, the teaching of proper air drying techniques is an important activity that should be approached with care and good planning. The concepts are simple in nature but difficult to do well in practice. The results of poor planning and execution can be expensive. Perhaps most importantly, since it appears as though the market will not pay for the extra costs associated with drying, there is really no reason to expect that anyone, except an artisan or industry doing it for internal consumption, would get involved in it until that changes.

One of the first things IMCC needs to do with interested sawmill owners is spell out clearly the costs involved in establishing an air drying yard. It would be counterproductive for a mill to establish an air drying yard and to start air drying lumber if they didn't have enough working capital to hold them through the several months (minimum under good conditions) required.

I think there is a great opportunity for ROCAP to sponsor the development of a lumber drying facility somewhere in Guatemala that could serve as a model for others. Whether that is the type of activity that AID considers appropriate is a question. A lot of work has been done building solar kilns in temperate climates. Unfortunately, the lack of follow up by funding and technical assistance agencies, and the lack of a market-price differential between not-dried and dried lumber, has resulted in many of those facilities lying dormant and unused (for their intended purposes).

PRODUCT 2.1.5 At least 20 lumber producers will have attended IMCC sponsored saw filing courses.

STATUS

Twenty people attended the course in November and 17 more are signed up for the March, 1992 course. A third and final course is scheduled for May, 1992.

PROJECT DESIGN AND MANAGEMENT

This is discussed under PRODUCT 2.1.2, the sawmill improvement program.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

Assuming that a decision has been made to have Mr. Quezada put on the March and May workshops, only the work necessary to put on those workshops needs to be done.

CONSIDERATIONS FOR PROJECT CONTINUATION

This is discussed under PRODUCT 2.1.2, the sawmill improvement program.

One drawback to the creation of programs like this is that, because they require a significant amount of time and money to carry out, if they are not planned with sufficient of both, there exists the potential for the creation of ill feelings towards ROCAP (s contractor) for having created tremendous expectations but then not following through on them. The lesson is that ROCAP would be well advised to disallow its contractors from proposing projects they can't possibly follow through on.

SUBPROJECT 2.2 Structural lumber used efficiently in standardized buildings.

PRODUCT 2.2.1 At least three prototype buildings using roof trusses will have been built in Guatemala.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

Because housing constitutes the largest potential market for wood products of all types, and because standardized construction methods allow for the potential maximization of use of solid-wood (lumber) products in housing, the results of this objective could be a key activity for IMCC (and many other domestic and foreign organizations in Guatemala) in Guatemala and throughout Central America. Components of standardized housing such as roof (and floor) trusses allow the most effective and efficient possible use of lumber.

The goal of this subproject is to get one or more house building organizations regularly using lumber in their constructions. If this goal can be achieved in Guatemala it will constitute an effective stimulus for other such projects throughout Central America. The result will be significant savings of the forest resource and a partial alleviation of the housing shortage problem.

STATUS

Two prototype houses were built: Totonicapán 1 and 2. Two more buildings are planned, one in La Máquina and a shed for the Jarquin sawmill.

PROJECT DESIGN AND MANAGEMENT

The project was well designed and managed. There were a number of collaborators and a good job was done of sharing the work and the credit. An excellent report was prepared by the architect of the project. Sorely lacking was a public relations campaign to let people know what was done.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

One more construction to complete the three proposed.

CONSIDERATIONS FOR PROJECT CONTINUATION

I think the potential benefits in terms of ROCAP objectives in the wood utilization and market development program, and the enormous potential for good public relations for all the parties that can come from collaborations like the constructions at Totonicapán (and the ones done with roundwood described elsewhere), warrant much more work of this type throughout Guatemala and the region.

I suggest that more prototypes be built in much more travelled areas, population centers like Antigua, Chichicastenango, Guatemala City, Quetzaltenango, etc., so that the maximum number of people will become aware of what's available to them. There is a good chance that many people living in the country, even within a couple of kilometers of one of the prototypes, might never see the prototype but might see one in a population center when they went to shop.

Ron Wolfe at the U.S.F.S. Forest Products Lab is working with organizations (in Latin American) to develop low-cost wood roof truss systems. Dave Green, also with the FPL, is doing work with full-sized lumber, the results of which could be used in prototypes to be built in the Peten. It would be a good idea for ROCAP's contractor to dovetail that work with any that they do.

PRODUCT 2.2.2 At least one producer will be (regularly) using structural lumber components and designs provided by IMCC.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

This is the same as described in 2.2.1.

STATUS

Representatives from some organizations that might cooperate and collaborate with IMCC (HODE, ICAITI, PENACOV, FHA, which are all organizations involved in building design and construction or construction loans) were taken to the U.S. to see how manufactured houses are made. Designs for house constructions incorporating manufactured components have been produced locally and could be used by local builders should a market develop for such items. HODE (\$1,800 to \$2,000, low-quality homes) and Duralita (\$20,000, higher-quality homes) make roof trusses for their manufactured houses.

Duralita has their own plans, developed in response to the interaction with an Ecuadoran consultant brought to their plant in a joint effort with IMCC. Duralita is using these plans in some of their constructions. HODE does not have any plans yet and has not been provided any by IMCC yet given HODE's reluctance so far to change its modus operandi. Until the cost of lumber goes up significantly, until enough customers complain about the low quality of HODE's products and (perhaps) stop buying their products completely, and until HODE's owners and managers can be convinced that they would be better off economically using more efficient plans, I assume IMCC's (and ROCAP's) efforts in this area will be for naught.

PROJECT DESIGN AND MANAGEMENT

IMCC's intent was to work to develop both the market and the producers at the same time. That is, a market did not exist, which meant that no one was producing for it. Because of that IMCC knew it would not be able to convince any builder to start producing and using standardized components. IMCC thus assumed that all it would have to do would be to create the market concurrent with creating the production capability in order to solve the entire problem in one step.

The objective was understandable and the idea good. However, either one of the two parts of the "problem" would constitute a significant effort and trying to accomplish both simultaneously is unrealistic, especially in light of the fact that most people in Guatemala still want to live in a non-wood house.

The focus of IMCC's efforts at this time are to convince HODE's owners that they should change their methods of production. (This is discussed elsewhere.) While this might seem outside the scope of IMCC's activities, it is work that will have to be done sooner or later if this program is to be finished.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

IMCC has been working very hard to get to the point where it can demonstrate convincingly to HODE's managers' owners that they should make significant changes in their methods of doing business, including adopting more lumber-effective standardized building components and techniques. I doubt this will be possible given the comments made by HODE's general manager and the intellectual and physical state of HODE's personnel and equipment. I doubt IMCC will be able to achieve the objective of convincing HODE's owners that they should change their *modus operandi* and to invest in their plant and equipment by July 8, 1992. I would be surprised if IMCC could do that even by July 8, 1993).

CONSIDERATIONS FOR PROJECT CONTINUATION

This is a difficult project to evaluate with regards continuation. I think there are excellent long-range reasons to continue this work (see "Overall Significance..."). The difficulty arises from the fact that Duralita probably is too large an organization to work with and HODE's leaders might be too difficult to work with (based on their general manager's comments). Starting from ground zero is not something that any contractor likes to think about, but I think it may be the wisest course of action. (If IMCC can convince HODE's owners to change by July 8, 1992, I would suggest that that avenue be followed.)

If HODE's owners are anything but totally convinced and enthusiastic about changing their ways, and if there is no other similar organization in Guatemala, I suggest that ROCAP's contractor should start from ground zero, and work with an organization like FUNDAP and the Coop of Nahuala to develop a new small, prefabricated-house industry (based on the desired techniques and wood products).

I suggest these organizations because FUNDAP has money to loan people like the members of the Coop and has been doing so for years. Thus, FUNDAP is a potential source of loan monies for home buyers. The Coop has skilled carpenters and cabinet makers capable of learning the necessary techniques. Many of the Coop members are potential manufactured home buyers. Perhaps most importantly, almost everyone I talked with at both organizations seemed alert and interested and open to new ideas.

The principal advantage of starting afresh is that ROCAP's contractor (presumably) would not have to convince anyone against their will to change their too-well-ingrained methods of doing something. The principal disadvantages are that much time will be lost, that people have to be taught new methods, and that the costs are potentially, though not necessarily, higher.

Another focus of attention should be on the organizations responsible for building public buildings -- schools, medical centers -- around the country. Attempts

should be made to try and convince some of the key people in these organizations that they should try using lumber in the constructions. Political officials from the places where the demonstration buildings were built should be enlisted in this effort. In these cases, it might be possible to get the new producer the contracts to build these structures.

PRODUCT 2.2.3 At least one complete rural building prototype (using structural lumber components) will be built in Guatemala (in a rural area).

STATUS

These are the prototypes described in 2.2.1, i.e., Tonicapan 1 and 2.

PRODUCT 2.2.4 A least two designs for small home prototypes for Guatemala will be produced.

STATUS

Two designs were produced and the prototypes described in 2.2.1, i.e., Tonicapan 1 and 2, were built based on those designs.

PROJECT DESIGN AND MANAGEMENT

In both cases the project was well designed and completed. The architect contracted for the work produced excellent reports including data on methods and costs of construction.

PROJECT 3 Expand the use of preserved small roundwood in rural constructions.

SUBPROJECT 3.1 Development of building packages and delivery strategies for rural construction with roundwood.

PRODUCT 3.1.1 At least two prototypes will be built, one in a cold (dry) area and one in a hot (humid) area.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

Community based projects like the one designed for development through **PROJECT 3** are aimed at showing people how they can build houses and community buildings using materials readily available from the natural forests they own and can manage themselves. That is, constructions incorporating thinnings not needing processing in a sawmill, provide an outlet for the products of plantations and managed forests. These projects are perhaps the most powerful methods available for achieving RENARM's objective of creating and demonstrating the products and market links that will allow natural forest management, agroforestry, and plantation forestry to become ecologically and economically sustainable. Everyone wants to live in their own house and many people either have their own parcel of manageable forest or are connected to one they can access for building products. This is particularly true of building projects for communities.

STATUS

The prototype buildings in La Maquina (see **PROJECT 2.2**) and the shed at the Jarquin sawmill will fulfill this requirement. Neither have been built but both are planned and all the parties have agreed to and are ready to do the work.

During Phase II an excellent project was completed in which a storehouse-warehouse was built in El Zunzo. This demonstration project was as good as could be asked for. An excellent report about it was prepared by the architect IMCC paid.

PROJECT DESIGN AND MANAGEMENT

The main reason for doing similar projects in different parts of the country (region) is to show people in those places how they can accomplish the objectives being demonstrated. Another reason is to try out different designs to see what works best in different climates and with different species. For example, a small, tight building might be appropriate in a cold, wet climate, whereas such a building in a hot climate might be a total failure. That was the reason for the two projects slated for construction in two regions having distinct climates and tree species.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

No construction work has been done on either building, but both have been planned, the materials bought and produced, and the plans completed. In the case of Jarquin, a decision has to be made regarding where to put the building as it's still not clear whether to build it beside his sawmill, closer to the highway close to the sawmill, or in the valley close to his house. The work most likely will be completed but IMCC personnel will have to keep at it. They were all going to visit with Mr. Jarquin at his mill on March 4 to start work on these final stages.

CONSIDERATIONS FOR PROJECT CONTINUATION

As mentioned before, it may be necessary for organizations like AID/ROCAP to get involved in dozens of prototype construction projects all over Central America to achieve this objective. The key is to learn from each construction what works and what doesn't, how to work most effectively with individuals and organizations, and how, each time, to get the beneficiaries to pay a little more for the project. Ultimately, AID/ROCAP should have to provide only a modicum of technical expertise and the organizational push to make things happen.

PRODUCT 3.1.2 A contract will be let to evaluate and document the performance of preservative treatments on roundwood.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

It is probably true that most or all wood used in construction, furniture, crafts, etc. in Central America will have to be preservatively treated if it is to last for more than a few years. Insect and fungal/bacterial degradation occurs too rapidly otherwise. Without preservative treatments many wood-based products may only last a few years. A house may be destroyed by termites in a few years. Poles in the ground may last only one year. With proper treatment the same products may last decades. CCA-treated utility poles, for example, may last for 50 years compared to only 30 for steel or concrete.

For that reason, any studies to determine which preservative treatments to use in different situations, and how to do the preservative treatment effectively, efficiently and safely, are important to fulfilling RENARM's objective of extending the utility of the natural resources.

The work in question is important in that it might show how borate-treated products can be used in contact with the ground, something not now possible because borates are water-soluble and leach out into the ground. Borates show a great deal of promise for use in the region due to the fact that they are nontoxic to humans, are easy to use, and because they are highly effective against both insect and fungal/bacterial attack.

STATUS

IMCC apparently introduced the borate treatment of wood products in Guatemala and has developed a (proposal for a) project to be done in cooperation with ICAITI (Guatemalan research institute) that IMCC proposes to fund at least the start of. The project is aimed at determining the lifetime effectiveness of borate treatment of different wood species when used in conjunction with other treatments to allow the use of borate-treated material in contact with the ground. The work will receive technical guidance from the U.S. Forest Service Forest Products Lab and will be carried out by ICAITI on the Pacific Coast.

PROJECT DESIGN AND MANAGEMENT

An expert from the U.S. Forest Service helped design the project. It is a (typical) "post cemetery" project where posts treated by different methods are partially interred and their deterioration noted over time. The plan is to develop simple treating methods that people throughout the region could use.

I don't know how much work with borates, and borate retention aids, has been done elsewhere. Borates have been used for decades in other parts of the world, including in the U.S. Southeast. I assume that the U.S. Forest Service expert would not suggest that ROCAP fund duplicate efforts of work already done.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

None. ICAITI would have to do all the work, which would have to go on for many years, and results might not be available for many years or even decades if the treatments are effective.

CONSIDERATIONS FOR PROJECT CONTINUATION

Funding. Who will pay for a long-term project of this type? A good case could be made for joint funding of this project by AID projects in every country, and by interested agencies of the different governments. This sort of work needs to be done with a wide range of existing and to-be-developed treating methods, on most or all of the commercial species in the region. This is the type of work that AID should focus on convincing the regional governments to fund, instead of their relying on AID.

PRODUCT 3.1.3 A simple field guide for users and "extension agents" showing the procedures for the diffusion treatment of roundwood will be created and published.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

This may be one of the most important activities ROCAP could be involved with. Unless and until wood users can be convinced (by being shown and showing themselves) that wood easily can be treated to last as long or longer than adobe, the potential users will continue to harbor the false concept of wood being nondurable and, therefore, not worth using in constructions, furniture, etc. Once peoples' misconceptions about wood can be changed, they will start using wood in construction because wood is easier to work with and cheaper in the long run than adobe.

In addition, once people start treating wood for other uses, e.g., furniture, windows, doors, that wood will last longer and fewer trees will have to be cut down to satisfy the demand for those longer lasting products.

STATUS

A complete, rather technical report about borate treatment of wood products was prepared by ICAITI. (I assume it is a translation of a document prepared decades ago in the U.S. when the work was first done.) Based in part on this document, and the field work done with borates in Guatemala, IMCC has created the words outline for a simple field guide to borate treatment aimed at extension agents.

PROJECT DESIGN AND MANAGEMENT

This work was carried out effectively. Having both technical and field guides is a good idea, though the former is not nearly so important as the latter.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

IMCC needs to create the drawings for the guide and then have it printed.

CONSIDERATIONS FOR PROJECT CONTINUATION

This is one of the projects that I think ROCAP should focus on given its importance in the region. (ROCAP, through its contractor, could fund the construction of many more treating tanks for distribution throughout the country.) ROCAP needs to consider ways to train "extension agents" (members of INTECAP?) who will train people in the correct methods for the use of borates in treating lumber. It is essential that proper methods be taught so that improperly treated lumber will not be used, the failure of which would give all wood treated with borates a bad name. This is more important with borates than with most other treating chemicals because borates are water soluble and can leach out of wood in contact with the ground or otherwise exposed to the elements.

SUBPROJECT 3.2 Linkages between the use of roundwood and sustainable forest management will be demonstrated in Guatemala.

PRODUCT 3.2.1 At least one demonstration plot will be used to supply roundwood for the construction of a rural building prototype.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

Demonstration plots like the one to be developed through this objective are probably the most useful and illustrative demonstrations of the possible and necessary links between forest owners and forest products users. It most likely will be through demonstration plots that organizations like ROCAP will be able to develop the market links that will allow natural forest management ... to become ecologically and economically sustainable.

STATUS

A demonstration plot showing the potential for management, including natural regeneration, of aliso has been developed with the participation of Bosques Comunales, DIGEBOS, and RENARM. A number of trees were marked for cutting and their form and general character noted. The plan is to cut the trees, scale (estimate the volume of wood and of lumber that could be produced from them) the trees on the ground, cut the trees into logs, and transport them to the Jarquin sawmill. At the mill the logs will be sawed into lumber and the exact volume of lumber produced from the groups of logs will be measured to produce a table relating tree form and log scale. From that a guide will be produced to show others how to determine which trees to cut in their harvesting operations for the production of lumber, which for firewood, which for roundwood, etc.. (It is from that demonstration plot that the aliso will be taken to be sawed at Jarquin's sawmill.)

PROJECT DESIGN AND MANAGEMENT

This project has been well managed from the standpoint of combining a number of objectives under one umbrella activity, the work to be done with Mr. Jarquin. The project was well conceived from the standpoint of incorporating functionaries from a number of institutions from the start. This should help assure project completion. It also should help assure that the results of the work will be publicized on a wider basis.

I would criticize IMCC's management from the standpoint of having taken on more work than was proposed or necessary at this early stage of the process. I see no need for having done the work of marking and grading the trees nor for the work that apparently will be put into the creation of a log grading guide. While these tasks are important in the long run they are not necessary nor appropriate at this early stage.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

All the work mentioned under BUDGETARY CONSIDERATIONS must be completed. There is still a lot to do. Plans are to start the work on March 4 and to continue on the projects until they are completed. This most likely will take more than a month of steady work on everyone's part.

CONSIDERATIONS FOR PROJECT CONTINUATION

My principal concern lies with Jarquin's ability and willingness to put the money, time and energy into the project that most likely will be required for its completion and what IMCC's response will (have to) be if Jarquin slows down. Jarquin's sawmill is very old and needs a lot of repair work. He does not have a fully functioning edger or a cutoff saw of any type, though he should have both.

Jarquin can't decide where to put his shed. He says he must sell all his production immediately to produce working capital so it might be impossible for him to produce the treated lumber he needs for the constructions. If he's not drying lumber then there's no reason for him to complete or use his air drying facility.

I am concerned that the tiny site Jarquin has chosen to locate his sawmill on will box him in so much that he won't be able to develop a lumber treating and drying facility even though he might want to. He is considering locating the shed near his house where, if expedient, he could use it for something else. He could also more easily guard his lumber from thieves.

Finally, I question IMCC's ability to produce a videotape on any subject in the short time remaining. I also question the need at this stage of the process. I think a videotape produced by a commercial firm (or INTECAP?) perhaps using IMCC's footage might be a wise use of ROCAP's funds though I wonder if the relatively complex factors involved in grading trees and logs could be transmitted effectively through videotape.

PRODUCT 3.2.2 Two demonstration plots with well designed thinning and pruning procedures will be developed and amply documented with videos of the project before and after the work.

STATUS

This is the same work on the same plots as described in 3.2.1.

PRODUCT 3.2.3 A (Central American) regional meeting dealing with roundwood use in construction will be put on (by IMCC).

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

The importance of regional meetings is that until the results of such projects as these are publicized throughout the region, more money than necessary will be spent on duplicated efforts. Host country and extranational organizations like ROCAP will continue to "reinvent wheels" in each country, and much less of long lasting benefit is likely to result in the region.

STATUS

The meeting has been postponed until the building in La Maquina is built and demonstrable. An agenda will be developed in conjunction with organizations from El Salvador and Costa Rica.

BUDGETARY CONSIDERATIONS

I don't know how much money has been allocated to this meeting but it seems that a meeting like this that will benefit AID programs throughout the region should receive funding and other assistance from those programs to assure its good planning and completion.

PROJECT DESIGN AND MANAGEMENT

Nothing has been done yet. IMCC has organized meetings on short notice before so it might be possible to put one on in the remaining time given that the building can be put up. From that standpoint, this objective was not managed adequately.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

The entire project. Perhaps more than would be possible at this late stage.

CONSIDERATIONS FOR PROJECT CONTINUATION

I'm not sure IMCC can do this work in the time remaining in Phase III. This might be something that should be planned for Phase IV to assure that it is attended by all the right people and that everyone has enough time to prepare adequately for it.

PRODUCT 3.2.4 A report on recommended approaches to expand forest management will be (produced and) published.

OVERALL IMPORTANCE OF THE ACTIVITY WITHIN RENARM

This report, the final report to ROCAP, will be one of the key results of the IMCC contract as it will contain the key results and conclusions from all aspects of all of the different projects.

STATUS

No work has been done.

WORK NEEDED TO ACHIEVE THE OBJECTIVE BY JULY 8, 1992

The report must be written. I think that ROCAP and IMCC personnel should determine well in advance of July 8 what the contents of the report shall be in order that as the report is being produced, persons responsible for the different parts will understand clearly what will be required in the end.

DEVELOPMENT AND MANAGEMENT OF OUTREACH PLANS AND ACTIVITIES BY IMCC

One of the key activities of any contractee is to inform its contractor, and others interested in, potentially affected by, or capable of imitating and carrying on its work, of key activities and results. One of my few serious criticisms of IMCC is that it failed to follow through on its many accomplishments with outreach activities aimed at both its contractor (ROCAP) and the consuming public.

The greatest potential successes in outreach were the reports created by contractees to IMCC. That is, IMCC contracted with third parties to produce (among other things) construction plans for houses and other buildings, constructions, borate treatment methods, etc. The published reports, in general, were excellent and worthy of widespread dissemination. I said "potential" earlier because these reports have not been widely disseminated. It does little good to produce excellent work when the results of the work are known to only a few individuals through a few copies of the reports of the work circulated to those individuals. That work must be published widely. IMCC (and ROCAP) will not have completed its work until that is done.

IMCC's "Notes on Present Outreach Methods" is a clear exposition of its plans and activities. The following are some general comments about them.

Technical Workshops.--I agree that workshops on these topics are important in the general scheme of things and that statistics show the enormous potential savings in raw material possible with a diligent application of new and improved methods by users. However, even in the U.S., where the programs originated, it is difficult to get such programs going in mills. I think ROCAP's funds would achieve greater result focussing on less technical subjects given to hundreds or thousands of country people on such topics as how to preservatively treat lumber and how to plant trees and manage wood plots for sustained yield.

Field Days and Demonstrations.--IMCC could have done many more of these. There is no better way to teach people new and improved ways of doing things than having the people do them themselves. The focus of future outreach methods should be on teaching by doing.

Conferences and Presentations.--These typically serve more the political and organizational ends of the funding agencies and host government agencies than the people responsible for implementing the products and services. I would promote them only to the extent required for those ends.

Publications.--As described in the paragraphs that follow, well thought out general publications aimed at the "lowest common denominator" are probably second only to learning by doing in their ability to get large numbers of people to change their ways of doing things, to adopting new techniques and methods, etc., all the aims of ROCAP. ROCAP needs to sponsor more publications, needs to demand more of its contractors.

IMCC has created an impressive library of articles, magazines, books, etc. in its office in Guatemala City for use by anyone. Many of these are excellent reference materials for anyone working in the forestry, natural resources, and wood products fields. These materials should be made available to the public in a library, perhaps at a place like the training center of INTECAP in Guatemala City, or through a loan program with organizations in other parts of the country like FUNDAP. That is, the collection could be circulated around the country, stopping for a month at a time in different population centers. ROCAP might consider sponsoring work by INTECAP to translate the less technical of the materials for wider distribution as IMCC is doing with its publication on borate treatment of lumber.

Videos.--I don't think these are either appropriate for most audiences in Guatemala or the region or for the topics requiring discussion. I doubt IMCC or most other contractors are capable of producing good quality videos. Witness the quality of videos produced in Spanish translations by North Carolina State University. While interesting, their quality is marginal.

Regional Technical Meetings.--My thoughts about conferences and presentations hold for regional meetings.

Responses to Producer Inquiries.--While an important part of any development effort, I question whether ROCAP's current contractor could handle any but a few inquiries per month given its current workload. The proper response to this need should be the training on in-country specialists and generalists in organizations like INTECAP to handle the inquiries. That is, a host-country capability should be developed and fostered through a consumer-demanded response to inquiries.

Some specific comments about the more significant of IMCC's efforts and about the work that remains to be done follow. There still is time to follow up on these activities and I advocate for as much as work as possible before the end of the contract for Phase III. No organization is better able to do that follow-up work than IMCC.

Totonicapan Prototypes.--The reports of the work on the prototypes in Totonicapan were excellent. The text was clear and to the point. There were photos illustrating the different construction techniques. An excellent cost analysis was provided. The analysis lacked numbers that would have allowed a comparison with the cost of building the same prototype with concrete blocks or adobe. This can be changed in the final report for dissemination.

El Zunzo Prototype.--The report prepared for the El Zunzo project was excellent. It was prepared with the same attention to detail, with the same clear prose, and with the same good photos to show the details of the different phases on the construction as was found in the report about the two Totonicapan prototypes.

Borate treatment of lumber.--ICAITI produced and is supposed to publish a technical report on borate treatment of green lumber. The report appears to be a Spanish translation of an English (U.S.) report. It is too technical for people outside a university, research, or business situation but probably deserves publication and dissemination to those agencies in the region.

IMCC will produce and publish (either by itself or through ICAITI) a simple, heavily illustrated "How To" guide to borate treatment. IMCC has no concrete plans regarding how it will get the guide into the hands of potential users. It is essential that anyone planning to use borates to treat lumber be instructed very carefully. Borate has been used for decades in other countries but success in using it depends on a very careful following of some simple rules. It is these rules that must be followed to the letter.

Failure on IMCC's part to assure this happens could have disastrous results on the acceptance of borate treatment in the region. That is, if even a few people use borates improperly and the treatments fail after a couple of years to protect lumber adequately, word will spread rapidly that the borate treatment method isn't all that it is supposed to be and ROCAP (and IMCC) could be worse off than had none of the work been done in the first place.

Forest Management Techniques.--All of the work with Mr. Jarquin is supposed to be videotaped. This footage will be used by IMCC to produce a videotape for use by them and others to train people how to manage their forests, how to select trees for cutting, how to select which logs are destined for sawlogs and firewood, etc. While video is a good method for training certain types of people in certain skills, I don't think it is appropriate in this situation. I doubt IMCC personnel have the skills or time to do an adequate job.

DEVELOPMENT AND MANAGEMENT OF THE BUDGET BY IMCC

I think ROCAP has received products and services commensurate with its expenditures, i.e., ROCAP got its monies worth. Some expenditures I agreed with and some I did not, which is expected. One important reason for the relatively high output from IMCC was the personal energy of IMCC's in-charge, Mr. Molinos, and his ability to hire hard working and energetic individuals like himself.

Compared to the number and type of accomplishments in Phases I and II, it appeared that a relatively smaller amount of "product and service" was produced in Phase III. This could have been due in part to an extraordinary amount of effort on the part of IMCC in the first year, changes in agency structures that either helped or hindered progress in the different phases, differently visible milestones, etc. Some monies were spent in Phase III to further develop the interrelationships among individuals, NGO's, GO's, and IMCC developed in Phases I and II, interrelationships that could constitute the base of much of the work that will be produced in further phases. A valuable offshoot of those developments is the fact that some of those relationships could serve as models for many other programs aimed at small- and medium-sized groups in Guatemala and other countries in Central America.

I'll make no comments about expenditures on specific products and services. My thinking about where the monies were used to greater or lesser effect should be apparent from the specific comments about the projects and especially where the projects should go in the future. (Also, it's too late to do anything about those expenditures with which I don't agree.)

ADVANTAGES AND DISADVANTAGES OF ROCAPS CONTINUING TO CONTRACT WITH IMCC AND MR. MOLINOS

As mentioned in another section, every (non-AID) person I talked with had nothing but praise for the work IMCC, and especially, Mr. Molinos, had done over the past two years. Everyone thought that not only had Mr. Molinos done important work, but that he and the IMCC staff had accomplished an extraordinary amount of work in a short period of time.

A common complaint was that Mr. Molinos' tried to do too much and expected too much of his staff and the Guatemalans. That is, Mr. Molinos expected people to pick up and run with (or at least kick around more vigorously) all the balls he threw onto the playing field. The people interviewed criticized ROCAP for hindering Mr. Molinos and IMCC's potential by not giving them more money and a freer rein. Everyone thought that Mr. Molinos and IMCC could have done more had they had more money and time.

IMCC did accomplish a lot. They could have accomplished more had they been able to focus more on certain key activities. ROCAP did a good job of overseeing the project. ROCAP might have achieved more of their desired objectives had they spent more time giving more attention to the specific activities they wanted IMCC to focus on.

In general, overlooking the (relatively) high cost of maintaining Mr. Molinos, it would be difficult for ROCAP to replace him with some one some organization that would be able to accomplish as much as ROCAP would like to have accomplished in the next three years. Any new contractor, even if that contractor was able to keep on the excellent staff that IMCC currently has, is going to have to go through the same painful learning experiences, is going to have to gain the same levels of trust and understanding with all the required parties, etc. And, perhaps most importantly, if what helped Mr. Molinos the most to gain the credibility and acceptance he has in Guatemala was his work on the new Forestry Law, it might be impossible for another person or organization to gain that same level of acceptance ever. There might not be another key activity like the development of a new forestry law that would create the potential for the emergence of a leader (like Mr. Molinos) and certain organizations (like AID-Guatemala) opposed to such activities might prevent any new person from becoming involved in such a key activity.

**APPENDIX A
PARTIAL LIST OF PERSONS INTERVIEWED**

**Ron Curtis
Abraham Guillen
Alfred Nakatsuma
Edgar Pineda
Bill Sugrue
Henry Tschinkel**

**René Alemán, sawmiller
Luis Barrera, ex-head of the Forest Service
Roberto Bosch, sawmiller, lumber and utility pole treater
Juan Carlos Bregni, lumber drier, furniture maker and exporter
Luis A. Castañeda, Head, Forestry Action Plan
Alberto Chamorro, Forestry Association
Carlos Enríquez, sawmiller
Jorge Gálvez, sawmiller
Paul Kronick, lumber drier, furniture maker and exporter
Roberto Jarquín, sawmiller
Andreas Lehnhoff, environmentalist
José Lewald, exporter
Jorge López, prefabricated home builder (manager)
José Mario Muñoz, prefabricated home builder (manager)
Héctor Murga, administrator, INTECAP (training institute)
Alejandro Nicol, Head, Forestry Association
Federico Raulier, engineer and administrator, FUNDAP (rural development association)
Jamal Soliman, sawmiller
Jorge Springmühl, lumber drier, furniture maker and exporter
Jaime Valladares, researcher, ICAITI (research institute)**

**APPENDIX B
PARTIAL LIST OF DOCUMENTS REVIEWED**

Acuerdo de Cooperacion entre Los Proyectos: Bosques Comunales de DIGEBOS e IMCC.

Carta de Entendimiento entre INTECAP, la Gremial Forestal, e IMCC para Capacitar Personal y Prestar Asistencia Tecnica a la Industria del Aserrio en Guatemala.

**CORMADERA
(Public information report)**

**DIGEBOS
Diagnostico Regional de Los Recursos Forestales: Region V.**

**FUNDAP
FUNDAP y sus Propositos
Proyecto Nahuala**

**Gandara, J.L.
Bodega-Taller: Programa de Utilizacion y Desarrollo de Mercados para Madera Rolliza.
Tonicapan 1 y 2: Programa de Utilizacion y Desarrollo de Mercados para Madera Tratada con Boro.**

**IMCC
(Informational document: What is IMCC)
Proyecto de Desarrollo Forestal e Industrial Presentada a la Coop San Juan Argueta:
Memoria Final de Actividades.
Wood Utilization and Market Development Study:
Descripcion del Estado de Los Indicadores del Proyecto despues de Siete Meses.
Status Reports, Nov. 25, 1991 and Feb. 18, 1992.
Terminal Report, Phase II.**

**Molinos, V.
La Iniciativa Privada y la Conservacion y Manejo del Recurso Forestal en Guatemala (speech).
Industria Forestal y Maderera: Pilar del Desarrollo Forestal Sostenible y la Conservacion de
Medio Ambiente en Guatemala (speech).**

**Plan de Accion Forestal para Guatemala
La Contribucion del Sector Forestal al Desarrollo.**

**RENARM Projects
Production from Natural Forests: Background Document for the Project Paper
Scope of Work: Wood Utilization and Market Development Activity.**

**Republica de Guatemala
Plan de Accion Forestal: Documento Base y Perfiles de Proyectos.**

**Univ. Rafael Landivar
Perfil Ambiental de la Republica de Guatemala.**

Project Paper Supplement

RENARM Project

WOOD UTILIZATION AND MARKET DEVELOPMENT ACTIVITY

Regional Office for Central American Programs
(ROCAP)

July 1992

45

Project Paper Supplement

RENARM Project

WOOD UTILIZATION AND MARKET DEVELOPMENT ACTIVITY

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- B. AID/Washington Cable No. 173323
- C. Summary Project Cost Estimates
- D. Detailed Cost Estimates
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- F. Executive Summary of March 1992 Evaluation
- G. Institutional Analysis
- H. Environmental Assessment
- I. Guidelines for Buy-ins to RENARM

ST.

ACRONYMS AND ABBREVIATIONS

A.I.D.	United States Agency for International Development
CA	Central America
CATIE	Tropical Agricultural Center for Research and Education
CIDA	Canadian International Development Agency
CCAD	Central American Commission on Environment and Development
COHDEFOR	Honduran Corporation for Forestry Development
CUPROFOR	Honduran Wood Use Centre
EA	Environmental Assessment
EOP	End of Project (AID)
EOPS	End of Project Status (AID)
ESNACIFOR	National School for Forestry Sciences (Honduras)
EXITOS	Export Industry Technology Support Project (ROCAP)
FAO/UNDP	Food and Agriculture Organization/United Nations Development Program
FINNIDA	Aid Program of Finland
ICAITI	Central American Research and Technology Institute for Industry (Guatemala)
IMCC	Interamerican Management Consulting Corporation
INFORAT	Technical Forestry Information Center at CATIE
INFORDE	Interamerican Management Consulting Corporation
INTECAP	Technical Training Institute (Guatemala)
IRENA	Natural Resources Institute (Nicaragua)
ITCR	Technological Institute of Costa Rica
LUPE	Land Use Productivity Enhancement Project (Honduras)
LOP	Life of Project (AID)
MARENA	Natural Resources Management Project (Panamá)
MAYAREMA	Maya Biosphere USAID Project (Guatemala)
NGO	Non-Governmental Organization
ODA	Overseas Development Administration (Great Britain)
PACD	Project Activity Completion Date
PIL	Project Implementation Letter (AID)
PP	Project Paper (AID)
PROEXAG	Non-Traditional Agricultural Export Support Project (ROCAP - Completed Activity)
RENARM	Regional Environmental and Natural Resources Management Project (USAID)
RFP	Request for Proposal (AID)
RIG	Regional Inspector General (AID)
RCO	Regional Contracts Office (AID)
ROCAP	Regional Office for Central American Programs (AID)
TFAP	Tropical Forestry Action Plan
USAID	United States Agency for International Development (bilateral Mission)

1 SUMMARY

There are currently three discrete forestry related activities operating under the overall RENARM umbrella.

The Tree Crop Dissemination activity (\$4.50 million) was approved under RENARM Project Authorization Amendment 2 in March 1991. The objective is to achieve wide-spread planting, management and utilization of multi-purpose trees on small and medium-size farms. The activity emphasizes outreach based on research results amassed by an earlier Tree Crop Production project. Outreach is being accomplished through a network of 25 national public and private institutions.

The Production from Natural Forests activity (\$3.85 million), also implemented by CATIE, began operations with the beginning of RENARM. Its primary objective is to demonstrate the viability of commercial forest management of humid, lowland, broadleaf forests in Central America. It is establishing pilot areas of sustainable natural forest management and providing practical advice and assistance on the management of natural forests, directly to forest owners.

As was noted in the original RENARM Project Paper and Tree Crop PP Supplement, the Wood Utilization and Market Development activity operating since 1990 was designed to complement these other two forestry activities of the project, both of which attempt to launch formerly underutilized wood species on the market. The tree crop work has introduced and popularized species planted on farms, a process which will expand to a massive scale only if farmers obtain an acceptable price for these new tree crops. The natural forest management work attempts to achieve utilization of a greater number of species from the lowland forests in order to make management of that forest ecologically and economically feasible. Both approaches require better utilization of smaller logs and of species new to the market, so that the market will stimulate land owners to manage their woodlots and forests for profit.

Under this amendment, and based on the experiences of this two-year RENARM pilot activity, the specific objective of the Wood Utilization and Market Development activity will continue to be to create and demonstrate the products and market links which will allow agroforestry, plantation forestry and natural forest management to become ecologically and economically sustainable. The work will build on the foundation already laid in Guatemala and expand activities to at least two other countries.

The additional three years proposed for this activity, represent a \$2,200,000 contract by ROCAP, and an expected \$200,000 of additional buy-ins by the bilateral Missions in the CA region.

The Project strategy emphasizes decentralization and will directly involve individuals and private enterprises engaged in economically-sound use of wood.

Basically, this will focus on:

- Increasing the earnings of private forest-based activities through improved technologies and marketing.
- Improving the value of wood-based products and other goods and services that can be sold from forests, and
- Encouraging more direct private investments in the forestry sector.

The major inputs for implementing project activities are technical assistance, in-country training and selected policy studies and analysis. The proposed approaches for project interventions, based largely on the two years of experience in Guatemala, are technically feasible, socially acceptable, and environmentally sound.

2 BACKGROUND AND RATIONALE

2.1 Cutting Trees to Protect Forests?

Worldwide public awareness has steadily grown about the price which future generations will pay if depletion of natural resources, elimination of wildlife and pollution of air and water resources continue at present rates. Centuries of irresponsible forestry practices in many industrialized nations, gave birth to militant movements determined to save the few remaining pristine forests as wilderness areas.

In many areas of lesser developed countries where conservation without development will not work, efforts are being made to give rural communities a vested interest in conserving those forest areas with the highest economic, ecological, and cultural value. In Central America, relatively large and poor rural populations live on forested lands. At present, the most significant sources of rural income and employment from these lands come from agriculture and small enterprises, based on destructive clearing of the forest.

Unfortunately, a given piece of land will only remain under long-term forestry or agroforestry as long as the cash flow and other side benefits from the forest make a higher contribution to its owner's survival strategy than clearing it for pasture, corn, or export broccoli.

A supply of trees harvested from sustainably managed forests, along with developed and reliable markets, are the links of a chain

which allows the forest owner to obtain a competitive and continuous financial return from his/her forest, and motivates him/her to maintain the land under forest production.

2.2 What Has the Wood Utilization and Market Development Activity Done So Far?

From January 1989 until May 1990, INFORDE/IMCC, the contractor who implemented the predecessor to the RENARM wood utilization activity, supported USAID/Guatemala's forestry program, especially with the establishment of links between the private sector wood industry and forest management, and the development of a new forest law.

Since May 1990, the Interamerican Management Consulting Corporation (IMCC) has been the contractor for the RENARM Wood Utilization and Market Development Activity. Because of the short contract periods of six, six, and 12 months, respectively, the work has been limited up to now to Guatemala. The Activity contained three lines of work:

2.2.1 Product development with underutilized species

By developing products and markets for agroforestry species which are currently underutilized, this work attempts to add value to the wood of these species and thereby create market incentives for farmers to continue to plant. The work has concentrated on alder, a species widely planted in the highlands of Guatemala and Costa Rica, and has converted this undervalued wood into lumber for construction, high quality gift items, doors and furniture. It has been found that one of the obstacles to expanding use of this and other species is difficulty in obtaining a continuous supply for industry, caused largely by the intricate bureaucratic procedure for obtaining cutting permits.

2.2.2 Improved utilization of lumber in construction

Construction is by far the largest consumer of lumber and roundwood (other than fuel) in Central America. However, wood is used inefficiently and wastefully in construction, partly because sawmills produce poor quality lumber. The project has therefore addressed both the creation of a demand for better quality lumber (consistent dimensions, dry, graded, treated with preservatives) on the part of the builders as well as the production of better quality lumber on the part of the sawmills. Through the sawmill improvement program, the project has focussed on five promising private sector sawmills, with saw maintenance courses, technical assistance, market links, and a visual lumber grading program. At the same time in collaboration with builders, prototypes of roof trusses were built and structural lumber components and designs were provided.

2.2.3 Use of preserved roundwood in rural construction

The project aims to demonstrate how rural people can build houses and community buildings using wood readily available from the forests they own and can manage themselves, without the need to involve industry. In collaboration with local NGOs the project built two prototype houses and a warehouse with roundwood. Also to lengthen the life of the structures, a low-technology wood preservation treatment based on borate was introduced to Guatemala. This dip treatment, which can easily be applied in rural areas without expensive equipment, can be an important factor in changing users attitudes toward wood as a building material. Simple field guides were developed to promote use of this treatment and several producers have already adopted it.

An evaluation of the Wood Utilization and Market Development Activity carried out in March 1992, gave high marks to the importance as well as the implementation of this Activity and forcefully recommended its continuation and expansion to other CA countries.

2.3 Problem Statement

The Production from Natural Forest and the Tree Crop Dissemination Activities of the RENARM Project are, respectively, trying to motivate owners of forests to manage them properly and farmers to plant trees. Several other projects financed by bilateral USAID's and others are trying to do the same in their respective countries. However, success will depend on forest owners and farmers receiving an attractive price for the logs they harvest. This in turn depends on the use that can be made of the wood.

Because the wood of many species from the lowland broadleaf forest is not well known on the market, the forest owner can only harvest part of his stand. This reduces his returns and presents an obstacle to regeneration of the forests because the stands are not opened enough for young trees to grow. Low returns induce the owner to convert the forest to other land uses, such as pasture or hillside agriculture which the land is often not capable of sustaining without being degraded. The economic returns of farm forestry also need to be improved by finding higher quality uses for the small dimension logs and new, fast growing species which are increasingly being grown by farmers.

Over the last decade, important investments were made by A.I.D. to promote plantations and farm plantings in CA, a trend which is accelerating. However, insufficient emphasis on a market driven approach, wrong government policies and an excessive regulatory climate have produced responses by the private sector well below the required levels. The timing and amount of cash flows which forest owners and tree-farmers can obtain from the

intermediate and final harvests of their trees must be improved. They need access to a wide range of markets for the different species, sizes and quality of roundwood they produce. The economic alternative, of course, is to clear forests and not plant trees -- with significant negative environmental consequences.

But not only must the price received for the wood be right, the owner must also have the freedom to harvest what he/she has produced. Currently, all Central American governments plague the forest owner with excessive rules, prohibitions, permits and fees, which tend to be administered in a climate of pervasive corruption. Forest management by private land owners has not been encouraged by public policy and forest legislation. Well-intentioned but counter productive regulations, excessive bureaucratic procedures, and arbitrary rulings have increasingly stifled any interest forest owners may have in investing in proper forest management. As a result there is virtually no experience in Central America in managing natural forests for sustainable production of timber and other non-wood products.

The numerous forest agency institution building projects of A.I.D. and the international donors have been unable to change significantly this situation, certainly not beyond the life of any given project. Government agencies continue to set policies and adopt laws without adequate information. There is little successful agency experience in supervision of extraction or control of resource use.

Policy and regulatory reform and enforcement, based on reliable information, are needed in order to allow the private sector to treat the forest as a long-term productive resource rather than as a "mine" to be exploited and liquidated.

2.4 Amendment Rationale

The rationale behind this Amendment considers three questions: Why do it? Why include policy? Why do it regionally?

Why Do It?

ROCAP and the bilateral USAIDs have made a large investment in growing trees (see 2.6 for specific projects). If the wood from those trees fetches too low a price and too much of it is wasted, people will have little motivation to grow trees and the investments made in these projects will have very limited impacts. The wood industry in Central America is very traditional and still bound to a past when the wood supply seemed unlimited. Managed forest will not provide a competitive return on investment to the forest owner until this industry is reoriented to add sufficient value to underutilized hardwoods and plantation grown trees.

Other parts of the RENARM Project and several USAID bilateral projects focus on the supply side of forestry, trying to establish plantations and develop technical capability to manage natural forests. The Wood Utilization and Market Development Activity is trying to influence the demand side, by creating a demand for currently underutilized species from woodlots and natural forests. The wood of these species is now usually wasted in the forest (where they also tend to suppress the regeneration of more valuable species) or in the processing plants. Their improved utilization stretches out forest resources and decreases pressure on conservation areas and production forests. The strategy of the RENARM Project is to link the supply and demand side of wood products. Within the A.I.D. portfolio, projects tend to be carried out independently, and when funding ends the activities supported by them are often not self-sustaining because a natural clientele has not been developed in the market. In the present case some of the activities of RENARM can be linked opportunistically so that their beneficiaries become suppliers or consumers of each others services or products, thus reinforcing both supply and demand side activities.

Why Include Policy?

Experience of the pilot phases of the RENARM Wood Utilization and Market Development Activity have demonstrated the impediment which counterproductive policies and rules have on the uses of wood. For example, the wood industry will not invest in equipment to widen the range of products it manufactures and thus be able to pay more for a log and make better use of it, if the supply of logs depends on the annual vagaries of arbitrary restrictions imposed by the government forest service. Owners will not manage their forests properly if they have to submit to complex, expensive, often senseless paperwork as well as corruption. The policy focus of this activity, although not funded by this amendment, will build upon the RENARM policy analysis work, taking it to a more detailed, applied level. The results will fuel the policy dialogue of the bilateral Missions.

Why do it Regionally?

There is an obvious advantage to addressing the problem on a regional basis. While the problems of wood utilization, the species, the policies, the bureaucratic procedures, and the markets are surprisingly similar throughout CA, the assistance needed to address these problems is highly specialized, expensive and difficult to justify for each country individually. By taking a regional approach the CA countries can learn much from each other, and successful demonstrations can be shared. Policy recommendations confirmed by analyses from several countries,

moreover, are likely to evoke more credibility than those from only one. For these reasons the RENARM Project intends to work through a small central core of specialists who have satellite contacts in each country, a model already effectively used in the Tree Crop Production and in the ROCAP- supported PROEXAG and follow-up EXITOS Projects.

2.5 Relationship to Other Parts of the RENARM Project

The three forestry activities and the policy component operating under the overall RENARM umbrella interact, complement and reinforce each other.

The objective of the Tree Crop Dissemination activity, implemented through CATIE, is working on the supply side to achieve wide-spread planting, management and utilization of multi-purpose trees on small and medium-size farms. The activity emphasizes outreach based on information amassed by an earlier Tree Crop Production project. Outreach is being accomplished through a network of 25 national public and private institutions.

The Production from Natural Forests activity, also addressing the supply side and also implemented by CATIE, began operations with the beginning of RENARM. Its primary objective is to demonstrate the viability of commercial forest management of humid, lowland, broadleaf forests in Central America. It is establishing pilot areas of sustainable natural forest management, and providing practical advice and assistance on the management of natural forests, directly to forest owners.

Both of these activities are designed to grow wood. Both attempt to launch formerly underutilized species on the market -- species grown on farms and species grown in the lowland forest respectively. Only if farmers obtain an acceptable price for these new tree crops will farm forestry expand to a massive scale. And only if owners of natural forest achieve better utilization and a market for a wider range of species will management of their forests be ecologically and economically feasible. Both approaches require better utilization of smaller logs and of species new to the market so that the market will stimulate land owners to manage their woodlots and forests for profit. Since most woodlots and forests in CA are privately owned, the ability to market forest products for profit is fundamental to maintaining the forest cover and sustaining its productivity. An owner who perceives his/her forest to have little financial value will tend to neglect it and replace it with marginal pasture.

As was noted in the original RENARM Project Paper and Tree Crop PP Supplement, the Wood Utilization and Market Development activity operating since 1990 was designed to complement these

other two wood producing activities of the project by finding better uses and markets for some of the species currently underutilized.

However, neither growing trees nor marketing their products will progress unless the rules that govern these processes are appropriate. Therefore, the policy component of the RENARM Project complements all three of these RENARM forestry activities by helping to improve the regulatory and policy framework which will encourage sustainable production, efficient utilization and profitable marketing.

2.6 Relationship to Bilateral Projects

The following represents the current listing of bilateral projects in Central America which are engaged in various aspects of natural resource management, protection, and/or conservation:

- | | |
|---------------|---|
| - Guatemala: | MAYAREMA |
| - Honduras: | Forestry Development |
| - Nicaragua: | Natural Resource Management |
| - Costa Rica: | Forest Resources |
| - Panamá: | Natural Resources Management |
| - Belize: | Natural Resources Management and Protection |

Many of these bilateral activities do not directly focus on wood utilization. However, their contacts and in-country counterpart relationships can be very constructive in knowing more about who and where the wood-based private enterprises are and their interest in pursuing improved technologies and marketing for their products.

The bilaterals have an important function in assisting this regional activity set the criteria needed to select: a) the appropriate in-country institutions involved in wood-based research and development and, b) those private sector entities that can be viable contributors in using forest based wood products in an environmentally friendly manner. The criteria for these participants, as agreed upon by the participating bilaterals and ROCAP, may include such factors as sustainability of the forest base, relevance of their programs to the RENARM activity, contribution (in-kind or financial), willingness to share information and results, and institutional direction on self-sustaining capacity.

The following USAID bilateral projects face the problem of how to improve the utilization and marketing of the numerous underutilized species of the natural tropical forests or of the thinnings of the new planted species. Resolution of this problem

is essential to increasing the economic return from the forests and plantation, and thereby providing an incentive to their management by the owner.

For example, in the area of the MAYAREMA project in the Petén of Guatemala, of the 300 species identified in the forest inventory, only three are currently widely used and another 20 are used by a few of the plywood industries. The rest tend to be wasted. In order to successfully manage the proposed concessions in the multiple use area of the Maya Biosphere Reserve and the private forests outside of the Reserve, the spectrum of species to be utilized must be widened enormously. Industry needs assistance in this process, just as it did in the US.

Because production forests in Costa Rica are almost depleted and the supply of logs has dwindled dramatically, the number of species utilized is greater there than elsewhere in CA. However the FORESTA Project already faces the same problem as in Guatemala with the private owners who have shown a positive response to management. Their interest can only be maintained if more species can be sold for higher value products than is currently the case.

The Program for Belize is urgently looking for markets for more than just the traditional mahogany and spanish cedar. Otherwise their intent to commercially manage part of their property purchased with the help of AID funding is unlikely to be successful.

The LUPE Project and its predecessor in Honduras have been encouraging farmers to plant agroforestry species for years. As these trees reach harvest age, farmers must receive a higher price than simply as fuelwood in order to motivate them to continue to plant. Presently the uses for these new species is very limited.

Although the Forest Management Project of USAID/Honduras concentrates on the pine forest, utilization of hardwoods associated with the pine and small dimension thinnings of pine are already a major limitation to management. Increasing the income of campesinos living in the forest by increasing the value added through products from these thinnings is a key to preventing their destroying the forest.

In Panama the MARENA Project intends to promote reforestation in the Canal Watershed and other areas. Just as in the LUPE Project above, farmers will only be motivated if they can market the trees at the attractive prices which only high value-added products can provide. The proposal to amend MARENA to include the management of natural forests, will require new uses and markets for numerous species if it is to be successful.

The Natural Resource Management Project of USAID/Nicaragua includes support to IRENA and forestry. With 2.4 million ha of production broadleaf forest, Nicaragua, and this project, will encounter problems similar to those of the other countries because of the large number of underutilized species.

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However, almost none of these projects fully address the wood utilization and marketing problem (possibly because their focus has been on wood production) and the limited capacity of all CA countries in this field -- a limitation which can be overcome through a regional approach. The RENARM Wood Utilization and Market Development Activity addresses an urgent need. If it were to be truncated now, AID would need to re-invent it in a few years -- after forest destruction had advanced dramatically and when the urgency will be even greater.

3 AMENDMENT DESCRIPTION

3.1 Goal and Purpose

The goal of RENARM, of which the Wood Utilization and Marketing Development Activity is an integral part, is "to help produce, with the citizens of Central America, the conditions for the sustained utilization of natural resources, to minimize damage to the environment, protect bio-diversity, and provide the means for equitable and sustainable economic growth."

The purpose of RENARM is "to create the conditions for public and private institutions to generate, transfer and apply the information and technology essential for the sustained use of natural resources."

The specific objective of the Wood Utilization and Market Development Activity is to create and demonstrate the products and market links which will allow natural forest management, agroforestry, and plantation forestry to become ecologically and economically sustainable.

3.2 End of Project Indicators

By 1995, at the end of this activity, the following will have been achieved (see Logical Framework for quantitative indicators):

The price received by some forest owners for several species of trees which are currently underutilized and which grow in the lowland humid forests and in plantations, will have increased significantly. This increase will have been achieved through new and/or improved products made from each of the species selected, based on an analysis of potential markets. At least one collaborating institution will have been selected in each of at least three CA countries, and their relevant technicians will have achieved satisfactory performance in sawmill operation and wood products manufacture. In each of these countries, sawmills selected for their potential to process underutilized species will have created the capacity to produce better quality lumber, use a higher proportion of these species, and produce less waste. A series of demonstrations and market tests will show that at least five currently underutilized species can substitute for traditional species in construction, panels, furniture, fine items and other products. The use of borates and other wood preservatives for lumber and roundwood will have been demonstrated.

Several Central American governments will have formulated, adopted and implemented policies and regulations which act as incentives for private owners and concessionaires to manage natural forests on a sustainable basis, thereby replacing many of the current bureaucratic constraints to management. These changes will be achieved through streamlining existing regulations and procedures, as well as changing their content.

3.3 Proposed Activities

3.3.1 Analyze Markets

As a first step, building on the experience already achieved by the Wood Utilization and Market Development Activity, consultants financed by the project will analyze potential markets for some of the most promising underutilized species. These analyses will help identify promising forest and plantation types, species, products and obstacles on which the project will concentrate.

3.3.2 Manage Information

In consultation with the collaborating institutions and based on the above analyses, the contractor will select the most promising species and forest types in each country which the project will work on. The contractor will compile the existing information about these species by carrying out computerized literature searches and will arrange to make the resulting bibliographies and documents easily accessible to CA technicians through the existing documentation center(s) at ICAITI, CATIE/INFORAT, the Honduras Wood Use Center and/or others. This

information will serve as one basis for promoting improvements in production and marketing.

3.3.3 Train Technicians

The project will train a cadre of at least 15 technicians who are employed by CA institutions specialized in wood utilization. The collaborating institutions will be selected on the basis of interest, willingness to cover costs, aggressiveness, and continuity. Illustrative candidate institutions include:

- The producer associations which exist in each of the countries, in which many but not all of the important wood industries are represented.
- Guatemala: INTECAP and ICAITI are already collaborating with the Wood Utilization and Market Development Activity.
- Honduras: CUPROFOR, the new COHDEFOR Wood Use Center in San Pedro Sula, with support from British ODA is likely to be a major partner, because of similar aims. The mid-level forestry school, ESNACIPOR has facilities and a long tradition of assistance to sawmills and new support in this area from FINNIDA.
- Nicaragua: IRENA has a well equipped but underutilized Wood Technology Laboratory.
- Costa Rica: The Instituto Tecnológico de Costa Rica has a Department of Wood Utilization with a small sawmill, carpenter shop and other facilities.
- Belize: The well equipped Wood Centre, formerly operated by the government, is being transferred to the private sector.

Technicians selected by the contractor in some of these candidate institutions will be the contact persons in each country. They will develop into a core of qualified specialists who will serve as technical consultants to sawmills and the secondary wood industry. The incentive for them to be more active than customary will be the support they get from the project in the way of training, travel, prestige, and incidental expenses. The contractor will keep them supplied with technical materials for outreach to producers and teach them how to locate technical information in order to increase their independence.

The training will be eminently practical, primarily on-the-job and will occur under the supervision of project specialists and consultants. It will cover: sawmill management (organization, cost accounting), sawmill operation (mill layout, saw maintenance, drying) and wood products manufacture (wood properties, gluing, joining, marketing).

3.3.4 Improve Sawmills

The contractor will select at least 20 sawmills in CA, on the basis of their potential to utilize the species of interest, and will assist them to improve their capacity to produce lumber from these species. These improvements will increase the yield of the logs processed, thus reducing waste.

The technicians from the participating CA institutions, in collaboration with project consultants, will give in-plant assistance to the sawmills, following the experience with INTECAP in Guatemala. In addition the contractor will carry out a series of sawmill improvement courses, similar to the ones given in Guatemala, but on a regional basis, in collaboration with one or more of the above institutions. The first courses will be aimed at owners and managers, in order to make them aware of the increased income which they can expect through better management practices.

Assistance will aim at the following improvements in the sawmills: modernization and maintenance of sawmill machinery, plant layout, operation, simple drying, lumber quality control, record keeping, sawfiling, and residue utilization.

3.3.5 Promote the Use of Wood

The contractor will assist the specialized technicians in the collaborating institutions in demonstrating and promoting the commercial use of lumber and roundwood from the selected underutilized species, among wood users such as architects, engineers, furniture manufacturers and others, so as to gradually substitute pine and other traditional woods with species now underutilized. The above trained technicians, working in a partnership of producer associations, individual firms, training institutions and regulatory agencies, and supported by project consultants, will do the following:

- Aggressively disseminate information on efficient use of lumber and roundwood, and on prototypes. Serve as links to sources of technical information.
- Provide technical expertise to collaborating institutions to select and construct prototype houses and buildings, gradually increasing the proportion of underutilized species.
- Do illustrative feasibility studies, and comparative cost studies.
- Help establish market links for promising products, both domestic and export.

-- Working opportunistically, they will provide TA to selected producers and users of underutilized species.

3.3.6 Introduce Wood Preservation

The contractor will follow up on the successful introduction to Guatemala of a wood preservation treatment using borate, for increasing the life of lumber and roundwood. This and possibly other low-tech treatments will be disseminated further in Guatemala and introduced in the other countries. The collaborating technicians, with the help of project-financed consultants, will do market and treatment studies with selected promising species and provide technical assistance and quality control according to market requirements. Emphasis will be on working with the same sawmills and producers as above.

To encourage dissemination, the contractor will prepare and distribute outreach bulletins on treatments. The collaborating technicians will be assisted in holding training events, demonstrations, and field days.

3.3.7 Forest Policy and Regulatory Framework

Improvements in the policy and regulatory framework are needed for the above activities to be fully successful. However, they will not be addressed or funded by this Amendment, rather by two other segments of the RENARM Project: The Policy Initiatives Component and the Production from Natural Forests Activity. The former will cover the more overriding issues as a continuation of its current policy analysis, whereas the latter Activity will focus on the more specific and technical details of the regulations and their enforcement.

As one of the first activities, consultants will carry out a comparative survey of policies and regulations in CA concerning management and harvesting of natural forests, and an analysis of their effect, using the policy taxonomy and analytic model developed under phase II of the RENARM policy initiatives component. The resulting reports will be used as the basis for workshops and study trips for CA parliamentarians and high government officials responsible for forest policy, control and management. It is hoped to dramatically demonstrate to these participants the detrimental effect on the forest of many of the current policies on which they have influence and to help them develop better options.

The project will support special interest groups (producer associations, reforestation groups) with technical assistance to make them more effective in working with regulatory agencies to revise the rules. The project's consultants will act

as a disinterested third party and bring experience from other countries.

For CA government personnel responsible for control and management of natural forests, including legal aspects, the project will offer short-term training such as workshops, courses, and study trips. As needs and opportunities require, consultants will provide technical assistance to bilateral Missions for integrating revised forest policies into USAID policy dialogue.

3.4 Beneficiaries

The benefits of this RENARM activity will be improved management of forests and better quality of wood products, greater returns to the forestry base, better operational efficiencies, lower per-unit production costs and greater market competitiveness by entrepreneurs operating in the forest products market.

The primary beneficiaries of this Project activity are those enterprises that increase the value of wood-based products and use improved technologies and marketing techniques. They become the catalytic base for increasing the economic value of scarce forest resources and stimulating investments in the wise use of these resources. /

The ultimate beneficiaries will be the people of the region who will be able to enjoy - both economically and socially - the rewards of a program that contributes to sustaining existing forests. These benefits are in a form that helps protect the irreversible loss of unique natural habitats and concurrently strengthens the economic activities which depend on them.

4 SUMMARY COSTS AND FINANCIAL PLAN

This Amendment is a three year \$2.2 million activity. In addition, \$200,000 is anticipated in buy-ins over the LOP from bilateral Missions and other interested organizations. Summary project cost estimates are found in Annex C; detailed project cost estimates in Annex D, and the supporting cost of the team leader in Annex E. Table 4.A shows a breakdown of foreign exchange and local currency costs. Summary cost estimates by fiscal year are shown in Table 4.B, and the projections of expenditures by fiscal year are in Table 4.C. Buy-in estimates are not included in these tables. Methods of implementation and financing are summarized in Table 4.D.

The buy-in process for this Amendment will follow the guidelines established and agreed upon in November 1991 by ROCAP and the RCO for RENARM related activities. These guidelines, noted in Annex I, will be appropriate for any buy-ins that may come from the U.S. Forest Service, Tropical Forestry Program and the U.S. Forest Products Laboratory, as well as the bilateral USAID Missions

Table 4.A

**Summary Cost Estimates and Financial Plan
by Foreign Exchange (FX) and Local Currency (LC)
(US\$ 000)**

Element	FX	LC	Total
Technical Assistance	1,540.0	660.0	2,200.0

Table 4.B

**Summary Project Costs Estimates by Year
(US\$ 000)**

Element	Year 1	Year 2	Year 3	Total
Technical Assistance	805.5	707.0	687.5	2,200.0

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Table 4.C

**Projection of Expenditures by Fiscal Year
(US\$ 000)**

Fiscal Year	Project Expenditures
1993	784.0
1994	712.0
1995	<u>704.0</u>
TOTAL	2,200.0

Table 4.D

**Methods of Implementation and Financing
(US\$ 000)**

Project Activities	Implementation Method	Financing Method	Amount
Technical Assistance	Direct Contract with selected firm	Direct Payment/ reimbursement	2,200.0

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5 PROJECT ANALYSIS

5.1 Economic Analysis

It is estimated that about two-thirds of the land of Central America is not suitable for growing anything on a sustained basis except trees. Given population pressures, it is not likely that remaining natural forests can be saved or that reforestation will be successful unless sustainable timber extraction proves economically viable.

If sustainable production is shown to be profitable, the way would be open to develop a Central American forest products industry that could be a major source of income and employment, because the potential regional market for quality lumber is large, and the world market for lumber and fine woods can absorb any amounts Central America is likely to be able to export. Well-managed forest development can also generate the revenues needed for environmental protection and preservation and restoration of Central America's ecological heritage.

The economic potential and the environmental need are both so great that concentrated and systematic attention is well-warranted as part of ROCAP's environmental and export development objectives and in support of USAID bilateral programs in this field. Clearly, forest industry development is a long-range task which will require decades of work and experience. The challenge of the present is how to choose priorities for the development effort. This wood utilization segment is only one part of the current initial experimental phase, aiming to fill in one space between other activities in forestry research, environmental protection, and the related public policy issues. The space it fills is that which connects the forestry work with market development, including the related needs for improvement of processing technology. By providing the link between the experimental efforts in sustainable timber extraction and user markets, it serves the essential purposes of finding ways to improve efficiency, adapt product to demand, measure costs and profitability, and in general test the commercial viability of the various materials, methods, and products.

Because this segment is only a small part of a large and long-term effort, its ultimate cost/benefit relationships can only be long-range and untraceable. While inconclusive in some respects, the initial experimental phase showed a number of promising possibilities which deserve follow-up. One encouraging result was the high ratio of increases in value-added in wood-processing to the costs of the technical assistance provided. Table No. 5.A shows estimated and projected savings from wood waste reduction and additional value-added from using underutilized species and market development would produce ample internal rates

of return. The direct benefits equal about 30% of total TA cost in the initial years, rising to about 100% by the end of 5 years, with benefits continuing without further TA input.

Table 5.A

DIRECT ECONOMIC IMPACTS OF WOOD UTILIZATION AND MARKET DEVELOPMENT ACTIVITIES		JUNE 17, 1992	
* Excludes forest management and conservation benefits	RECURRENT ANNUAL BENEFITS FROM FUNDS SPENT		RECURRENT ANNUAL BENEFIT FROM FUTURE FUNDING
	REALIZED IMPACT NOW	ADDITIONAL ADOPTION IN FIVE YEARS	IN YEAR FIVE AFTER CONTIN. FOR THREE YEARS
WOOD WASTE REDUCTION			
Decreased roundwood consumption 5% percent from Sawmill Improvement Program	5 Sawmills US\$34,000/yr	21 Sawmills US\$136,000/yr	200 Sawmills US\$1,360,000
Waste reduction in logging and boring at 5% per sawmill	2 Sawmills US\$14,000/yr	21 Sawmills US\$140,000/yr	200 Sawmills US\$700,000
Extending wood life through wood preservation	50MBF/yr US\$15,000/yr	100MBF/yr US\$30,000/yr	1,500 MBF/yr US\$450,000
VALUE ADDED FROM USING SUB-UTILIZED SPS AND MARKET DEVELOPMENT			
Upgrading of also fuel wood into lumber for millwork, furniture @ US\$350 mbf	6,000 mbf/yr US\$2,100,000	210,000 mbf/yr US\$73,500,000	300,000 mbf/yr US\$105,000,000
Salvaging secondary hardwoods from low-land forests. Weighted price US\$1,840 mbf	-	-	5 million mbf/yr 50% lumber, 50% millwork US\$9,200,000
Introduction of lumber drying and grading 1 dryer produces 400 mbf/yr at US\$100 mbf value upgrade.	1 dryer US\$40,000/yr	1 dryer US\$40,000/yr	5 dryers US\$200,000/yr
VALUE ADDED AND HARD CURRENCY SAVINGS FROM INCREASED USE OF SMALL SIZED LUMBER IN CONSTRUCTION			
Upgrade from fuelwood US\$200/mbf	100,000 mbf/yr US\$20,000,000/yr	400,000 mbf/yr US\$80,000,000/yr	6000 houses/yr 6 million mbf/yr US\$1,200,000,000/yr
Steel imports reduction kg 760/tonne @ US\$0.5/kg	US\$18,000/yr	US\$72,000/yr	US\$1,080,000/yr
GRAND TOTAL DIRECT IMPACT	US\$167,000/yr	US\$592,000/yr	US\$14,415,000/yr

5.2 Technical Analysis

Through more than two years of successful operation in Guatemala the Wood Utilization and Market Development Activity has learned valuable lessons and has demonstrated that the techniques and the organisational approach to wood products are feasible. Judging from numerous other ROCAP projects, no significant problems are foreseen in expanding this work to other countries of CA.

The regional approach is considered to be more cost effective than the individual country focus, because of the similarity of the forests and wood industries in the countries of CA. The highly specialized talent needed for finding solutions in the field of wood products and markets is rare and expensive, and often prohibitive for an individual CA country, or USAID bilateral Mission. But solutions developed in one country can be transferred through a regional project, as demonstrated through ROCAP's PROEXAG/Exitos and Tree Crop Projects, among others. The growing economic and political integration of CA favors economies of scale and complementarity between industries of the region.

Although forest and marketing policies and regulations vary between the sovereign countries of CA, the RENARM policy inventories have demonstrated similarities and patterns, so that also in this area a regional approach encourages the transfer of experience, can muster high quality talent and is therefore more cost effective. Numerous examples exist where A.I.D. financed consultants, analyses, workshops and study trips have provided productive input to the legislative and regulatory process (e.g. the new forest law of Guatemala, organization of conservation areas in Costa Rica). The growing public awareness in CA, supported from abroad, provides political backing to implement the revision and streamlining of policies and procedures. Several regional efforts such as the Central American Commission on Environment and Development (CCAD) and the Tropical Forestry Action Plan for Central America facilitate and complement the policy work.

5.3 Institutional Analysis

An Institutional Analysis of this activity (Annex G) determined that the institutional environment is conducive to the successful implementation of the Project. The analysis clearly showed that a number of acceptable national and/or regional oriented institutions exist within Central America and are appropriate conduits of change for this Project. With appropriate support and well-defined agendas, several of these institutes or schools can be the foundation for promoting improved technologies and marketing in support of wood utilization and market development. They can serve as the principal instruments for transferring the new techniques and practices needed to enhance the economic efficiency and value of producing wood-based products.

Concurrently, it is obvious that the private producers and entrepreneurs through the various associations and other groupings must be better linked to these research and development institutions. The Project to be fully effective will need to stress linkages between the R&D institutes and private forest/wood based associations. The channeling of external TA should be directed to help private entities identify problems, test new technologies and/or methods, and be active participants in the Project training activities.

Based on the lessons learned in prior Central American experiences - more particularly in the recent RENARM supported IMCC activity in Guatemala - considerable promise exists in working with private associations and/or enterprises within the respective countries. However, they have a considerable ways to go before they can be judged viable sustainers of the forestry base. If the Project does not demonstrate profitability through the use of the new technologies and processes to these groups and individuals, they simply will not have any long-term positive effect. The Project contractor will need to understand and acknowledge that developing sound linkages between the R&D institutions and the private sector entities will be critical to meeting stated goals and objectives.

The criteria suggestions stated in Section 6.3 of this Amendment are judged very important for the selection of participants in this project. This will entail the active participation of the bilateral Missions with the RENARM project office and the selected Project Contractor. The long-term hands-on experience and knowledge the bilateral Missions have with local institutions/enterprise capabilities strengthens the selection process.

5.4 Social Soundness Analysis

The Social Soundness Analysis of the RENARM Project Paper addressed target populations, the distribution of benefits, compatibility with the sociocultural environment, and outreach to promote the adoption of appropriate practices. The conclusions of that analysis apply to this proposed Amendment.

The contractor will be especially sensitive to requests for assistance from women and others who may be disproportionately under-represented as recipients of assistance.

5.5 Environmental Assessment

/ IN PROCESS /

6 IMPLEMENTATION AND MONITORING

6.1 Methods of Implementation and Financing

The following implementation arrangements have grown out of experience acquired during two years of RENARM implementation of the Wood Utilization and Market Development Activity. Administratively this Activity will be the responsibility of the ROCAP Regional Agricultural Development Office, specifically of the RENARM Project Manager. Project implementation will be contracted to a private consulting firm selected competitively in response to a Request for Proposals (RFP). Table 6.A attached, shows an illustrative implementation schedule.

6.2 Administration

The contractor will establish a central office in Guatemala, from which Central American operations will be coordinated. The contractor will assign a full time Team Leader of the Wood Utilization and Market Development Activity to this office. Experience has shown that he/she should have good management skills, and should have general experience in the subject area but need not be a specialist. He/she will be assisted by a secretary, an administrator and other office support staff. The project will have funds to contract specialized consultants as the need arises, including a Chief Technical Advisor available for frequent consultation and site visits.

The policy work will be planned jointly but funded and administered by the RENARM Policy Initiatives component and the RENARM/CATIE Production from Natural Forest Activity.

6.3 Selection of Countries, Collaborators and Working Sites

The project will establish operations in at least three CA countries. However, this amendment proposes a predominantly private sector approach, which, although it must be guided by A.I.D. to some extent, needs to be given the freedom to take advantage of opportunities. The often unpredictable nature of business and of the reaction of the players makes it counterproductive to try to plan in excessive detail at the outset.

In each country the contractor, in concurrence with ROCAP, will reach an agreement with at least one institution specialized in wood utilization for that institution to assign one of its staff

at least part-time to activities to be carried out in common with the RENARM Activity. Illustrative candidate institutions include:

Any country: Private sector associations.

Guatemala: INTECAP (Collaboration already in progress)
ICAITI (Collaboration already in progress)

Honduras: COHDEFOR Wood Use Center
ESNACIFOR

Nicaragua: IRENA Lab de Tecnología de Madera

Costa Rica: Instituto Tecnológico de Costa Rica

Belize: Government Wood Workshop

As an incentive for the selected staff members to take the initiative required for these new activities, the project will offer support such as training, travel, access to consultants, and incidental expenses needed to get the job done.

Because of the several bilateral USAID projects which need the kind of services the Wood Utilization and Market Development Activity can provide (see 2.6), it is expected that several Missions will generate buy-ins. Given the fact that these bilateral projects amount to a total of about \$80 million, buy-ins could easily surpass \$200,000. The same buy-in mechanism as for other RENARM activities will be used. It is also probable that this activity will stimulate financial support from the USDA Forest Service and other US-based agencies, just as it has in the past.

In the selection process special weight will be given to those species whose utilization and marketing present obstacles to progress of the Tree Crop Dissemination and the Production from Natural Forests CATIE/RENARM activities. An example of this type of mutual reinforcement are the prototype houses constructed with the help of the Wood Utilization activity using components made of the treated wood of Eucalyptus camaldulensis grown with the assistance of the Tree Crop Dissemination activity in La Maquina, Guatemala. Demonstrating the use of this species in house construction will motivate more farmers to plant.

Selection will also give preference to working with species and at sites where bi-lateral projects need assistance. For example, forest management being promoted by the MAYAREMA Project in the Petén of Guatemala, will depend on finding uses and markets for many of the secondary species, such as ramón, one of the species which the Wood Utilization activity sent to the U.S. Forest

Service Forest Products Laboratory for testing. Selection will include dialogue with staff of MAYAREMA and other bilateral projects.

While the specific criteria for choosing the countries, collaborating institutions and working sites will be developed after the contractor has started operations, some of the principles guiding this selection process will include:

-- Relevance: The collaborators and activities supported must be relevant to the stated RENARM objectives.

-- Sustainability of the resource: The working arrangements will demonstrably contribute to sustainable management of the forest.

-- Prospects for growth: The situation is particularly promising and likely to grow on its own after initial assistance from the project.

-- Contribution: The collaborators (including bilateral Missions) agree to share the costs, either in-kind or through direct financial contributions.

-- Institutional continuity: The participants can demonstrate a life and a role beyond the end of the project.

-- Information flow: The collaborators can demonstrate an aggressive ability to disseminate the information and techniques promoted by the project.

-- Linkages: The activity will maintain sufficient flexibility to respond to appropriate targets of opportunity throughout the region. Special attention will be paid to areas where other RENARM-funded supply-side activities are being carried out, and/or to institutions that are working on pertinent wood supply activities. Proximity and/or accessibility to markets links should be a plus.

Table 6.A

ILLUSTRATIVE IMPLEMENTATION SCHEDULE
(By Quarters)

ACTIVITY	Year 1				Year 2				Year 3			
	1	2	3	4	1	2	3	4	1	2	3	4
1 Project Contract Signed	B											
2 Annual Work Plan	B				B				B			
3 Project Monitoring System Developed		B										
4 Country Site Implementation												
a) Guatemala	X	X	X	X	X	X	X	X	X	X	X	X
b) Country 2		X	X	X	X	X	X	X	X	X	X	X
c) Country 3			X	X	X	X	X	X	X	X	X	X
5 Product and Market Development												
a. Analyze Markets	X	X	X									
b. Manage Information		X	X	X	X	X	X					
c. Train Technicians		X	X	X	X	X	X	X	X	X	X	X
d. Improve Sawmills			X	X	X	X	X	X	X	X	X	X
e. Promote Use of Wood			X	X	X	X	X	X	X	X	X	X
f. Introduce Wood Preservation				X	X	X	X	X	X	X	X	X

B - Indicates process completed - Benchmark achieved

X - Indicates on going activity and continues where it is marked with X

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6.4 Procurement

All commodities, services and their supplier's financed by A.I.D. under the Project shall have their source and origin in the United States, except as A.I.D. may otherwise agree in writing. Under A.I.D.'s Buy America guidance, no local procurements are authorized except as A.I.D. may otherwise agree in writing in the various agreements, contracts, or Project Implementation Letters (PILs). A record of all local procurement financed under the Amendment shall be maintained by the contractor and/or RENARM Project Manager during implementation of the project activities .

The primary technical assistance provider is expected to be a U.S. entity or a U.S./Central American joint venture having extensive experience in forest-based activities which emphasize market development and technology access of wood products. Preferably, this entity will have Central American and/or tropical forest experience. Based on competitive bidding, the selected Contractor will provide long-term advisor(s), recurrent and specific short-term advisors, training services, applied research services, and provision of limited commodities. ROCAP will initiate the required PIO/T and will name thereon the Regional Contracts Office as the authorized agent to carry out the procurement through the Request for Proposal (RFP) mechanism. The RFP mechanisms and/or an 8A mechanism may take five to six months following the Regional Contracting Officer receipt of the PIO/T. This contracting period will reduce the implementation period of the activity to approximately two and a half years. ROCAP personnel will reduce this contracting period to the extent practicable.

The procedures to be employed by the USAIDs in the region wishing to access this activity will use the overall RENARM buy-in mechanism which was established in November 1991. The operational mode for using buy-ins is restated in Annex I.

The Project RFP as specified in Hand Book ii will assure that small and/or minority firms (Gray Amendment) are provided maximum practical consideration for contracting and subcontracting opportunities.

No waiver requirements were identified during Project design. If the need for waivers is identified during implementation, all applicable AID procedures will be followed.

6.5 Oversight

Technical oversight for this activity will continue to be provided by the ROCAP Regional Forestry Advisor and the Associate Forester, supervised by the RENARM Project Manager, just as it has been during the past two years. These foresters will work directly with the contractor's team leader. They will exercise oversight

through site visits, informal contacts, formal reviews, and periodic reports. They will have free access to all of the contractor's collaborators.

In addition to their oversight functions, the ROCAP foresters will be responsible for assuring linkages with the other RENARM Activities, especially the Policy Initiatives, Production from Natural Forests and Tree Crop Production. The frequent contact these foresters have with bilateral USAIDs because of the technical assistance they provide them, will facilitate support to and buy-ins from bilateral projects.

6.6 Evaluation and Audits

6.6.1 Evaluation

Utilizing resources of the RENARM Monitoring and Evaluation Contract, a progress monitoring and evaluation system will be put into place for this Amendment activity. Elements of the system include:

- Monitoring Output and End-of Project indicators.
- Preparing a quarterly progress report format based on the above and with emphasis on implementation issues, progress, and follow-up.
- Implementing formal semi-annual reviews with participating institutions which evaluate the strategy and progress of the activities.
- Conducting selective case studies on wood utilization and marketing. The purpose of these studies is to understand and "model" the relation between adding value to wood and the long-term overall objectives of RENARM. Issues for study could include social/economic impacts of forest utilization practices, and changes in entrepreneurial attitudes towards forest conservation and utilization resulting from participation in the project.

Evaluation funds are not included in the amendment as they are provided in the overall project budget.

6.6.2 Audits

Based on AID Guidelines issued in September 1989, all contractors and/or non-US grantees are required to have an annual comprehensive audit. Firms used to perform this service will be from a list approved by the RIG and the generic scope of work format as provided by the RIG will be the basis of the Audit.

The financial audit shall be performed in accordance with generally accepted auditing standards including the US Comptroller General's Government Auditing Standards. The audit(s) will apply the appropriate tests of the accounting records as necessary to the situation. Since the prime contract is expected to be signed with a U.S. company, this entity will be subject to OMB-A-133 and the Single Audit Act provisions. The audit performance will be supervised by the cognizant IG.

Audit funds are not included in the amendment as they are provided in the overall RENARM project budget.

WOOD UTILIZATION AND MARKET DEVELOPMENT – Logical Framework

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>GOAL: Environmentally and economically sound natural resource practices (in forest industries).</p>	<p>Increased use of currently underutilized species: Five hardwood species which were processed at less than xxxx m3 year in CA in 1991, have been doubled in production by 1995.</p> <p>The use of borates and other wood preservatives for lumber and roundwood has become "common practice" in CA.</p>	<p>Government production statistics. Spot checks of selected saw mills.</p> <p>Field visits. Sales of chemicals for preservation.</p>	<p>Market for wood products remains stable.</p>
<p>PURPOSE: The specific objective of the Wood Utilization Development Activity is to create and demonstrate the products and market links which will allow natural forest management, agroforestry, and plantation forestry to become ecologically and economically sustainable.</p>	<p>End of Project Status (EOPS):</p> <p>a) Improved wood products, made from currently underutilized species, have increased in value by xxx amount, in number by xxx amount, in volume by xxx amount.</p> <p>b) Information on underutilized species, market opportunities and improved sawmill operations is being used by CA foresters and wood users.</p> <p>c) Trained technicians are delivering technologies for improving efficiency in sawmill operations and are teaching other operators on new skills developed.</p> <p>d) Sawmill improvement program has decreased roundwood by 5% per year in 20 saw mills, waste reduction in logging and hewing at 5% per sawmill.</p> <p>e) Value added from new market opportunities using sub-utilized species increased by xxx% by PACD.</p> <p>f) xxx new wood processors employing new wood preservation techniques by PACD.</p>	<p>Government production, export and price records. Interviews with loggers and producers.</p>	<p>Government controls permit harvest.</p>

OUTPUTS:

WOOD UTILIZATION AND MARKET DEVELOPMENT -

1. A compilation of information on selected species, based on an analysis of potential markets, is easily accessible from all CA.

2. Technicians in selected CA wood utilization institutions have achieved satisfactory performance in sawmill operation and wood products manufacture.

3. Sawmills, selected for their potential to produce underutilized species, have created the capacity to produce better quality lumber, use a higher proportion of these species, and produce less waste.

4. A series of demonstrations, including market tests, that at least five currently underutilized species can substitute for traditional species in construction, furniture, fine items or other products.

5. The use of borates and other wood preservatives for lumber and roundwood has been demonstrated in at least three countries of CA.

INPUTS:

- I Personnel
- II Consultants
- III Local Personnel
- IV Local Office Support
- V Training
- VI Subcontracts
- VII Other Costs and Fees

Output Indicators:

a) Reports on an analysis of potential markets for underutilized species, include findings, conclusions and practical recommendations concerning selection of species, products, and market strategies.

b) A computerized bibliography (MICRO-ISIS compatible), and most important documents are housed in at least one existing documentation center (e.g. HON Wood Use Center, INFORAT, ICAITI) and is easily accessible to CA technicians.

c) Between the following institutions, at least 15 technicians have reached satisfactory competence in the subjects of sawmill operation (mill layout, cost accounting, saw maintenance, drying, and wood products manufacture (wood properties, gluing, joining, marketing).

- Guatemala INTECAP, ICAITI
- Honduras COMDEFOR Wood Use Center, ESNACIFOR
- Nicaragua IRENA Lab de Tecnologia de Madera
- Costa Rica Instituto Tecnológico de CR
- Belize Wood Centre
- El Salvador To be identified
- Panamá To be identified

d) At least 20 sawmills in at least three countries have made significant improvements in their layout, operation, and management and in each more than 25% of their production is from species formerly underutilized by this and other mills.

e) Products or prototypes made from at least five underutilized species are being marketed or have been market tested successfully, as a result of project assistance.

f) The borate or other treatment technique and the advantages of treated wood have been demonstrated to at least 150 potential users in at least three countries, and TA and supplies have been made accessible to those interested in applying the techniques.

IMPLEMENTATION TARGET: US\$000's (AID)

- I 429
- II 379
- III 273
- IV 219
- V 168
- VI 200
- VII 532

TOTAL 2,200

a) Reports and supporting documents.

b) Bibliography. Visits to documentation centers.

c) Visits to collaborating institutions. Review of documents on training. Review of course test scores. Interviews with selected technicians.

d) Periodic visits to sawmills. Inspection of production records.

e) Project records. Visits to producers and review of their records.

f) Project records. Field visits and interviews.

Signed contract.
Contractor's Fiscal Report.
SARs

a) Sources of data are reliable and adequate.

b) None.

c) Interest and continuity of institutions can be maintained.

d) Log supply is reliable.

e) Market for wood products remains stable.

AID funds available

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TAGS:

SUBJECT: REFORM PROJECT - PROJECT AMENDMENT FOR WOOD
 UTILIZATION AND MARKET DEVELOPMENT ACTIVITY

REF: A) GUATEMALA (4865 B) STATE 1152P3

1. SUMMARY. LAC/D: AND LAC/DF APPRECIATED THE OPPORTUNITY TO REVIEW THE EVALUATION OF THE REFORM WOOD UTILIZATION AND MARKET DEVELOPMENT ACTIVITY AND SHARE COMMENTS WITH BILL SUGRUE DURING A SHORT MAY 15 MEETING.
2. THE CONSENSUS OF THE MEETING WAS THAT THE REDESIGN AND SUGGESTED DELEGATION SCHEDULE (REF A) SHOULD PROCEED ON TRACK TAKING INTO ACCOUNT THE MAJOR EVALUATION FINDINGS AS FOLLOWS:
 - REDUCE AND FOCUS WOOD TECHNOLOGY ACTIVITIES ON THOSE PRODUCTS AND POTENTIAL WOOD MARKETS WHICH SHOW MOST IMMEDIATE PROMISE
 - INCREASE THE GEOGRAPHIC SCOPE OF ACTIVITIES TO INCLUDE OTHER CENTRAL AMERICAN COUNTRIES TO TAKE FULL ADVANTAGE OF EXISTANT OPPORTUNITIES
 - DEVELOP A COMPONENT TO ANALYZE POLICY IMPEDIMENTS TO IMPROVING WOOD MARKET DEVELOPMENT AND PROMOTION OF SUSTAINED YIELD TECHNOLOGIES
3. BACKGROUND: THE RECENT ACTION PLAN REVIEW AND REPORTING CABLE (REF B) DELEGATED DESIGN AND APPROVAL AUTHORITY TO THE MISSION FOR THE AMENDED ACTIVITY UPON THE FAVORABLE OUTCOME OF THIS EVALUATION. AID/W SUPPORTS COMPLETING THE REDESIGN OF THIS REFORM ACTIVITY RECOGNIZING THE VITAL ROLE OF IMPROVING THE DEMAND SIDE OF FOREST PRODUCT MARKETS AS AN INTEGRAL PART OF CREATING THE VALUE NEEDED FOR THE CONSERVATION OF CENTRAL AMERICA'S REMAINING FORESTS OUTSIDE OF PROTECTED AREAS.
4. THE LAC BUREAU SUGGESTS THAT DURING THE REDESIGN PHASE TAKE FULL ADVANTAGE OF THE FOREST POLICY WORK UNDERTAKEN IF THE REFORM/REFAI POLICY INVENTORY COMPONENT. IT IS ALSO RECOMMENDED THE ACTIVITY REDESIGNERS SEEK TO MAXIMIZE OPERATIONAL INTERCHANGE BETWEEN THE WOOD MARKET AND

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Annex B
Page 2

UTILIZATION COMPONENT AND THE REGIONAL NATURAL FOREST
MANAGEMENT ACTIVITY BEING CONDUCTED UNDER THE AUSPICES OF
CATEL. ALL OF THESE EFFORTS SHOULD PROBABLY BE EFFECTIVE FROM
IMPROVE COORDINATION WITH EACH OTHER. PAGE

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SUMMARY
Project Cost Estimates
Wood Utilization and Market Development Activity
US\$ 000

Annex C

Budget Line Item	Year 1	Year 2	Year 3	Total
I Personnel	158.4	120.5	149.8	428.7
II consultants	157.6	125.5	96.1	379.2
III Local Personnel	91.1	91.1	91.1	273.4
IV Local Office support	83.6	68.4	66.6	218.6
V Training	42.0	66.0	60.0	168.0
VI Subcontracts	90.0	75.0	35.0	200.0
Direct Costs Subtotal	622.7	546.5	498.6	1667.8
G&A 20%	124.5	109.3	99.7	333.5
Total Costs	747.2	655.8	598.3	2001.2
Fee 7.8%	58.3	51.2	46.7	156.2
Total Costs and Fee	805.5	707.0	645.0	2157.5*

* Rounded to \$2.2 Million

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ILLUSTRATIVE PROJECT BUDGET

ANNEX D
Page No.:

DETAILED PROJECT COSTS ESTIMATES
BENHAI PROJECT: Food Utilization and Market Development: Consultant

YEAR	YEAR 1		YEAR 2		YEAR 3		TOTAL				
	UNITS	COST/UNIT/US\$000	UNITS	COST/UNIT/US\$000	UNITS	COST/UNIT/US\$000					
I. PERSONNEL	Team Leader										
	Salary	per day 0.150	250	37.5	250	37.4	250	41.4	750	110.3	
	Private (1/3 of Salary)			13.5		14.6		15.3	0	43.6	
	Overhead (40% of Salary)			18.0		18.9		18.9	0	56.8	
	International travel	trip 0.900	2	1.8	2	1.8	2	1.8	6	5.4	
	CA Travel	trip 0.300	15	4.5	15	4.5	10	3.0	40	12.0	
	Per diem	per day 0.100	120	12.0	96	9.6	72	7.2	288	28.8	
	Radio, Computer			10.00		0.00		0.00		10.0	
	Advances in Coop. Country Inc. Repatriation			60.7		31.7		61.2	0	153.6	
				158.4		121.5		149.8		429.7	
	II. CONSULTANTS	External consultants									
		Chief Technical Advisor	day 0.300	120	36.0	100	30.0	80	24.0	300	90.0
		Int. Travel Chief Tech. Advisor	trip 0.900	5	4.5	6	5.4	5	4.5	16	14.4
		CA Travel Chief Tech. Advisor	trip 0.300	5	1.5	6	1.8	5	1.5	16	4.8
		Per diem Chief Tech. Advisor	per day 0.100	134	13.4	112	11.2	90	9.0	336	33.6
Micro. food market analysis		day 0.250	20	5.0	0	0.0	0	0.0	20	5.0	
Various market & industrial consultant/day		0.300	20	6.0	0	0.0	20	6.0	7	21.0	
Sanitation improvement		day 0.250	80	20.0	40	10.0	20	5.0	140	30.0	
Wood treatment		day 0.250	20	5.0	0	0.0	0	0.0	20	5.0	
Other Consultants Int. Travel		trip 0.900	12	10.8	10	9.0	10	9.0	32	28.8	
Other Consultants CA Travel		trip 0.300	7	2.1	7	2.1	7	2.1	21	6.3	
Other Consultants Per diem		per day 0.100	330	33.0	140	14.0	90	9.0	460	46.0	
CA consultants											
Sawmill management		day 0.150	40	6.0	40	6.0	30	4.5	110	16.5	
Wood marketing		day 0.150	20	3.0	10	1.5	0	0.0	30	4.5	
CA Travel Technicians	trip 0.300	12	3.6	12	3.6	10	3.0	34	10.2		
In-country travel technicians	trip 0.300	8	2.4	8	2.4	6	1.8	22	6.6		
Technicians Per diem in CA	per day 0.100	84	8.4	84	8.4	70	7.0	238	23.8		
In-country collaborating technicians	per day 0.100	56	5.6	56	5.6	42	4.2	154	15.4		
In-country collab.tech.(local per diem)	per day 0.050	80	4.0	80	4.0	80	4.0	240	12.0		
Per diem outside CA	per day 0.150	15	2.3	10	1.5	10	1.5	35	5.3		
			157.6		135.5		96.1		379.2		
III. LOCAL PERSONNEL	Admin Assistant	PA 1.000	12	12.0	12	12.0	12	12.0	36	36.0	
	Secretary, bilingual	PA 0.600	12	7.2	12	7.2	12	7.2	36	21.6	
	Accountant	PA 0.600	12	7.2	12	7.2	12	7.2	36	21.6	
	Messenger	PA 0.135	12	1.6	12	1.5	12	1.5	36	4.5	
	Cleaning personnel	PA 0.100	12	1.2	12	1.2	12	1.2	36	3.6	
	Local Technicians										
	Sawmill improvement	PA 1.000	12	12.0	12	12.0	12	12.0	36	36.0	
	Wood in construction	PA 1.000	12	12.0	12	12.0	12	12.0	36	36.0	
	Food Products	PA 1.000	12	12.0	12	12.0	12	12.0	36	36.0	
	Social benefits on local salaries (40%)			26.0		26.0		26.0	0	78.0	
				91.1		91.1		91.1		273.4	

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IV LOCAL OFFICE SUPPORT

Rent, utilities, insurance	month 1.500	12	18.0	12	18.0	12	18.0	36	54.0
Equipment & supplies	month 0.600	12	7.2	12	7.2	12	7.2	36	21.6
Communications	month 1.200	12	14.4	12	14.4	12	14.4	36	43.2
Vehicle purchase	each 20.000	1	20.0		0.0		0.0	1	20.0
Vehicle Operation & Maint.	vehicle: 0.600	18	10.8	24	19.2	24	19.2	66	52.8
Car rental	per day 0.060	100	6.0	100	6.0	70	4.2	270	16.2
Miscellaneous	month: 0.300	12	3.6	12	3.6	12	3.6	36	10.8
			83.6		68.4		66.6		218.6

V TRAINING

Participation of staff in short courses per	4.000	3	12.0	4	16.0	5	20.0	12	48.0
Short courses	each 10.000	2	20.0	5	50.0	4	40.0	12	120.0
			42.0		66.0		60.0		168.0

VI SUBCONTRACTS

Literature search/doc. services			10.0		0.0		0.0	0	10.0
Product development & cost studies			20.0		30.0		10.0	0	60.0
Wood treatment			20.0		10.0		0.0	0	30.0

OTHER DIRECT COSTS

Materials & supplies			20.0		20.0		20.0	0	60.0
Equipment			20.0		15.0		5.0	0	40.0
			90.0		75.0		35.0		200.0

SUBTOTAL DIRECT

			622.7		546.5		496.6	0	1667.8
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0.20			124.5		109.3		99.7	0	333.6
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TOTAL COSTS

			747.2		655.8		596.3	0	2001.4
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FIELD FEE

7.800			58.3		51.2		46.7	0	156.1
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TOTAL COST + FEE

			805.5		707.0		643.0	0	2157.5
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SUPPORTING COSTS
Team Leader Wood Utilization and Market Development Activity
US\$ 000

Annex E

Description	Year 1	Year 2	Year 3	TOTAL
1. Compensation *1	37.5	39.4	41.4	118.3
Fringed (37% of salary)	13.9	14.6	15.3	43.8
Overhead (42% of salary)	18.0	18.9	19.9	56.8
2. Allowance *2				
Transfer	3.0	0.0	3.0	6.0
Temporary Quarters	9.0	0.0	12.0	21.0
Living Quarters	15.5	15.5	15.5	46.5
Supplementary Post Allowance	3.0	0.0	1.0	4.0
Educational Allowance	11.7	11.7	11.7	35.1
3. Travel, Transportation & Per Diem				
a. International travel	1.8	1.8	1.8	5.4
b. Centromerican travel	4.5	4.5	3.0	12.0
c. Per Diem	12.0	9.8	7.2	28.8
DESCRIPTION				
a. Transportation of Household effects NTE 7,000 lbs.	10.0	0.0	10.0	20.0
b. Unaccompanied Baggage NTE 200 lbs.	0.5	0.0	0.5	1.0
c. Transportation of Private-owned vehicle	2.5	0.0	2.5	5.0
4. Other Costs				
a. Radio and Computer	10.0	0.0	0.0	10.0
b. Health Insurance	4.0	4.0	4.0	12.0
c. Life Insurance	0.5	0.5	0.5	1.5
d. Pre contract costs (passports, visas, innoc.)	0.5	0.0	0.0	0.5
e. Physical Exam	0.5	0.0	0.5	1.0
Total	158.4	120.6	149.8	428.7

*1 5% Annual Increase

*2 Centromerican with spouse and three children

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Evaluation of the
Wood Utilization and Market Development Activity
Sustainable Agriculture and Forestry Component of the
Regional Environmental & Natural Resources Management Project

Prepared by

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Holmes/ROCAP

March 12, 1992



INTRODUCTION

The following is an evaluation of the Wood Utilization and Market Development Activity being implemented by IMCC under AID Contract No. 596-0150-C-00-1309-00 for the RENARM project. (The acronym INFORDE is sometimes used by IMCC and in Central America to refer to the work being done by IMCC.) The evaluation is based on the IMCC Scope of Work and concentrates on IMCC planning and strategy, as well as on activities undertaken and results achieved. The evaluation suggests adjustments in the program that will help demonstrate why and how wood utilization and market development are an integral and indispensable part of successful sustainable forest management.

Sustainable management of forests, especially those such as the lowland forests of Central America, (probably) requires a wood utilization and market development activity aimed at all sectors of the population, i.e., small, medium and large land owner/managers and consumers. This requirement comes from the fact that, because there exist a large number tree species whose uses and values are not (widely) recognized, especially by the small- and medium-sized land owner/managers and industries, there is no market for most of the species except for use as fuel for cooking and heating. Wood used as fuel and for heating, while being an absolute necessity of life for most people in the world, also usually constitutes its lowest-valued possible use. However, because no markets exist for most species in these forests, there are no reasons for most land owners to harvest the trees in a sustainable fashion let alone to replace them with potentially more valuable species.

If the forests of Central America are to be saved, markets for the many and varied species must be developed to provide the economic stimulus to the land owner/managers and industries just mentioned. That is the goal of the ROCAP project under evaluation.

This project is aimed at developing and showing higher-valued end uses for different species and for developing the markets for those end products. The desired result will be the market links that will provide for ecologically and economically sustainable forest management.

By the end, the project will have shown how market forces can be powerful allies to conservation and reforestation activities. It will do this through a variety of demonstration activities that will help make the role of production forestry and its associated industries better understood by decision-makers and the producing and consuming public. In addition, an improved awareness and communication among the forestry, wood products and environmental sectors (hopefully) will lead to more effective and efficient policy decisions.

When evaluating projects like this one it is essential to keep in mind that the principal reasons these projects are necessary are the results of social and cultural activities that have developed over the past 400 years as well as characteristics of the natural environment.

For example, one reason that Guatemalans don't live in wood houses is that treated lumber that could survive termite attacks and rot has never been available. People lived on the plains of the U.S. in "adobe" (sod) houses for the same reasons. Guatemalans don't cut trees of a wide variety of species to make furniture and other products because they have always had enough of the traditionally-used species. Now those species have run out. Guatemalans can't be expected to react favorably to forest management programs in two years if it takes 5 years for the forests to react to management activities.

Old habits die hard in Guatemala, as elsewhere. Ancient forests take time to recuperate from decades or centuries of abuse. Funding agencies need to consider these factors when determining whether, how much, and for how long to fund programs dealing with forests. Central American countries don't have much except the forests to rely on in the long run. Their people and economies depend on them. If the countries are going to be self sufficient in the long run, everything possible must be done to help them develop and manage the forests and forest products related industries.

In conclusion, I believe the wood utilization and market development programs in question are absolutely essential to the survival and recuperation of the forests of Central America. I think that the progress made by ROCAP's contractor has been significant both in terms of the amount of work achieved and in terms of the development of a clear picture of what aspects of the overall program should be continued in Guatemala and the region in general. I suggest that the program receive further funding.

**Significant Achievements, Impacts and
Findings During Phases I-III**

The following is a resume of the more significant achievements, impacts, and findings of Phase I-III. Achievements and Impacts are the accomplishments in terms of objectives and positive changes in the operations of suppliers, consumers, regulatory and cooperating agencies. Findings are discoveries that can help move forward or impede the progress of RENARM's programs in Guatemala (and perhaps elsewhere in the region).

Achievements

Reputation, recognition
Introduction of borate treatment
Aliso use
Furniture
Kiln drying
Sawmillers sending people to or hiring people from Honduras
Prototypes

Findings

Lack of knowledge of what's possible
Need for training in sawing, treating, drying
Need to work within forestry law
Export furniture market thriving

**What RENARM Can Do in the Next Three Years
to Maximize the Potential Developed by the Current Project.**

Based on the achievements, impacts and findings just discussed, it is my impression that RENARM could make the greatest impact on Guatemala and the region by concentrating its efforts on the following activity areas. In every case the focus should be on low technology and low cost products and services for widespread and widely understood needs.

1. Wood preservation techniques
 - All wood products should be treated and it's easy to do right
 - Borates
 - Everywhere
 - "Comics", TV, newspapers, "hands-on" demonstrations
2. Use of preserved lumber
 - Focus on using lumber, well-sized or not
 - Roundwood constructions
 - Lumber in houses/other buildings (wood + adobe/concrete)
 - Furniture
3. Outreach, making contacts
 - Develop and expand contacts among consumers, users, regulatory agencies and cooperating agencies.
 - Teach consumers and users why it's in their best interests
 - To change their old habits and thought patterns
 - To manage their forests and to plant more
 - Monitor/study results with different species already and being put into use
4. Develop in-country capabilities in the key needs areas mentioned here.
5. Work to reduce barriers in the regulatory network that impede the progress of all wood utilization and sustainable forest management activities.

Description and Relationship of the Collaborating Institutions

The Wood Utilization and Market Development activity will actively participate in at least three of the CA countries through a project coordination office based in Guatemala. Almost all the Project activities will be implemented through established local institutions in the region in coordination with the Guatemala office. No new country institutions are to be created. The coordination office will be provided for by project funds and will be the responsibility of the selected Project contractor.

Formalized agreements will be established with the participating research and development institutions to establish respective scopes of work and better allocate the development resources of the Project. The Project premise is that these institutions and their participation is vital to the long term viability of wood utilization and marketing programs within the region. They provide the necessary technology and information base for which private entrepreneurs can seek assistance and they are in a position to influence those policies and strategies that impact upon the long-term viability of wood utilization/marketing industries.

A Public/Private Research and Development Institutions

The following represents institutional descriptions and analysis of the primary centers and/or facilities that will be used in this Project. Emphasis is on those institutions in the three countries (Guatemala, Honduras, Costa Rica) which will probably have primary roles in this regional effort although brief descriptions are made of several entities in Nicaragua and Belize.

Guatemala

ICAITI (Central American Research and Technology Institute for Industry) was established in 1955 by the CA countries and is the largest research and technology institute in the region. Funding is mainly from the international community (including USAID) and the private sector. ICAITI has 8 programs thrusts: technical and economic studies; research and development; training; information; analysis and testing; technical assistance; organizational development; and financial development. The facility which is located in Guatemala City has several well-equipped laboratories and currently has 52 professionals on the staff to support these programs.

In the past ICAITI has provided RENARM technical services related to borate wood treatment and the drying of wood through their research and development program. Their inputs were appropriate and professional. The center has excellent drying facilities and laboratories related to wood treatment. ICAITI is

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also linked with the National Rural Electrification Cooperative Association (NRECA) where they explore better and more cost effective ways to produce energy from biomass and several other sources.

Why ICAITI?

- It is an established regional institution devoted to quality research and development on a wide range of topics related to the CA industrial sector.
- The institute has shown good capacity to enact research and testing programs on wood products as evidenced by earlier RENARM experiences.
- Their program is already providing services to the local wood industry - much of it without RENARM support.

INTECAP (Technical Training Institute) is a Guatemalan government training institute established in 1972 and is funded by a 1% legal tax from private sector salaries. The center, located in Guatemala City, has several training units which includes the large wood manufacturing shop which was established by Government of Germany development funds. This facility has been operational since 1990.

In 1991, RENARM initiated a small cooperative agreement with INTECAP and the local sawmill association which was designed to help develop INTECAP's sawmill training capacity. In 1992, a small sawmill maintenance shop was created and funded by RENARM whereby training could be provided to local industry and students. Technicians from INTECAP are to be trained so that they can develop their own capacity to provide much needed sawmill maintenance training over the long term. Thus far, 3 training courses have been conducted.

Why INTECAP?

- Formal agreements are already in effect between RENARM, INTECAP and the sawmill association.
- Links with other donors and the local sawmill association helps insure that the program will be adequately maintained after the RENARM inputs are completed.
- The Guatemalan government support has been fairly stable and is considered by many as one of their best programs in support of the private sector.
- Their training program potentially has a good multiplier effect particularly to private industry participation.

Honduras

The COHDEFOR (Honduran Corporation for Forestry Development) Wood Use Center is a newly created wood research center aimed at developing products and markets for Honduran lesser-known species. It was formed in 1990 by the British Overseas Development Agency (ODA) and COHDEFOR. It is expected that their laboratories and facilities will be completed and providing services by 1993. Currently, they are helping the local wood industry in machinery maintenance and improvement through technical assistance. In the product development program, the Center will develop a sawmill maintenance shop, a wood manufacturing shop, a wood utilization laboratory, a drying facility, and install some equipment to test and develop lesser-known species. The intent is that the products developed can eventually be adopted by local industry. They also plan to do related marketing research in Honduras and the nearby countries and work closely with several of the training institutions within the region. Other donors and internationally supported projects such as the Canada/COHDEFOR project, which deals mainly with the hardwood forest, are expected to be involved in COHDEFOR's program. Exchange of information will be critically important to the process.

There have been some recent changes in the Honduran forestry law. However, it is not yet known whether these changes will have a negative impact in the development of this Center. Despite the uncertainty or impact of this law, COHDEFOR plans to continue looking for ways to raise more funds to support their research programs. The Center is seen as a primary resource for RENARM related activities where relevant research and development work can take place in wood utilization.

Why COHDEFOR, Wood Use Center?

- It is demonstrating considerable interest in pursuing product and market development of lesser-known species and is developing one of the most complete laboratories of its kind in Central America.
- With the assistance of British Government, COHDEFOR is developing an information network that can be useful throughout the entire region.
- The Center has close relationships with other international donors interested in hardwood forest management. This in turn helps facilitate support for product and market development research.
- The Center already participates with RENARM on several information sharing activities which can form a good foundation for continued work under this activity.

ESNACIFOR (National School for Forestry Sciences) is a forestry school that has been operational since 1969 in Siguatepeque, Honduras for the purpose of educating mid-level forestry technicians from Central America. Over 500 foresters have graduated since that time. The core budget is primarily funded by COHDEFOR. Several other international organizations, including USAID, have provided financing and support to the institution. The school has excellent facilities. It includes broadleaf and pine forest of 5,300 hectares, several laboratories, a library, dormitories, a band sawmill and a complete sawmill maintenance shop, woodworking shops, seed bank, staff housing, a world famous botanical garden, wood treating and drying facilities, and a geographical information system. Currently, there are 25 professionals on the staff. Research has been conducted on more than a hundred hardwood species from Honduras. It also has research programs in forest genetics and forest silviculture. The school facilities provide short courses for national and regional personnel - thus making it a good site option for activities under this Project. Their laboratories and trained personnel can also perform some of the research for the development of the lesser-known species and in sawmill maintenance. Due to the changes in the Honduran forestry law, it is expected this institution will undergo structural changes and be more independent from government support and control. Opportunities for RENARM to utilize their training and research services are promising.

Why ESNACIFOR?

- The School has done extensive research and study on lesser known species and is acquiring the reputation of an institution with a regional experience and vision.
- Has good experiences in providing sawmill maintenance services and courses to local enterprises throughout the region.
- Facilities ideally tailored for wide range of training opportunities.
- Institution has good links with international donor community and is perfecting better information and technology activities that can be shared throughout the region.

Costa Rica

The Costa Rican Technological Institute (ITCR), is a technological institute established in 1974 and has been financed mainly by the government. They have a Forestry Department that offers degrees in Silviculture and in Forest Industries. Their installations include a wood manufacturing shop; laboratories for wood drying and preservation; particleboard facilities for testing and design; a sawmill maintenance shop; two sawmills (one portable); and laboratories for wood testing, wood identification, and wood

chemistry, with equipment for logging and processing small wood diameter logs. They have done research on gluing for eleven hardwood species; developed a visual grading system for structural lumber of five hardwood species; studied the possibilities of product and market development for twenty five lesser known species from Costa Rica; and have designed a solar dry kiln and a steam dry kiln.

It is estimated that ITCR has invested about one million dollars in laboratories and wood testing facilities. These facilities remain underutilized. At present, they are carrying out a project with the BID assistance named the "Wood Research Center". It emphasises the extraction and processing of small diameter trees (plantations and wood residues from natural forests). Because of their expanded programs, they are also working on five species in the logging of small diameter trees. They will be seeking additional funds and contracts to develop and expand specific research in these subject areas.

ITCR needs to develop more ways of utilizing their existing facilities and have a better long-term development agenda. Technical assistance from other donors as well as utilizing resources selected from this Wood Utilization and Market Development activity are appropriate.

In Costa Rica most of the existing forest available for economic use is hardwood. The experience developed by ITCR in this area is significant. Also this Institute carried out, with the support of FAO, a sawmill improvement program which provides technical assistance to the sawmill industry. During the early stages of the RENARM activity, ITCR was contacted as a vehicle for future cooperation, but the effort was put on the back shelf due to Project fund limitations.

Why ITCR?

- It is a well established technological educational institute with sufficient installed capacity and experience in the manufacturing of hardwood species.
- Their educational orientation enhances the multiplying effect since through their participation they can provide competent technical assistance and short course programs.
- Their Wood Research programs have relevance to RENARM's activities under this Project.

Nicaragua

The IRENA (Environment and Natural Resources Institute) Wood Technology Laboratory located in Managua is the only wood related research center in the country. Funding is primarily from the

Nicaraguan Government. Their laboratory agenda includes: testing structural properties of wood; determining anatomical wood characteristics; and preservation and drying of wood products. Most of the studies conducted at IRENA relate to the Nicaraguan forestry environment. This has conducted: air drying of ten hardwood species; 14 or more studies on the structural/anatomical properties of different hardwood species; and a manual on macroscopic identification of fifty species from Nicaragua.

A complete sawmill maintenance shop (estimated US\$500,000) was constructed in 1984 through the assistance of the Government of Sweden and the FAO. It basically has been underutilized.

In sum, the long-term detrimental economic and political climate within Nicaragua has had a negative effect on the institution and recovery has been slow.

Why IRENA?

- Offers a contact opening to activities in Nicaragua.
- Local training site potential

Belize

A government Wood Workshop, located at Belmopan, was established in 1971 to use the considerable volumes of small-sized Gmelina thinnings from plantations established to replace wood imports, and to demonstrate the utilization of lesser-known species.

With United Kingdom assistance, the workshop has acquired a dry kiln with a 6,000 board feet capacity (14.2 m³) of one inch lumber in a seven day period. They were also provided with an elaborate group of woodworking machines that make sidings, flooring, doors, and furniture. The plan is to produce one inch lumber for kilning with a 60" Stenner band resaw, and process annually 220,000 board feet of siding and flooring, as well as doors and furniture. The workshop has been producing millwork and furniture for the Forest Department and other government organizations.

A restructuring of the organization of this workshop has been suggested, because of its perceived role as a government entity essentially doing private sector work. The issue has yet to be resolved. A key concern is whether the privatization of the workshop will continue to provide adequate research information for the public. Belize in recent years has been receptive in allowing a greater private sector role in research and development activities for the agricultural and natural resource sector. Certainly, this facility is a resource that RENARM should explore when wood utilization and marketing opportunities expand to Belize under this Project.

Why the Wood Workshop?

- Tailors well to RENARM objectives.
- Good links to Belizean private sector.
- Basically the only forest products facility in Belize.

B Private Sector Associations

A critically important aspect of this Project is to help foster better linkages of the above listed private/public institutions which are engaged in various aspects of wood technology, training and information dissemination with the wood industry associations and individuals of the regional countries. The following represents some observations of these groups:

Guatemala

Two sawmill associations exist in Guatemala: the Gremial Forestal which represents members from all Guatemala, and AIMPE which represents only the Petén region. Work in the sawmill improvement program has been carried out with the participation of the Gremial Forestal. It has also received most of the training.

It is urgent in Guatemala to implement a sawmill improvement program on a large scale. Most sawmills run under 50% yield. This is the minimum recommended processing efficiency level and leads to significant forest resource waste. They do not have enough training or know-how to improve their yield and/or properly use the machinery. They have not fully appreciated that good forest management is linked to sustained supply, and therefore vital to their existence.

The upshot is that these associations must be encouraged to take more responsibility in the proper management of forests from which they receive revenues.

Why these associations?

- Despite a poor track-record to date, there is a notable increase in the number of private individuals and/or local groups who want to improve their economic efficiency in wood products and marketing.
- Their participation is critically needed to promote better utilization yields and savings of forest resources which are in rapid decline in Guatemala.

The sawmill improvement program developed in Guatemala through the help of RENARM/IMCC, has led the association to realize that

they need technical assistance in order to improve their processing yield. Currently, RENARM/IMCC is actively working on 5 sites in Guatemala with private entrepreneurs. The RENARM/IMCC services are fully appreciated by the sawmill association, and they have made requests for more long-term assistance in selected technical areas.

Honduras

Honduras has a sawmill association (AMADHO) and a wood manufacturer association (ANETRAMA). Between the two of them most of the important forest industries in the country are covered. The industry has a long history of forest utilization, primarily in pine and mahogany.

As noted, an important forest law change is taking place in Honduras. All forests were nationalized in 1974. Now they are being turned back to the land-owner. The effects are still unsettling, but it is predicted that only the most efficient producers will survive. It is perceived that technical support to the producers may be a critical element and this could have a positive impact on the product and market development activities.

The hardwood forest in Honduras accounts for over two million hectares, but there are few industries that work with this type of forest. Proper management of this forest is still very limited, but it is expected that the wood manufacturers could play an important role in support of better management. However, very little work has been done with ANETRAMA.

The sawmill association has been working with the Forestry Development Project funded by AID/COHDEFOR, and with encouraging results. In the past, this association was an active participant when COHDEFOR implemented the sawmill improvement program.

Why these Associations?

- They are the main organizations from the Honduran private sector dealing with wood processing and will be the main direct beneficiaries of these project activities.
- The diminishing pine resources and the remaining hardwood commercial forest, found mainly on state land, could become a more important sustainable resource if developed under the proper techniques.
- The forest law changes will affect directly the wood manufacturers and producers, therefore technical assistance may become crucial. The associations can be the vehicle to help facilitate the transfer of applicable technologies.

Costa Rica

The Costa Rican Wood Industry National Chamber established in 1986, is formed by 52 sawmills and 11 other wood manufacturers. Their main goal is to strengthen the wood industry sector. One third of these 52 sawmills produce an average of 8,000 cubic meters per year. They have been particularly successful in developing good relationships with the government, and have participated in a number of forest policy reforms. They also helped introduce small diameter processing techniques. The chamber established a technical assistance cooperation agreement with five important local institutions: ITCR, INA, Chamber of Industries, CONAIMA, and DGF. They appear to be a viable instrument through which technical assistance and courses can be provided to the local industry.

Why this Chamber?

- Diverse and wide range group of entrepreneurs.
- Influence to policy level actions is significant.
- Excellent ties to other local development entities.

C. Bilateral USAID Mission Activities

The following represents the current listing of bilateral projects in Central America which are engaged in various aspects of natural resource management, protection, and/or conservation:

- | | |
|---------------|---|
| - Guatemala: | MAYAREMA |
| - Honduras: | Forestry Development |
| - Nicaragua: | Natural Resource Management |
| - Costa Rica: | Forest Resources |
| - Panamá: | Natural Resources Management |
| - Belize: | Natural Resources Management and Protection |

Many of these bilateral activities do not directly focus on wood utilization. However, their contacts and in-country counterpart relationships can be very constructive in knowing more about who and where the wood-based private enterprises are and their interest in pursuing improved technologies and marketing for their products.

The bilaterals have an important function in assisting this regional activity set the criteria needed to select: a) the appropriate in-country institutions involved in wood-based research and development and, b) those private sector entities that can be viable contributors in using forest based wood products in an environmentally friendly manner. The criteria for these participants, as agreed upon by the participating bilaterals and ROCAP, may include such factors as sustainability of the forest base, relevance of their programs to the RENARM activity,

contribution (in-kind or financial), willingness to share information and results, and institutional direction on self-sustaining capacity.

In the final analysis, it is important that the countries of the region take control of their future in forestry and forest products. This necessitates strengthening their institutions - particularly in the private sector - whereby they have capacities to use new technologies or processes, expand their local and export markets, and increase the economic value of wood-based products.

Summary Observations

Central America has a fairly wide array of private/public research and development facilities or institutes that are linked to forestry related programs emphasizing products, processes, and markets. USAID bilateral Missions, ROCAP, and several donors (e.g.: Great Britain, FAO, Sweden, Germany) have at different times made inputs in support of these activities. Some entities, like ICAITI in Guatemala and ESNACIFOR in Honduras, have developed into relatively good "centers of excellence" and have become respected leaders in their research and training activities. They have acquired a client group that transcends political borders. Others have had more parochial agendas (e.g. IRENA) which basically cater to host country needs. All have had difficulties in maintaining reliable financial support whereby growth could be handled in a steady methodical manner. While there are exceptions to the rule, those CA entities that have had multi-donor support over the years and are operationally independent from excessive government oversight usually have fared the best. Those institutions heavily dependent on government funds in economically depressed environments have had significant financial difficulties. This in turn, has affected the quality of their research and development programs.

While many of the above entities do have relationships with the various forest/forest products associations, most operate on an ad hoc basis and are not particularly well focused. The experiences in Guatemala through the RENARM/IMCC activity shows that when the institution tailors its research and training more to the associations economic and resource requirements, the level of success materially improves. However, the whole process of how the associations do their business remains, in most cases, very disjointed, unfocussed, and not very sustainable. The bright spot is that attitudes of many of its members are changing for the better. This Project can be a vehicle for facilitating and accelerating these changes.

In sum, the fact is that there are a number of reasonably good institutions within the region that can serve as conduits of change and be the resource leaders for increasing the value of wood based products through improved technologies and marketing techniques.

This gives credence to the long term institutional maintenance and durability of the Project activities. The Project will need to reinforce the links of private entrepreneurship to these institutions and make them more accountable to increased investments in the forestry section. The private sector must in their own interests play a greater role in ensuring that forests are managed in a sustainable way, and must be able to better articulate what is needed in the forestry policy arena in order to accomplish this objective.

ANNEX H

ENVIRONMENTAL ASSESSMENT

(Will be attached when completed)

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GUIDELINES FOR BUY-IN PROCESS:

AID HANDBOOK 13 COOPERATIVE AGREEMENTS WITH NGOS
(US NGOS and non US NGOS, e.g., Zamorano)

1. In developing a Scope of Work for the buy-in, a Mission can communicate with the NGOs through RENARM, or directly. The principal RENARM contacts for buy-ins are: NGO Coordinator Leslie Lannon for US NGO activities, and Assistant Project Manager Martin Schwarz for Zamorano.

Ideally, all three actors - the Mission, the NGO and RENARM - are involved in the collaborative process of developing the SOW. The discussions on the SOW for the buy-in must be within the context of the Scope of Work of the Cooperative Agreement between RENARM and the NGO. These discussions can include the following:

estimated number of person days required
start-up date
other technical considerations

Budget estimates can be discussed only between the Mission and ROCAP.

2. Based on the SOW that should have been discussed and agreed upon by the Mission, RENARM and the NGO, the Mission forwards a PIO/T and SOW (with attached illustrative budget) to the Regional Contracting Office, with a request to "buy-in" to RENARM. A copy should also be sent to RENARM (Leslie Lannon or Martin Schwarz as appropriate).
3. RENARM technical staff review the SOW with the Regional Contracting Office. The RENARM staff may discuss comments, suggestions, etc. with the Mission. By mutual agreement they may revise the SOW if necessary, although this should not normally be required if proper coordination has already taken place.
4. The Regional Contracting Office requests a cost proposal from the NGO.
5. The NGO submits the cost proposal to the RCO.
6. After reviewing the cost proposal and, if required, negotiating costs with the NGO, the RCO executes an amendment to the Cooperative Agreement. The funds are earmarked, obligated, committed by RCO signature.

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GUIDELINES FOR BUY-IN PROCESS:

AID HANDBOOK 3 GRANT AGREEMENTS (CATIE)

1. In developing a Scope of Work for the buy-in, a Mission can communicate with CATIE through RENARM, or directly. The principal RENARM contact for buy-ins to CATIE activities is the Assistant Project Manager, Martin Schwarz. The Mission and CATIE may together develop the complete SOW and budget.

The key to elaborating the buy-in SOW is that it must be within the SOW of the Grant Agreement between RENARM and CATIE. For this reason it is in the interest of CATIE and the Mission to consult closely with RENARM staff in development of the SOW and budget. Ideally, of course, the Mission, CATIE and ROCAP will have agreed on the SOW and budget while both are still in draft.

2. The Mission forwards the PIO/T (with attached SOW and budget) to RENARM (Martin Schwarz), with a request to "buy-in" to RENARM.
3. RENARM executes an amendment to the Grant Agreement on the basis of the PIO/T received from the Mission. The funds are obligated.

Note:

In the event that proper consultation and coordination among all parties does not take place, and the Mission prepares the PIO/T without prior discussion and agreement with CATIE and ROCAP, upon receipt of the PIO/T from the Mission:

RENARM technical staff review the SOW and budget. If necessary, the RENARM staff discuss comments, suggestions, etc. with the Mission. By mutual agreement they may revise the SOW. The SOW is sent by RENARM to CATIE, with a request to submit a formal cost proposal. CATIE submits the cost proposal to RENARM, which reviews the proposal and makes any necessary adjustments. RENARM executes an amendment to the Grant Agreement.

Clearly, the process is immeasurably cleaner and easier if consultation among all parties takes place early in the development of the buy-in.

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