

CLASSIFICATION  
PROJECT EVALUATION SUMMARY (PES) - PART I

Report Symbol U-447

1. PROJECT TITLE  WATERSHED MANAGEMENT			2. PROJECT NUMBER 525-0191	3. MISSION/AID/W OFFICE USAID/Panama
5. KEY PROJECT IMPLEMENTATION DATES			4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) <u>81-8</u>	
A. First PRO-AG or Equivalent FY <u>80</u>	B. Final Obligation Expected FY <u>85</u>	C. Final Input Delivery FY <u>85</u>	6. ESTIMATED PROJECT FUNDING A. Total \$ <u>16,800,000</u> B. U.S. \$ <u>10,000,000</u>	
			7. PERIOD COVERED BY EVALUATION From (month/yr.) <u>April, 1979</u> To (month/yr.) <u>June, 1981</u> Date of Evaluation Review <u>December, 1981</u>	

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)

B. NAME OF OFFICER RESPONSIBLE FOR ACTION

C. DATE ACTION TO BE COMPLETED  
MO/DAY/YR

A. General Watershed Management Activities

1. Production vs. Protection Forest Management

Review RENARE's reforestation plans for 1982-83 to insure that only production sites and areas in need of stabilization be planted. The land use classification system to be used by the Ecology group will be the basis of decision, not the ambiguous system previously used (see p. 25).

R-RENARE  
EI-Experience  
Inc.

R - Dimas Arcia 1/15/82  
Alfredo  
Jaén  
EI - Waldemar  
Albertin

2. Policy for Control of Protection Areas

Develop more practical and realistic strategies for managing and guarding parks and forest reserves to insure their territorial integrity, as well as fuller utilization for the purpose for which they were designated.

R - Erasmo 1/15/82  
Vallester  
TA - Brian L.  
Houseal  
EI-C.B. Briscoe

3. Reforestation Techniques

Reduce costs and thus increase the feasibility of plantation/reforestation activities.

R - Anibal 5/1/82  
Taymes  
(recommen-  
dations)  
EI - W. Albertin  
EI - CB Briscoe

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

<input type="checkbox"/> Project Paper	<input type="checkbox"/> Implementation Plan e.g., CPI Network	<input checked="" type="checkbox"/> Other (Specify) <u>La Villa Watershed</u>
<input type="checkbox"/> Financial Plan	<input type="checkbox"/> PIO/T	<input type="checkbox"/> Management Plan
<input type="checkbox"/> Logical Framework	<input type="checkbox"/> PIO/C	<input type="checkbox"/> Other (Specify)
<input type="checkbox"/> Project Agreement	<input type="checkbox"/> PIO/P	

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

A. <input checked="" type="checkbox"/> Continue Project Without Change
B. <input type="checkbox"/> Change Project Design and/or
<input type="checkbox"/> Change Implementation Plan
C. <input type="checkbox"/> Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Name and Title)

*Dwight Walker*  
Dwight Walker, Project Officer AID  
*John Champagne*  
John Champagne, Deputy Chief - ABD

12. Mission/AID/W Office Director Approval

Signature *Robin Gomez*  
Typed Name Robin Gomez  
Date

4. Reforestation Agreements

- 11 Prepare written reforestation agreements for signing by RENARE and all cooperating landowners. Determine necessity for type of reforestation activities projected. R - O. Barahona 1/15/82  
R - A. Jaén  
EI- W. Albertin
- 12 Establish research and economic analyses to determine season when planting should begin. Analyze 1981 and previous planting results. R - Villarreal 3/15/82  
EI- W. Albertin

B. Organization and Management

- 14 Seek administratively acceptable procedures to permit RENARE to contract labor directly, after approval of the operating plan by MIDA. Comment: RENARE has made it very clear that the existing contract procedures used by the Ministry of Agriculture, albeit cumbersome, cannot be drastically changed. Improvements must be made on expediting existing bureaucratic procedures. R - A. Sáenz 5/1/82

C. Financial Management

1. Accounting System

- 15 Strengthen and improve RENARE's financial management. R - Jose Belarmino S. 06/1/82  
AID-Stella Patiño  
Dwight Walker

2. Revolving Fund

- 16 a). USAID determine adequate funding for RENARE and adjust advance accordingly. R - Alberto Sáenz 11/30/81
- b). USAID process vouchers in a timely manner. AID-Stella Patiño Ongoing

3. Petty Cash Fund at Regional Offices

- RENARE determine and establish adequate petty cash funds at regional offices. R - Belarmino Sánchez 1/15/82

D. Institutional Development Component

1. Deal with administrative and management constraints affecting regional offices. R - B. Sanchez Ongoing  
AID-D. Walker

2. Reduce personnel costs, increase labor efficiency and reduce administrative and management burdens. EI - Team Ongoing  
R - Management

3. Involve private sector in reforestation EI - Team Ongoing  
R - Management

4. Technical Assistance

Develop work plan for consultants 11/30/82.

a). Nursery Management: disease control, species trials and selection of planting stock, seed collection, evaluation of nursery size alternatives R - ATymes Ongoing  
Carlos Ramirez  
EI - W. Albertin

b). Plantation Management R - A. Jaén Ongoing  
Weed control, optimum planting EI - W. Albertin

Intensive orchard management techniques for permanent crops, more appropriate agroforestry techniques. R - A. Tymes Ongoing  
EI - CBBriscoe

c). Road construction techniques more protective of soil and water resources. EI - CBBriscoe Ongoing  
EJ Finegan

5. Counterpart Costs

Study cost/benefit relationships of major project activities to determine those best justifying continuing support. R - ASáenz 4/1/82  
EI - Team

E. Education and Research

1. Research. Study methods of objectively evaluating impacts of project implementation; before and after. EI - Team 6/1/82

F. Watershed Management Plans

Clarify terms and assign action priorities as part of review of Rio La Villa Watershed Plan. EI - JFinegan 1/15/82  
R - IRuiz

13. Summary - The project is designed: (1) to strengthen the technical, managerial and administrative capabilities of the National Directorate of Natural and Renewable Resources, (2) to increase awareness of the importance of natural resource conservation, and (3) to establish watershed management programs in the Panama Canal and two other priority watersheds that incorporate, to the extent possible, the watershed's population into the resource management/conservation process.

Major progress has been made in all three areas. At this stage in the program it is felt that the project goals can be met within the PACD. The most notable progress in the program has been made in reforestation which is the largest and most important component of the program. In addition, some progress has been achieved in soil conservation, pasture improvement, parks and reserve management, training professional staff and technical assistance.

At the present time, the Department of Natural and Renewable Resources - RENARE's ability to handle increased administrative and financial management responsibilities is somewhat limited, which has hindered the overall pace of the project. RENARE has made progress in this area and if they are able to make good use of the planned technical assistance inputs administrative and financial operations should greatly improve, and provide better support to the more successful technical (field) components of the program.

14. Evaluation Methodology - The present evaluation represents an effort to determine, in a very general sense, the overall status of project implementation and to verify the validity of the project goal; to obtain a rational, productive, economic and equitable use of Panama's renewable natural resources by increasing the capacity of the Government to plan, implement and manage activities concerned with the use of renewable natural resources. The evaluation was designed so as to identify any technical or administrative deficiencies that might have developed since the start of implementation and to recommend rational solutions.

The evaluation team based its determinations primarily on expert knowledge in the field of watershed management and public administration. Specific project activities were evaluated by comparing progress to accepted standards. For example: reforestation costs in tropical areas are well known. A simple cost comparison provides an indication of the efficiency of operation.

15. External Factors - The Project Paper stresses the physical aspects of watershed management and gives only limited emphasis to socio-economic factors. However, early experience in project implementation has led RENARE to quickly realize that such activities as reforestation, soil conservation and pasture improvement are influenced as much by socio-economic factors as by technical and physical circumstances. Consequently, the selection of specific project work sites are now done on the basis of socio-economic factors as well as on the basis of physical or agronomic factors, the original project assumptions remain valid.

16. Inputs - No major problems have been noted as to quantity, quality or timeliness of inputs, apart from the acquisition of technical assistance in the areas of financial management, which is discussed elsewhere. Resolution of the financial management problem is being given priority attention and improvements should be forthcoming shortly with the hiring of a local financial management team to work with RENARE.

17. OUTPUT STATUS

<u>Project Component</u>	<u>Target</u>	<u>In-Progress</u>	<u>Completed</u>	
			<u>Quantity</u>	<u>Percentage</u>
1. Personnel hired and trained				
a. professionals/ sub-professionals	84 people	84		75%
b. forest/park rangers	33	(46/1yr)	53	100%
c. Temporary field personnel	9,400p/m	-	5,400p/m	57%
2. Technical Assistance	141p/m	105p/m	19p/m	13%
3. Training				
a. International	96p/m	4p/m	38.4p/m	40%
b. Domestic	50p/m	-	50 p/m	100%
4. Construction				
a. Central Office Remodeling	1 unit	-	1	100%
b. Summit Gardens				
(1) Visitors Center	1	-	1	100%
(2) Dormitories	1	1	-	60%
(3) Offices	1	1	-	10%
(4) Amphitheatre	1	-	-	
c. Park Guard Stations	11	-	3	28%
d. Field Offices	3	2	1	33%
e. Nurseries				
(1) Sites	21	4	10	47%
(2) Irrigation systems	14	-	14	100%
(3) Buildings	12	2	5	41%
f. Library, Remodeling	1	-	-	
g. Soil/Water Lab Remodeling	1	-	-	
h. Training Center	1	-	-	
i. Forest Ranger Stations	6	-	-	
j. Roads	30 km	2.5 km	7 km	23%
k. Wood Tech Lab.	1 unit	-	-	
5. Equipment/Materials				
a. Vehicles	37 units	28	14	37%
b. Heavy equipment	9 units	7	2	22%
c. Field equipment				25%
d. Wood technology equip.	1 laboratory	1		25%
e. Soil lab. equipment	1 laboratory			50%
f. Park/reserve equip.				10%
g. Seed lab. equipment	1 laboratory	-		100%
h. Education equipment				10%
i. Office equipment				70%

<u>Project Component</u>	<u>Target</u>	<u>In-Progress</u>	<u>Completed</u>	
			<u>Quantity</u>	<u>Percentage</u>
6. Land Purchases (GOP)				
a. Nurseries (5)	22 hecs.	-	22 hecs.	100%
7. Reforestation				
a. Forest Plantations	7,000 hecs.	1,000	2,000	28%
b. Agro-forestry	2,500 hecs.	800	2,400	96%
c. Permanent crops	1,000 hecs.	200		
d. Tech. assistance to private industries			3,000	
8. Soil Conservation	8,650 hecs.	150	500	6%
9. Pasture Improvement	600 plots	80	136	22%
10. Extension Educational Activities	24,000 people	12,000	12,000	50%
11. Park reserves protected	103,000 hecs.	81,600	22,500	23%
12. Management Studies				
Watershed	3	-	3	100%
Park & Reserves	4	2	-	
Wildlife Management	1	-	-	
Water quality	1	-	-	
Soil management				

18. Purpose - The purposes of the projects are:

1. To strengthen the technical, managerial and administrative capabilities of the National Directorate of Natural and Renewable Resources;
2. To increase awareness of the importance of natural resources conservation; and
3. To establish watershed management programs in the Panama Canal and two other priority watersheds that incorporate, to the extent possible the watershed's population into the resource management/conservation process.

Purpose No.1 is being achieved as originally conceived. The evaluation found that "remarkable progress has been made over the last two years with regard to the development of RENARE into an institution capable of confronting the numerous and complex problems related to natural resource conservation in Panama".

Purpose No.2 is being achieved as conceived. A community relations department has been established and is active. The information and training center has been established and construction of the visitor's center is complete. Construction of dormitories is under way. Additional educational facilities are planned.

Purpose No.3 is being met although the evaluation revealed minor delays in implementing activities in soil conservation, pasture improvement and reforestation. The evaluation also indicated "that substantial progress has been made in these areas in the last few months and remaining problems do not seem insurmountable".

19. Goal/Subgoal - The sector goal of the project is to obtain a rational, productive and equitable use of Panama's renewable natural resources (water, soil, natural flora and fauna). The program goal is to achieve increased capacity in the National Government for planning and implementation of projects leading to the optional management, conservation and use of renewable natural resources.

Progress toward the sector and program goal has been made. The evaluation gave particular note to progress being made toward achieving the program goal.

20. Beneficiaries - Although not specifically stated in the Project Paper the principle sub-purpose of the project is the protection of Panama Canal waterways and water storage systems. The Canal represents Panama's major industry and is at the heart of a complex system of support and service industries closely associated with the Canal. Consequently, the project benefits Panama's major industry and its work force which is increasingly made up of local inhabitants. In addition, the project is designed to develop a base for rational, long-term exploitation (development) and protection of Panama's natural resources. In a larger context natural resource protection and management benefits all Panamanians and, if successful, can serve as an effective model for other programs in Panama and elsewhere.

21. Unplanned Effects - No major unplanned effects have been observed thus far.

22. Lessons Learned:

Training: Although the Mission is pleased with achievements in training to date, we generally feel that considering the size of this project too little

(\$250,000) was programmed for training. RENARE officials are torn between achieving immediate project objectives and reprogramming funds to meet longer range training needs. To date they have not shown a willingness to increase funds for training at the expense of other project activities.

Technical Assistance: Contracting for a major portion of the T. A. needed in the project should be made a condition precedent in the project agreement. RENARE's reluctance to use loan funds for what they consider unnecessarily expensive T. A. has delayed progress to a degree and, had it not been for timely T. A. from FAO, IICA, CATIE, ROCAP and others, the project would have encountered even more delays.

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**JOINT EVALUATION OF THE WATERSHED  
MANAGEMENT**

**Project #525-T-049**

**By: ROCAP  
USAID/Panama**

**July-August, 1981**

13. Summary

Project implementation has been slow. As of 6/30/81, with 50% of total Project time elapsed and 27 months remaining, only \$2.6 million, which is equivalent to 26% of the total loan amount of \$10.0 million, had been disbursed. To measure project progress, targets have been compared to project performance in the March 26, 1981 USAID/Panama Watershed Management Loan Review Memorandum, Section IV, (See Attachment I). Delayed project implementation was most notable in the following components: technical assistance, construction/remodeling, the procurement of heavy equipment and materials and selected watershed management activities (soil conservation is the most delayed, followed by pasture improvement and reforestation). Substantial progress has been made in these areas during the last few months, however, and remaining problems do not seem insurmountable.

Positive developments were observed with respect to increased national personnel, training and the overall reorganization and strengthening of RENARE. Many of the reasons why Project implementation is behind schedule are discussed in this evaluation under the headings entitled organization and management, and financial management.

A number of technical problems exist, however, that represent obstacles to the sustained and efficient implementation of watershed management practices in the pilot

watersheds. Subjects of most concern and in need of immediate attention include: analysis of the economic feasibility of reforestation activities as they are currently being implemented, the improvement of both the Management Plan and strategy for the La Villa Watershed, opportune implementation of projected research and evaluation activities, the correct interpretation and subsequent implementation of protection vs. production forestry land use changes, and effective control of protection areas (i.e. reserves and national parks).

Aside from the substantial administrative, management and technical problems that RENARE will continue to face for some time into the future, remarkable progress has been made over the last two years with regard to the development of RENARE into an institution capable of confronting the numerous and complex problems related to natural resource conservation in Panama. RENARE has come a long way since 1979, due to a significant degree to the financial and technical assistance provided through the Watershed Management Project. Now, the major challenge to be met in the future by this Project is to facilitate and guarantee that RENARE effectively assume the financial and management responsibilities that have been built up over the life of the Project.

14. Evaluation Methodology

As stipulated in both the PP and project agreements, this evaluation was conducted as a regular evaluation on a joint basis involving RENARE (GOG), ROCAP and USAID/Panama personnel. The people participating directly as members of the evaluation team were:

Dwight Walker, USAID/Panama

Frank Zadroga, ROCAP, Environmental Specialist

Rafael Franco, ROCAP, Financial/Administrative Specialist

Alberto Sáenz, Project Coordinating Officer, RENARE

This evaluation reflects and complies with guidance provided in Project Assistance Handbook 3, Appendix 3H and Chapter 8, Part II; and USAID/Panama Mission Order 503 (Project Evaluation dated 3/17/80). An overview of major topics and the methodology agreed upon to be covered in this evaluation are provided in points 4 and 5 of cable Guatemala3411, dated May 21, 1981 (See Attachment III).

The specific methodology employed involved a three week visit on the part of ROCAP Environmental Specialist and a separate two week visit on the part of the ROCAP Financial/Administration Specialist to Panama. Both team members consulted at length with numerous RENARE and USAID/Panama staff members (see Attachment IV). Records search, interviews and on-site inspections to all three pilot watersheds were performed.

15. Loan Status

Project: Watershed Management  
Project No. 525-0191  
Loan No. 525-T-049  
Loan Amount \$10.0 Million  
Counterpart Contribution: \$ 6.8 million  
Borrower: Government of Panama  
Executing Agency: Directorate of Renewable Natural  
Resources (RENARE)  
Date of Project Agreement: March 29, 1979  
Terminal Disbursement Date: September 30, 1983  
Time Elapsed: 27 months (50%)

The status of the loan is as follows:

Amount Obligated: \$10.0 million  
Accrued Expend. (6/30/81) 2.6 m. (25%)  
Unliquidated Balance \$ 7.4 m.

For a breakdown of Obligations and Expenditures of cost components see Attachment II. A brief description of the Project's goal, purpose, strategy and activities is also provided in Attachment I.

16. Major Findings and Conclusions

A) General Problem Areas Concerning Watershed Management Activities

1. Protection vs. Production Forestry Management

Reforestation activities are being carried out in the field by RENARE on protection forestry lands, in some cases, contrary to the land use capability determinations contained in the Management Plans. The areas of Cerro Azul, Río Chagres (above Lake Alajuela) and Río La Villa (near Los Pozos) are three examples observed where protection lands were unnecessarily being reforested at considerable expense, both in terms of time, planting manpower and subsequent vigilance and maintenance of plantations. In all these cases, the physiographic features of the sites make them inherently protection areas where forest cover should be maintained perpetually to conserve soil and water resources. In the case of La Villa site, a vigorous and protective second growth forest on a community watershed was being cut to plant pine.

For protection watersheds or for inaccessible and steep sites where forest harvesting cannot be carried out in an environmentally safe and economical manner, site revegetation is generally accomplished in the most economical and ecologically sound manner by simply protecting the area from the causes of deterioration (i.e, repeated deforestation, fire, grazing, etc.) and by allowing it to regenerate spontaneously.

For protection sites, artificial regeneration is normally justifiable only on highly degraded or infertile sites where accelerated erosion or other degrading factors are active, and natural regeneration would be slow so as not to give satisfactory recovery. Otherwise, the reforestation of protection lands is both costly in economic terms and takes field labor away from other tasks that may be more necessary and of a higher potential payoff (i.e., reforesting production forest lands, gulley stabilization, road and trail construction or maintenance, maintenance of existing plantations, etc.).

It is recommended that a review be made of RENARE's reforestation plans for 1982-83 to assure that only production forestry sites or areas in need of stabilization be reforested. It is important that RENARE be guided by the land use capability determinations contained in the management plans to assure proper and most efficient implementation of land use changes.

2. Policy With Regard to the Control of Protection Areas

One of the most difficult and controversial activities involved in the effective management of watersheds in Panama is the control of land units designated as protection areas (i.e., parks and reserves). Within these areas, deforestation and road construction must be controlled and encroachment prevented from adjacent population centers. RENARE is currently successful only to

varying degrees in the management of protection areas for the Watershed Management Project, depending on the wildland unit considered.

Reserve and park management components were observed to be relatively unsuccessful in three of the areas visited during Project evaluation: the Cerro Azul portion of the Chagres Forestry Reserve and Altos de Campana National Park in the Canal Watershed, and the Volcán Barú National Park covering the headwaters of the Caldera Watershed. Unfortunately, the rate at which encroachment and/or deforestation is occurring in these areas is not well documented. In some cases, encroachment is occurring because of the passive or permissive role that RENARE is forced to take because of external forces or interests (i.e., the case of Volcán Barú National Park) and in other cases RENARE is unknowingly carrying out activities that encourage in the long run immigration into protection areas (i.e., the case of Cerro Azul).

Increased effort is required for the "stabilization" of these protection areas. As a part of this effort, more practical and realistic strategies and action plans need to be developed for each area. The combination of RENARE's limited resources for park and reserve management, the magnitude of the problems existent in most of the wildland areas of Panama, and the limited technical assistance available to RENARE to help solve these problems

through the Watershed Project are subjects of concern to the evaluation team. The hiring of additional high level expertise in the area of park and reserve management should be considered as a mechanism to strengthen RENARE's present capabilities. Without additional attention in this area, failure can be expected in the management of areas such as Volcán Barú National Park.

### 3. Reforestation Techniques

#### Plantation Management

One of the most serious problems currently facing RENARE regarding the reforestation component of the Project is the high cost of establishment and maintenance of plantations. Alternatives need to be explored to reduce these costs. As one example, more advanced or better suited agroforestry and multiple cropping systems can be employed where local labor is available to offset the establishment costs of forestry plantations or orchards. (i.e., cashews and peach palm).

Weed control represents both a major problem and project expense that is increasing in magnitude with each growing season. Special silvicultural techniques can be used effectively to reduce weed competition and cut current costs. The use of shade to reduce weed problems (for example, through multiple cropping, the use of legumes as a ground cover and/or the use of fast growing tree species that "outgrow" and shade out the weeds) needs to be studied. As an example, it is probable that the

invasion of forestry, cashew and peach plantations that is occurring in the Canal Watershed by the very competitive introduced cane grass (Saccharum) could best be combated by cultural techniques that shade it out, rather than by costly applications of herbicides, or repeated cleanings. Immediate attention is needed to reduce costs and increase the feasibility of plantation/reforestation activities.

#### 4. Reforestation Agreements

One of the conditions precedent required in the PP for any Project-related reforestation activity is the prior existence of legal documents giving RENARE full authority to undertake reforestations on either private or public lands (See page 71, Project Paper). Sufficient care is not being exercised by RENARE in assuring the prior existence of such documents. As an example, the Caldera Watershed Project has not developed reforestation agreements with cooperating farmers, even though considerable investment in time and resources is occurring, both on the part of RENARE and the farmers.

This situation apparently is typical for other reforestation sites and represents a considerable risk. The documents needed to comply with this condition precedent are not difficult to develop and this issue should receive prompt attention.

## 5. Initiation of Planting

Apparently RENARE technicians have accepted as common practice the initiation of planting in July or August of each year (after the Veranillo de San Juan). This practice does not have planting coincide with the beginning of the rainy season and, with the normal delays involved in getting field crews employed and operating in the field, results in an effective loss each year of between two to three months of the potential planting season. This reduces considerably the possibilities of reaching annual reforestation goals. This practice is justified by RENARE officials on the basis of the loss of seedlings that would occur if planting occurred before the short June or July dry season.

This practice is not consistent with that of other countries of the Central American region with similar climatic phenomena and economic considerations. In Costa Rica, for example, planting commonly is initiated in May at the beginning of the rainy season. Research and economic analysis should be undertaken to determine if adjustments are advisable.

### B) Organization and Management

The RENARE organization was found to be adequately structured with like functions grouped in specialized divisions. A review of the RENARE organization since its creation shows that a number of structural changes have

taken place. RENARE is no longer moderate in size: it now comprises about 75% of the Ministry of Agriculture in terms of number of personnel. Its largest activity is the implementation of the 049 Watershed Management Project.

Because of its expanded programs, RENARE has had to change its structure and operating methods. RENARE has strengthened its overall central and field offices both in number and quality of staff. A breakdown of RENARE's current staff is as follows:

Professionals	66
University Level Technicians	42
Secondary Level Technicians	91
Administrative Personnel	109
Inspectors & Forest Guards	102
Utility Hand Workers	<u>296</u>
TOTAL	706 ===

Of the total, 104 (15%) are located in the Central Office and 449 (63%) in the field.

The field offices now have the mandate to plan, execute and administratively support activities in their respective geographic areas.

Alghouth RENARE's management system has been strengthened, it continues to operate under the program and administrative policies of MIDA. This inhibits the institutional development that would likely occur if RENARE were to

function as a semi-autonomous institution with its own regulations and operating policies.

Although decision-making is highly centralized at the Director's level, the formulation of the annual operating plan at the various technical levels averts ill-considered, "on the spot" decision making, especially when involving the administrative and financial needs of the technical offices. This operating plan process efficiently assigns review and approval functions to higher level management, while providing for inputs from technical levels. Notwithstanding, certain MIDA program and administrative procedures have to be followed. This results in the delay of project implementation. For example: it is MIDA policy that manual labor recruited for project activities needs the Minister of Agriculture's approval even if the already approved operating plan provides for the hiring of such labor. The result is that manual labor is not brought on board in a timely manner and the Project, as a whole, is delayed.

Further delays occur because labor tends to seek other employment. When prospective workers are no longer available, the hiring process must begin again.

#### Recommendation

USAID and RENARE should pursue the possibility that RENARE be authorized to directly contract temporary labor for the Project. MIDA would approve the operating plan which stipulates the Project requirements for temporary labor.

### C. Financial Management

We identified the financial management deficiencies which are in need of correction and/or improvement as follows:

#### Accounting System

RENARE follows the single entry cash basis accounting system. The system is over-simplified and needs to be strengthened and improved to properly handle the variety of programs RENARE administers on a national basis.

We noted several unsatisfactory conditions such as the lack of internal controls, the absence of property accountability, and the extremely cumbersome and time-consuming nature of the retrieval of accounting information for reporting purposes. Operational and procedures manuals need to be written and their contents implemented in order to assure that RENARE's resources are properly controlled and reported.

#### Recommendation

USAID should assist RENARE to obtain the services of a financial management systems consultant to help strengthen and improve the overall financial management operations of RENARE.

#### Revolving Fund

Because of poor financial management the Watershed Program has virtually come to a standstill.

RENARE received a revolving fund advance of \$950,000 from USAID, presumably equivalent to five months

of funding requirements. This relatively large revolving fund advance is currently depleted and RENARE is stranded without operating funds.

This condition is attributed mainly to RENARE not submitting reimbursement requests in a timely manner, and in part to delays by USAID in the processing of vouchers. USAID has also made a number of disallowances for lack of supporting documentation. Such vouchers could be resubmitted with proper supporting documentation. This would result in considerable amounts reimbursed and a more liquid operating cash position for RENARE. RENARE has been negligent in analyzing these disallowances and preparing the revised vouchers. In addition, delays in preparing current expenditures reimbursement requests, combined with the lengthy USAID "turn around" time frame of over 4 months to process vouchers, has placed RENARE in its current poor working capital position.

For the time being USAID Controller's Office has agreed to assist RENARE's financial division to prepare reimbursement vouchers. This should contribute to the improvement of RENARE's financial condition. Furthermore, the following recommendations should be implemented:

Recommendations:

1. USAID should determine an adequate funding requirement for RENARE and adjust the advance accordingly.

2. USAID should set up a mechanism whereby reimbursement vouchers are processed in a timely manner.

Petty Cash Fund at Regional Offices

The Watershed Project at the regional level has no imprest fund. It is extremely difficult to run a project in a given area without immediate available resources. RENARE's regional representatives each maintain a small petty cash fund but it is not sufficient to cover all needs of RENARE's projects in the given area; because of a backlog of unreimbursed vouchers, these petty cash funds are never completely replenished.

Recommendation

RENARE should determine and establish adequate levels of the petty cash fund at the watershed regional offices in order for the projects to be carried out more efficiently.

D. Institutional Development Components

1. Reorganization of RENARE

The reorganization implemented through project activities to provide RENARE with a more functional, flexible structure has been generally successful and has increased RENARE's operational capabilities markedly from what they were in January, 1979. Deficiencies still exist, however, in the central administrative and management functions as indicated in Section 16.B. Also, while project implementation responsibilities have been shifted to the regional

office (i.e., David and Los Santos), some administrative and management constraints, many of which are beyond RENARE's control, prevent these same regional offices from having the flexibility in decision making and administrative control needed for expeditious project implementation. Notable constraints expressed most frequently at the regional office level include:

- a) unavailability of vehicles
- b) slow procurement of equipment and supplies
- c) severe gasoline quotas
- d) inadequate petty cash funds to cover day-to-day expenses
- e) cumbersome regulations controlling the contracting of personnel and hiring of field workers.

Several of these constraints (i.e., points b,c,d, and e above) are imposed upon RENARE by Ministerial (MIDA) or supra-ministerial norms and regulations. Mechanisms need to be found to reduce or eliminate altogether such constraints.

## 2. Required Personnel

Project funds are being used to cover initial personnel costs above and beyond what RENARE is able to assign to the project. In addition to the professional and technical staff being provided, project funds are also being used to pay manual laborers for field work.

It is important that RENARE and the Ministry gradually assume these costs of personnel to assure continuation when AID funding ceases. This problem is especially acute with respect to the needs for field labor (i.e., for reforestation activities, soil and water conservation practices, etc.) which have a tendency to increase as planted and treated areas increase and maintenance and harvest chores build up.

Mechanisms must be sought to reduce costs, increase labor efficiency and reduce the administrative and management burdens that are developing. Involving the private sector in activities such as reforestation for wood products, peach palm, cashews, and other permanent crops, could be one way to reduce RENARE's burden, create incentive mechanisms, and accomplish more fully project goals.

### 3. Technical Assistance (T.A.)

The recently arrived technical assistance team can and should play a key role in project implementation. In addition to their facilitating technical decision-making, the T.A. Team Specialists should make an effort to assist in the applied research and evaluation components of the project, which currently are very weak.

Research is needed to attend more adequately to the various technical problems that are affecting the project. Some of these problems detected during the evaluation include:

a) Nursery Management Techniques

- disease control,
- species trials and selection of planting stock
- seed collection (i.e., laurel),
- evaluation of nursery management alternatives (i.e., a few large and well controlled nurseries vs. many small scattered nurseries):

b) Plantation Management

- weed control,
- optimum planting schedules,
- intensive orchard management techniques most suited for permanent crops, such as cashews and peach palm,
- more appropriate agroforestry techniques to reduce plantation establishment and maintenance cost.

c) Road construction techniques that need to be more protective of soil and water resources.

Project evaluation goals are not being met and, unless more attention is brought to bear on this aspect, it will be difficult to evaluate the overall effectiveness of the Project at PACD, as well as the degrees of success of its different activities (See Section 16.G). Since the evaluation activities and data collection done for this project require both a good overall understanding of the project and a firm knowledge of environmental processes and impacts, it is necessary that professionals perform these evaluations. RENARE personnel have not been adequately attending to this need and it would be appropriate for the T.A. Team to address evaluation activities.

#### 4. Training

To date the Project has had considerable success with regard to training activities and goals. An innovative and effective approach toward seeking and funding training activities has made this one of the most productive components of the product.

#### 5. Counterpart Costs

Within the framework of institution building, counterpart funds consist primarily of the wage and salary costs of the additional personnel which RENARE hires with some additional funding for land acquisition and increased operational costs. The main concern with respect to future counterpart funding deals with RENARE's future capability to assume continuity of project efforts. The degree to which RENARE will be able to continue to develop as an institution, fulfill its very important national role, compete for scarce government funds, and maintain (or even increase, hopefully) its level of effort, depends largely upon its ability in the next three years to demonstrate economic justifications and environmental benefits for the resource conservation activities it is now developing. It is the opinion of the evaluation team that the economics and overall benefit/cost relationships of several of the Watershed Management activities being implemented, most specifically reforestation, soil conservation and pasture improvement, need to be studied and evaluated more intensively and in a more comprehensive

manner. As an example, marketing opportunities and the costs of industrialization for the wood and permanent crops (i.e. cashews and peach palm) being planted in large scale are only two of the subjects of feasibility that need to be studied to determine the best ways to develop this reforestation component in the future.

E) Educational and Research Activities

1. Research Activities

No substantial research has been initiated to date on erosion, water quality, nor the physical/hydrological impacts of changes in land use. The monitoring of changes in present land use needs to be accomplished by means of the comparison of periodic air photographic coverages; however, air photographs were not taken at the initiation of the Canal and Caldera Watershed sub-projects, as would have been ideal, nor has complete photographic coverage been taken since the initiation of the overall project (to the best of the knowledge of the evaluation team). Both for reasons of research and evaluation, it is important that coverage be obtained as soon as feasible and, if possible, at two to three year intervals thereafter. In areas where cloud coverage presents difficulties for conventional photographs, radar imagery could be used. Radar images, that depict the physiography of the area as well as roads and other types of construction, could through field checking techniques

also facilitate the obtention of land use information. Landsat or other types of remote sensing imagery may be available for the 1978-79 period and could be used to provide the land use information representing the initiation of the Project condition that is needed for comparison purposes.

Rainfall-runoff-erosion plots need to be established for different types of land uses (and changes therein) as they occur on the different representative land units of the watersheds, in order to have quantitative information on erosion and sedimentation impacts. A limited amount of this type of research is being done by French specialists (i.e., R. Oyster, et. al.) in cooperation with RENARE officials near Caldera, but the research and evaluation needs of the overall project will not be fulfilled by this limited work. Additional information should be obtained for the pasture management, reforestation and permanent crop treatments being promoted by the Project in both Caldera and the Canal watersheds.

It is suggested that the French Cooperative Project be extended, if possible, one or two years more until RENARE has sufficient trained personnel to take over these research activities in the Caldera Watershed. The watershed and soil conservation specialists of the USAID T.A. Team should be encouraged to play a similar role in the Canal Watershed.

F) Watershed Management Plans

Watershed Management Plans have been developed for each of the three pilot watersheds; these should be used as the guiding documents for the set of activities to be carried out in each respective watershed.

A review of these three Management Plans indicates that the Canal and Caldera Plans are acceptable and will, if properly implemented, lead to improved watershed resource conservation in these areas. The La Villa Plan, however, contains numerous inconsistencies and technical deficiencies that should be corrected before proceeding on with its full implementation. Of special concern are the following points:

a) Size of the La Villa Management Unit

The Río de La Villa Watershed is very large, encompassing approximately one fourth of the Azuero Peninsula. Many access and logistic problems result from the regional RENARE headquarters being in Chitré-Los Santos while Project activities are focused on the upper watershed. Also, the expanse of the area that needs to be treated by the La Villa sub-project is greatly out of proportion with the resources that RENARE will likely have to implement the Plan.

b) Deficiencies in the Management Plan

The Management Plan developed for the La Villa Watershed shows incongruencies between land use capability

units and the management/administrative units established that determine site-specific activities. The administrative units that basically dictate where protection, production forestry, permanent crops and pasture improvement are to be implemented, do not coincide with the land use capability units as they should. Also, the criteria used for determining capability categories and administrative units are not adequately expressed in the Plan. If changes in land use are to be implemented in the watershed, these changes must be based upon sound economic and land capability criteria, clearly expressed and understood by all involved - both farmers and RENARE officials.

c) Definition of Priorities and Strategies

The size of the La Villa Watershed, the magnitude of degradation forces at work and the generally marginal nature of the resource base of the area require that RENARE, with its limited resources, do a better job in establishing priorities and defining and following a realistic strategy conducive to the successful management of the watershed. If this is not done, there is a large risk of failure in this sub-project after having created false expectations, as well as pointlessly having burdened the central administrative capability of RENARE. It is recommended that the deficiencies in the La Villa Management Plan be corrected immediately and that additional planning be carried out to better determine alternatives and trade-

offs in overall subproject implementation.

G) Project Evaluation

The evaluation goals and guidelines as established in the PP (see Attachment V), specifically as they relate to the collection of research and baseline information needed to permit environmental impact evaluation, to date have not received adequate attention. As described in Section 16.3.1, it is important that aerial photographs be taken to serve as a basis for quantifying changes in watershed land use and relating this to changes in erosion, sediment transport and deposition. To the best knowledge of Ing. Alberto Sáenz, RENARE, only partial coverage of the Canal Watershed is available and that was taken before Project approval.

Erosion rainfall-runoff relationships have apparently only been studied in small scale and as a result of thesis work by one University student in Alajuela and another (i.e. Jorge Mendieta) in Cerro Punta, Volcán Barú (in addition to the work of the French Mission). A systematic and organized research effort must be initiated to study these phenomena if meaningful and useful information is to be obtained for Project evaluation.

Little information was collected concerning the participation by watershed residents in Project implementation, therefore, no evaluation can be made with regard to the adequacy of the participation incentives being used

and their effect on Project process and impact.

Due to a number of factors, among them the level of complexity of the Project, the degree of underexecution, and the late and recent arrival of the T.A. Team, it would seem wise to program a second process evaluation of the Project implementation in mid 1982. This evaluation would serve to assess progress in the light of the present evaluation and to reprogram activities as necessary.

memorandum

DATE: March 26, 1981  
 REPLY TO: Dwight L. Walker, ABD  
 SUBJECT: Watershed Management Loan Review

BEST AVAILABLE DOCUMENT

TO: Project Review Committee

I PROJECT OVERVIEW

Project: WATERSHED MANAGEMENT		LOAN No. 525-T-049	Project Officer: DWalker Finance Officer: DMackenzi
Date of Authorization:	12-29-78	Loan Amount: \$10,000,000	Status: 12-31-80
Date of Project Agreement:	3-29-79 <i>actually started in field 8/79</i>	Approved for Implementation:	6,099,406 61%
PACD:	9-30-83	Actual Accrued Expenditures:	1,754,349 18%
% of Time Elapsed:	42.5	Net Disbursements:	1,556,894 16%
Time Remaining:	31 months	Outstanding Advances:	950,000
Borrower:	: Government of Panama	Total Disbursements:	2,506,894 25%
Executing Agency:	: Directorate of Renewable Natural Resources (RENARE)		2,402,000 (12/31/80)
Counterpart:	: \$6,800,000		

II PROJECT DESCRIPTION:

Goal: To obtain a rational, productive, economic and equitable use of Panama's renewable natural resources (water, soil, flora and fauna).

- Purpose:
- 1) To strengthen RENARE's technical, managerial and administrative capabilities.
  - 2) To increase awareness of the importance of natural resource conservation.
  - 3) To establish watershed management programs in the Canal, Caldera and La Villa watersheds that incorporate, to the extent possible, the watershed's population into the resource management/conservation process.

Strategy/Activities:

A. INSTITUTIONAL DEVELOPMENT

1. Reorganization of RENARE. RENARE will be reorganized to provide a more functional, flexible structure. Central administrative and technical services will be strengthened with project implementation responsibility focused on the regional offices.
2. Strengthened Management System. Activities include formalizing RENARE's management structure, strengthening personnel and procurement systems, and adding key administrative personnel such as administrative and technical deputy directors, a personnel specialist, procurement specialist and a lawyer. RENARE will also develop management manuals, job descriptions and other management tools.
3. Required Personnel. RENARE will assign the professional and technical personnel necessary to ensure efficient field operations, planning, education, research and administrative services. In order to implement this substantially enlarged watershed management program, loans funds, not to exceed \$500,000, will be provided to cover some of the initial additional personnel costs on a declining basis.
4. Technical Assistance. One hundred and forty-one person/months of consultant services will be provided in such areas as: watershed management, tropical forestry, forest reserve and park management, humid tropical ecology, soil and water conservation, public administration, tropical pasture management and social anthropology.
5. Training. Loan funds will be used for specialized long-term training in the U.S. and at international training centers in other Latin American countries in the areas of watershed management, forestry, forest engineering, forest economics and park and reserve management. Also emphasized will be inspection trips, practical short courses out of country, and extensive in-country training for forest inspectors and soil conservation supervisors.
6. Equipment/Physical Facilities. Included in this activity is the construction of a modest headquarters building with equipment to be provided for offices and laboratories and field monitoring of water quality and sediment yield.
7. Counterpart Costs. Counterpart funds for institution-building activities consist primarily of the wage and salary costs of the additional personnel which RENARE will hire to strengthen its institutional capacity with some additional funding included for land acquisition and increased operational costs.

## B. EDUCATIONAL & RESEARCH ACTIVITIES

1. Education and Information Activities. RENARE will establish an Information and Community Relations Department which will visit all communities in watersheds where the project is being implemented in order to learn about problems related to project activities and to give talks about the purpose and progress of the program. Other duties will be training project participants and giving orientation talks at schools within the watersheds (coordinated with MINEDUC).

2. Information Center. An information center will be constructed which will produce and disseminate informational materials on resource conservation. These materials will be used both to train RENARE personnel and project beneficiaries. Permanent personnel will include a director, a materials design specialist and an audio-visual specialist.
3. Research Activities. RENARE will establish a small-scale research program in the areas of erosion, water quality and the technology of tropical hardwoods. Erosion monitoring activities will be concentrated on the Canal and Caldera Watersheds. Water quality measurement will be centered on Lake Alajuela and tributary streams. The tropical small wood technology laboratory will carry out treatment trials for native species of tropical hardwoods which have potential commercial value but for which there are no markets at present.

C. WATERSHED MANAGEMENT ACTIVITIES

1. Canal Watershed Program. A Land Use Management Plan has been developed for the Canal Watershed and this will be used as the guiding document for the following activities:
  - a. Reserve & Park Management. RENARE will develop with outside technical assistance detailed management plans for the Chagres Forest Reserve, Altos de Campana National Park and Pipeline Road National Park. To assist in the implementation of these plans a corps of at least 33 trained forest inspectors will be established.
  - b. Reforestation Activities. Approximately 10,500 hectares will be reforested through the Project and will provide a productive alternative economic activity both short and long term for a large segment of the Canal Watershed's rural population while helping to reduce the current trend toward the establishment of pastures on steeply sloped hillsides. Included under this heading will be 6,500 hectares of forest plantations, 2,500 → 3,000 hectares in agro-forestry (fast-growing tree species to be planted in corn and rice plots), and 1,500 of permanent crops such as coffee, cacao, maracuya to be planted under the shade of commercially exploitable trees such as laurel.
  - c. Soil Conservation. This program will involve a number of small location specific erosion control measures designed to control or prevent gully erosion, particularly along roadways, in pastures and in urbanized areas. Up to 8,000 hectares will be treated with labor to be supplied from local residents on a casual labor basis.

- d. Pasture Improvement. This is a pilot or demonstration program to replace faragua grass with stoloniferous grasses on a target of 600 1/2 to 1 hectare plots. Technical assistance will be provided, different technologies will be tested in coordination with IDIAP.

## 2. Rio Caldera Watershed

- a. Management Plan. A long-range land use management plan will be developed by RENARE, physically delimiting the Caldera Watershed and locating critical areas within it. Other activities include an inventory of renewable natural resources and current land use, identification of management objectives, evaluation of economic, social and environmental impacts and the development of specific actions to be carried out in the watershed.
- b. Soil and Water Conservation Activities. A soil and water conservation district will be established on a pilot basis in a strategically located 150 hectare pilot area. Also, a tree nursery will be established for to provide seedlings to area residents. Casual labor will be hired for stream bed cleaning and the construction of check dams and other actions identified by the management plan.

## 3. Upper Rio La Villa Watershed

- a. Management Plan. Personnel from RENARE and consultants will jointly develop a management plan for the upper La Villa Watershed upon completion of a similar effort in the Caldera Watershed. Information on major objectives, physical characteristics of the area's resources, current land use and special factors will be gathered and analyzed. Problems which cause the deterioration of the renewable natural resource base will be identified and a zoning plan will be developed for purposes of managing, conserving and rehabilitating such resources. Also, a soil and water conservation district will be established on a pilot basis.
- b. Reforestation/Soil Conservation. Project activities in the La Villa Watershed will be defined once the land use plan has been completed. One likely activity would be reforestation of 1,000 hectares in the Montuoso reserve (to be carried out in years 3 to 5). Simple soil conservation activities will be carried out in as yet to be identified areas employing unskilled casual labor.

IV. PROJECT TARGETS

Component	Target	In-Progress	Completed
<b>A. Institutional Development</b>			
1. INCREASED PERSONNEL	101	101	-
2. TECHNICAL ASSISTANCE (p/m)			
a. Watershed Management	24	TP being re-viewed.	-
b. Tropical Forestry	24	RFTP "	-
c. Humid Tropical Ecologist	12	RFTP "	-
d. Soil & Water Conservation	12	RFTP "	-
e. Agro-Forestry	24	RFTP "	-
f. Forest Reserves & Park Mgmt.	32	24 contract approved.	2
g. Social Anthropologist	6	1	5
h. Public Administration	3	-	-
i. Tropical Pasture Mgmt.	6	-	-
j. Short-term T.A.	6	2	2
3. TRAINING			
a. In-Country			
i. RENARE Staff Participants	150	158	158
ii. Others	500+	-	-
b. External (p/m)	84	5	27
4. CONSTRUCTION/REMODELING			
a. Headquarters (R)	1	1	-
b. Visitors' Center (C)	1	1	-
c. Altos de Campana (R)	1	1	-

Component	Target	In-Progress	Completed
<b>D. Rio Caldera Watershed</b>			
1. MANAGEMENT PLAN	1	1	1
2. TREE NURSERIES	2	1	1
3. PILOT CONSERVATION AREA (hectares)	150	-	-
4. PASTURE NURSERIES	6	2	2
5. REFORESTATION			
<b>E. La Villa Watershed</b>			
1. MANAGEMENT PLAN	1	1	-
2. CONSTRUCTION OF ADMIN. OFFICE	1	-	-
3. IDENTIFICATION OF ACTIVITIES	1	-	-
4. REFORESTATION (hectares)	1,000	-	-

Component	Target	In-Progress	Completed
<b>C. Canal Watershed</b>			
<b>1. MANAGEMENT PLANS</b>			
a. Chagres Forest Reserve	1	-	-
b. Altos de Campana Nat'l Park	1	-	-
c. Soberana National Park	1	-	-
<b>2. FOREST INSPECTOR CORPS</b>			
a. In Operation	1	1	1
b. Inspectors On Board	33	46	46
<b>3. REFORESTATION (Hectares)</b>			
a. Forest Plantations	6,500	↑	↑
b. Agro-forestry	2,500		
c. Permanent Crops	1,500		
<b>4. SEED BANK</b>			
a. Training	1	1	1
b. Equipment	1	1	-
<b>5. NURSERIES</b>			
Nurseries	7	7	7
Satellite Nurseries	5	5	5
<b>6. SOIL CONSERVATION</b>			
a. Critical Areas	48	15	10
b. Demonstration Activities	8	4	1
c. Aereal Photos	1	1	80%
<b>7. PASTURE IMPROVEMENT</b>			
a. Demonstration Plots (hectares)	600	60	60

Component	Target	In-Progress	Completed
<b>A. Institutional Development</b>			
<b>(continued)</b>			
<b>5. EQUIPMENT &amp; MATERIALS</b>			
a. Jeeps - Pickups	34	26	8
b. Radio System	1	1	-
c. Buses	2	-	1
d. Heavy Equipment	9	9	-
e. Light Equipment	5	5	-
f. Cartographic Materials	1	1	1
g. Office Equipment	1	1	-
<b>6. EVALUATION</b>	<b>1</b>	<b>1</b>	<b>-</b>
<b>B. Education &amp; Research</b>			
<b>1. WOOD TECHNOLOGY CENTER</b>			
a. Remodeling	1	1	-
b. Equipment & Materials	1	-	-
<b>2. INFORMATION CENTER</b>			
a. Construction	1	-	-
b. Equipment & Materials	1	-	-
<b>3. COMMUNITY RELATIONS DEPT.</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>4. RESEARCH ACTIVITIES</b>			
a. Erosion	1	-	-
b. Water Quality	1	1	-
c. Wood Technology	1	-	-

<u>III. FINANCIAL STATUS</u>	<u>12-31-80</u> <u>Project Ag</u>	<u>12/31/80</u> <u>Approved for</u> <u>Implementation</u>	<u>12/31/80</u> <u>Accrued</u> <u>Expenditures</u>
<u>A. INSTITUTIONAL DEVELOPMENT</u>			
1. Personnel & Operating Expenses	500	424	202
2. Technical Assistance	1,120	719	
3. Training	230	140	54
4. Construction	185	185	11
5. Equipment/Materials	380	354	177
6. Evaluation	50	10	-
<u>B. EDUCATION &amp; RESEARCH</u>			
1. Equipment & Materials	450	276	3
2. Construction	85	69	9
<u>C. CANAL WATERSHED MANAGEMENT PROGRAMS</u>			
1. Reserve & Park Management	800	312	74
2. Reforestation	3,575	3,130	1,210
3. Soil Conservation	1,100	108	1
4. Pasture Improvement	275	132	4
<u>D. UPPER LA VILLA WATERSHED</u>			
1. Watershed Management Program	110	6	-
2. Reforestation	315	-	-
3. Soil Conservation	275	-	-
<u>E. CALDERA WATERSHED</u>			
1. Watershed Management Program	140	18	-
2. Reforestation/Soil Conservation	410	217	-
TOTAL	10,000	6,100	1,754

## PROJECT ACCRUED EXPENDITURES REPORT - WATERSHED MANAGEMENT LOAN (T-049)

JUNE 30, 1981

(\$000's)

<u>Expanded Cost Components</u>	<u>Obligations</u>	<u>Approved for Implementa- tion</u>	<u>Accrued Expenditures 6/30/82</u>	<u>Unliq. Balance 6/30/81</u>
<b>I. Institutional Development</b>	<b>2,465</b>	<b>1,921</b>	<b>658</b>	<b>1,807</b>
1. Personnel & Operating Expenses	500	424	331	169
2. Technical Assistance	1,120	805	19	1,101
3. Training	230	143	143	87
4. Construction	185	185	7	178
5. Equipment & Materials	380	354	158	222
6. Evaluation	50	10	-	50
<b>II. Education and Research</b>	<b>535</b>	<b>363</b>	<b>4</b>	<b>531</b>
1. Equipment & Materials	450	277	4	446
a. Information Center	250	117	3	247
b. Wood Technology Center	200	160	1	199
2. Construction	85	86	-	85
a. Information Center	50	34	-	50
b. Wood Technology Center	35	52	-	35
<b>III. Watershed Management Programs</b>	<b>7,000</b>	<b>4,013</b>	<b>1,944</b>	<b>5,056</b>
1. Canal Watershed	5,750	3,749	1,942	3,808
a. Reserve & Parks Management	800	312	72	728
b. Reforestation	3,575	3,196	1,854	1,721
c. Soil Conservation	1,100	108	8	1,092
d. Pilot Pasture Improvement Project	275	133	8	267
2. Upper La Villa Watershed	700	18	1	699
a. Land Use Management Strategy	110	6	-	110
b. Reforestation	315	12	1	314
c. Soil Conservation	275	-	-	275
3. Caldera Watershed	550	246	1	549
a. Land Use Management Strategy	140	17	1	139
b. Reforestation	75	177	-	75
c. Soil Conservation	335	52	-	335
<b>TOTAL</b>	<b>10,000</b>	<b>6,297</b>	<b>2,606</b>	<b>7,394</b>

## TELEGRAM

21 MAY 81 14 19z

INDICATE  
 COLLECT  
 CHARGE TO ROCAP

	FROM AMEMBASSY GUATEMALA	CLASSIFICATION UNCLASSIFIED	
12065 E.O. <del>1652X</del> TAGS: SUBJECT: ACTION: INFO:	N/A WATERSHED MANAGEMENT PROJECT <del>XXXXXXXX</del> EVALUATION AMEMBASSY/PANAMA SECSTATE WASHDC <del>KOKX</del> UNCLASSIFIED GUATEMALA 3411 AIDAC ROCAP FOR: HARIAN DAVIS, ADO PANAMA  1. ROCAP UNDERSTANDS USAID/PANAMA WISHES TO CONDUCT IN COLLABORATION WITH ROCAP'S REGIONAL ENVIRONMENTAL SPECIALIST, FRANK ZADROGA, A JOINT EVALUATION OF THEIR ACTIVE WATERSHED MANAGEMENT PROJECT, IN ORDER TO ASCERTAIN PROGRESS AND DETECT PROBLEMS IN ITS IMPLEMENTATION. TO FACILITATE THIS ACTIVITY ROCAP IS FORWARDING IN THIS CABLE THE PROPOSED DETAILS AND PROCEDURES FOR THIS EVALUATION AND A SCOPE OF WORK. USAID/PANAMA SHOULD APPROVE OR MODIFY THIS APPROACH AND COORDINATE WITH RENARE, AID/WASHINGTON, ETC. ROCAP UNDERSTANDS THAT		
ROCAP 3 AMB DCM AID CHRON			
DRAFTED BY: ENRE: FZADROGA/DDV	DRAFTING DATE 5/20/81	TEL. EXT. 365	CONTENTS AND CLASSIFICATION APPROVED BY: ADIR: HUBASSFORD

CLEARANCES:

GDO: ENADEAU (IN DRAFT)

UNCLASSIFIED

USAID/PANAMA PLANS TO USE 1981 WATERSHED PROJECT FUNDS RESERVED FOR EVALUATION. DESIRED STARTING DATE HAS BEEN PROPOSED FOR JUNE 1, 1981, SUBJECT TO FINAL CONFIRMATION BY RENARE AND AVAILABILITY OF ZADROGA.

2. ZADROGA BELIEVES EVALUATION WILL REQUIRE AT LEAST A THREE-MAN TEAM (ZADROGA AND DESIGNATED REPRESENTATIVES OF USAID/PANAMA AND RENARE) TO WORK FOR APPROXIMATELY THREE WEEKS INCLUDING WEEKENDS. ONE OF THE TEAM MEMBERS WOULD BE DESIGNATED TEAM LEADER (ZADROGA) ~~RESPECTIVELY~~ RESPONSIBLE FOR THE COMPLETION OF A BRIEF FINAL REPORT AND DEBRIEFING OF BOTH THE PANAMANIAN GRANTEE INSTITUTION (RENARE) AND USAID. RENARE WILL, IN ADDITION, ~~PROVIDE~~ PROVIDE COUNTERPART SUPPORT FOR THE TEAM.

3. FOLLOWING IS THE BACKGROUND INFORMATION AND THE SCOPE OF WORK DEVELOPED BY ZADROGA.

THE PROJECT TO BE EVALUATED IS THE WATERSHED MANAGEMENT (WM) PROJECT (525-0191) BEING IMPLEMENTED BY RENARE, THE DIRECTORATE FOR RENEWABLE NATURAL RESOURCES OF THE MINISTRY OF AGRICULTURAL DEVELOPMENT (MIDA). RENARE'S NATIONAL HEADQUARTERS ARE LOCATED AT PARAISO IN THE CANAL WATERSHED, NEAR PANAMA CITY. THIS FIVE YEAR PROJECT WAS AGREED TO ON 3/29/79 AND ITS PACD IS 9/30/83. THE TOTAL PROJECT ESTIMATED COST IS \$16,800,000 MADE UP OF \$10,000,000 IN LOAN

FUNDS AND \$6,800,000 COUNTERPART FUNDS. THIS WILL BE THE FIRST COMPREHENSIVE EVALUATION PERFORMED FOR THIS PROJECT ALTHOUGH AN INTERNAL RENARE EVALUATION AND PERIODIC USAID PROJECT REVIEWS HAVE BEEN CARRIED OUT IN THE PAST.

4. THE PROPOSED EVALUATION SHOULD CONCENTRATE ON AN IN-DEPTH EVALUATION OF BOTH THE TECHNICAL AND OPERATIONAL/ADMINISTRATIVE ASPECTS OF THE PROJECT TO ASSURE THAT STATED GOALS CAN BE REACHED ON SCHEDULE. THE DEGREE AND EFFECTIVENESS OF PROJECT IMPLEMENTATION BY RENARE AND THE LEVELS OF COOPERATION AND PARTICIPATION OF OTHER INSTITUTIONS OF THE GOP, AS WELL AS THE AFFECTED WATERSHED POPULATIONS, WILL BE ASSESSED. THE EVALUATION SHOULD, AS ITS HIGHEST PRIORITY, ASCERTAIN THE DEGREE TO WHICH THE PROJECT HAS INCREASED THE CAPACITY AND CAPABILITIES OF RENARE IN RELATION TO THE PROPOSED INSTITUTIONAL-BUILDING COMPONENTS OF THE PROJECT. IF GOALS HAVE NOT BEEN MET WITH RESPECT TO STRENGTHENED MANAGEMENT SYSTEM, PERSONNEL, TECHNICAL ASSISTANCE, TRAINING AND EQUIPMENT AND PHYSICAL FACILITIES COMPONENTS, THE EVALUATION WILL IDENTIFY THE REASONS FOR ~~SHORTCOMINGS~~ CAPABILITIES CAN BE STRENGTHENED. TECHNICAL CONSIDERATIONS RELATING TO EDUCATION, RESEARCH AND THE ~~SEEK~~ SPECIFIC WATERSHED MANAGEMENT ACTIVITIES OF THE THREE SELECTED CATCHMENTS WILL ALSO BE ADDRESSED.

AREAS WHERE IMPROVEMENT OR REORIENTATION OF TECHNOLOGY IS NEEDED WILL BE IDENTIFIED IN CONSULTATION WITH THE PROJECT'S INTERNATIONAL TECHNICAL ASSISTANCE TEAM THAT SHOULD BE ON BOARD BY THAT POINT IN TIME.

5. SCOPE OF WORK: THE DUTIES AND RESPONSIBILITIES OF THIS EVALUATION ACTIVITY INCLUDE; BUT ARE NOT LIMITED TO, ADDRESSING THE FOLLOWING MAJOR ISSUES:

A. INSTITUTIONAL CAPABILITIES:

THERE ARE INDICATIONS THAT RENARE HAS, GIVEN ITS PRESENT STAFFING LEVEL AND SCARCITY OF PROFESSIONAL RESOURCES IN PANAMA, REACHED OR IS NEARING ITS MAXIMUM LEVEL OF OUTPUT. THIS HAS SERIOUS IMPLICATIONS FOR THE PROJECT. SINCE THE PROJECT IS COMPLEX INVOLVING A VERY LARGE NUMBER OF SMALL, INDEPENDENT ACTIVITIES, IT WOULD APPEAR THAT INCREASING THE VOLUME OF PROJECT ACTIVITIES OR THE RATE AT WHICH FUNDS ARE SPENT COULD RESULT IN ACTIVITIES HAVING SERIOUS TECHNICAL DEFICIENCIES AND ADDITIONAL ADMINISTRATIVE PROBLEMS. THE ARRIVAL OF THE INTERNATIONAL TECHNICAL ASSISTANCE TEAM SHOULD ALLEVIATE SOME TECHNICAL PROBLEMS. HOWEVER, WITHOUT GENERALLY IMPROVED ADMINISTRATIVE AND TECHNICAL CAPACITY, THE PROJECT WILL CONTINUE TO HAVE VARIOUS ADMINISTRATIVE PROBLEMS AND LIMITED CAPACITY FOR HANDLING THE EXPANDED WORK LOAD THAT ADDITIONAL PROJECT ACTIVITIES WOULD CREATE. WHAT NEW STRATEGIES SHOULD BE

DEVELOPED WITH RESPECT TO STAFF RECRUITMENT, TRAINING PROJECT ADMINISTRATION AND OVERALL PROJECT DEVELOPMENT? WHAT CHANGES IN THE PHASING OF PILOT PROJECT DEVELOPMENTS MIGHT BE REQUIRED IN THE CALDERA AND LA VILLA WATERSHEDS TO ALLEVIATE THESE PROBLEMS?

B. FINANCIAL MANAGEMENT:

IT IS THE GENERAL EXPECTATION OF USAID/PANAMA AND RENARE THAT THE NEWLY PROPOSED FIXED AMOUNT REIMBURSEMENT (FAR) SYSTEM WILL MAKE PROJECT IMPLEMENTATION MORE AGILE BY ALLEVIATING FINANCIAL CONGESTION PROBLEMS. IT HAS BEEN STATED IN AID PROJECT REVIEW DOCUMENTS THAT THE FAR SYSTEM WILL BE ABLE TO BE APPLIED EFFECTIVELY TO THE REFORESTATION AND CERTAIN SOIL CONSERVATION ACTIVITIES BUT ONLY WITH THE ASSISTANCE OF THE INTERNATIONAL TECHNICAL ASSISTANCE TEAM. BOTH DELAYS IN THE T.A. ARRIVAL FOR THE PROJECT AND THE APPARENT LACK OF A CLEAR UNDERSTANDING AND FAMILIARITY OF THE FAR SYSTEM WITHIN THE RENARE ADMINISTRATIVE STRUCTURE SUGGESTS THAT THIS EXPECTATION WILL NOT BE QUICKLY AND EFFECTIVELY MET. IS THERE A NEED FOR FINANCIAL MANAGEMENT TRAINING? WHAT OTHER MECHANISM MIGHT BE DEVELOPED FOR FACILITATING REIMBURSEMENT AND ADVANCEMENT OF FUNDS PROCEDURES?

C. ADMINISTRATION:

WITHIN THE CONTEXT OF PROJECT ADMINISTRATION

TION, THE FOLLOWING THREE ACTIVITIES NEED TO BE EVALUATED IN GREATER DEPTH:

1. SUPERVISION OF FIELD WORK (I.E. REFORESTATION, SOIL AND WATER CONSERVATION PRACTICES, AGROFORESTRY PRACTICES);
2. OVERALL NEEDS OF STAFF TRAINING AND DEVELOPMENT AS WELL AS THE ADEQUACY OF EXISTING STAFF RESOURCES;
3. STAFF MANAGEMENT AND DELEGATION OF AUTHORITY.

ESPECIALLY NOW THAT TWO ADDITIONAL PILOT WATERSHED PROJECTS ARE COMING INTO THE MANAGEMENT PHASE, RECRUITMENT SELECTION AND ASSIGNMENT OF PERSONNEL TO GET THE JOB DONE BECOME CRITICAL CONSIDERATIONS. THE ADEQUACY OF DELEGATION OF RESPONSIBILITIES AND AUTHORITY AT EACH LEVEL TO CARRY OUT THE PROJECT TASKS BOTH IN THE NATIONAL OFFICES AND IN THE FIELD FOR THE PILOT WATERSHED PROJECTS WILL BE EVALUATED.

D. PROJECT IMPLEMENTATION:

PROJECT TARGETS WILL BE COMPARED TO OUTPUTS AND ACHIEVEMENTS (EITHER THOSE IN PROGRESS OR COMPLETED) TO SEE LEVEL OF EXECUTION. THE EVALUATION WILL ATTEMPT TO EXPLAIN OR JUSTIFY PRESENT STATE OF PROGRESS AND RECOMMEND ACTIONS FOR IMPROVEMENT.

SPECIFIC QUESTIONS RELATING TO THE NEED FOR BOTH AN ACTION PLAN TO MEET THE PACD AND SPECIAL PRE-IMPLEMENTA-

ATION ACTIVITIES FOR LA VILLA WATERSHED WILL BE ADDRESSED.]

E) TECHNICAL ASPECTS:

A SERIES OF SPECIFIC ISSUES WILL BE EVALUATED RELATED TO THE TECHNICAL PERFORMANCE OF THE PROJECT. AN ASSESSMENT WILL BE MADE OF THE QUALITY AND THOROUGHNESS OF THE PLANNING STAGE OF PILOT PROJECT DEVELOPMENT. AN EVALUATION WILL BE MADE OF THE DEGREE TO WHICH METHODOLOGIES AND PROCEDURES USED BY THE FIELD TEAMS AND RESEARCH PERSONNEL ARE ADEQUATE TO FURTHER PROJECT OUTPUTS AND MEET GOALS. HOW ARE THESE ACTIVITIES ORGANIZED AND ARE THEY OPERATING EFFECTIVELY? HOW DO FIELD AND RESEARCH ACTIVITIES RELATE TO BOTH THE OVERALL MANAGEMENT PLANS AND THE OPERATIONAL PLANS CONDUCTIVE IN A MANNER/~~CONDUCTIVE~~ TO ATTAINING PROJECT GOALS? TO WHAT DEGREE HAS THE PROJECT DEVELOPED TECHNOLOGY, EXPERTISE AND COMMUNITY UNDERSTANDING LEADING TO BENEFITS OF INCOME GENERATION, AND ECONOMIC FEASIBILITY FOR CERTAIN TYPES OF NATURAL RESOURCES MANAGEMENT? HAS THE PROJECT DEMONSTRATED THAT NATURAL RESOURCES CONSERVATION IS GOOD BUSINESS?

F) EVALUATION:

WHAT ARE THE FUTURE EVALUATION NEEDS OF THE PROJECT? TO WHAT DEGREE HAS THE PROJECT PROVIDED INFORMATION AND DOCUMENTATION RELATING TO THE BENEFIT/COST RELATIONSHIPS OF WATERSHED MANAGEMENT FOR THE

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THREE PILOT CASES, AND WILL CHANGES IN THE HYDROLOGIC BEHAVIOR OF THE CATCHMENTS BE DEMONSTRABLE?

6. ADMINISTRATIVE PROCEDURES FOR EVALUATION. THE TEAM WILL WORK OUT OF THE USAID/PANAMA OFFICE BUT WILL SPEND A SUBSTANTIAL AMOUNT OF ITS TIME IN THE RENARE PARAISO OFFICE. SHORT TRIPS BY INDIVIDUALS OR SUBGROUPS OF THE TEAM TO VISIT THE FIELD SITES AND NATIONAL AGENCIES AND CONTACT KEY PEOPLE ARE ESSENTIAL. AT LEAST ONE FIELD INSPECTION WILL BE MADE OF BOTH THE LA VILLA AND CALDERA WATERSHEDS. FINAL DECISIONS REGARDING EVALUATION PROCEDURES, METHODOLOGY AND ITINERAY OF ACTIVITIES WILL BE MADE BY THE TEAM AT THE BEGINNING OF THE EVALUATION. USAID/PANAMA WILL PAY ALL DIRECT COSTS OF THIS ACTIVITY, INCLUDING FIELD TRANSPORTATION AND ALSO WILL PROVIDE SECRETARIAL, LOGISTICAL AND OFFICE SUPPORT FOR THE TEAM. PLEASE ADVISE USAID'S WILLINGNESS TO COVER BOTH THE TRAVEL AND PERDIEM EXPENSES OF THE ROCAP TEAM LEADER. BRIEFING AND DEBRIEFING INTERVIEWS WILL BE CONDUCTED WITH BOTH RENARE AND USAID/PANAMA. THE TEAM WILL WORK CLOSELY WITH RENARE PERSONNEL AT ALL LEVELS DURING THE EVALUATION. A DRAFT FINAL REPORT WILL BE PREPARED IN ENGLISH PRIOR TO FINAL DEPARTURE OF THE TEAM LEADER AND TEN COPIES OF THE FINAL REPORT WILL BE SENT TO USAID/PANAMA WITHIN ONE MONTH OF THE COMPLETION OF THE IN-COUNTRY ASSIGNMENT. BACKGROUND MATERIAL WILL XXXXXXXXXXXXX

BE PROVIDED BY USAID/PANAMA AS REQUIRED.

7. TEAM APPROVAL: TO FACILITATE TEAM SELECTION AND ARRIVAL, THESE FINAL ARRANGEMENTS ARE THE RESPONSIBILITY OF HARIAN DAVIS, ADO, USAID/PANAMA, OR HIS DESIGNEE.

8. ROCAP APPRECIATES OPPORTUNITY FOR INVOLVEMENT IN THIS IMPORTANT EVALUATION. PLEASE ADVISE ON PROPOSED SCOPE OF WORK AND OPERATIONAL DETAILS. BASSFORD ACTING.

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PARTIAL LISTING OF PERSONS CONTACTED IN WATERSHED MANAGE-  
MENT PROJECT EVALUATION

USAID/PANAMA

Dwight Walker  
- Jesús Saiz  
· John Champagne  
- Robert Hechtman  
Ronald McKenzie  
Douglas Arnold  
Frank Almaguer  
Richard Harger

RENARE

Irving Díaz  
Alberto Sáenz  
César Tobar  
Jorge Mendieta  
Ivanor Ruiz  
Javier Vanegas  
Blas Morán

PROJECT EVALUATION GOALS/GUIDELINES

For the Watershed Management Project, the following evaluation goals and guidelines were established in the PP (page 69):

"Both process and impact evaluations will be carried out for the Project. Because the GOP has recognized the importance of the development of effective on-going programs in Panama's priority watersheds, careful studies of project impact in each of the three watershed will be made. To this end, two sets of aerial photographs will be taken of each watershed in the first and fifth years of the project. These photos will permit a clear visual comparison of land use changes and erosion during project implementation. That is, they will serve as a means of obtaining baseline data and of measuring project impact on an ex post facto basis.

In addition, RENARE will initiate small scale research activities which will quantitatively measure sediment yield and water quality in the watersheds where project activities occur. The information obtained from these activities will be used to assess the effects of the project on resource use in the subject watersheds.

Loan funds amounting to \$50,000 will be used for the purchase of aerial photos and for expenses related

to their interpretation. Funds for the other activities are included elsewhere within the project. In addition, program development and support funds will be provided to finance specialized technical assistance required to undertake the impact evaluations.

An annual process evaluation of the project implementation will be jointly undertaken by RENARE and AID in order to assess progress toward attainment of the project's outputs. These evaluations will serve to assess project processes and to reprogram activities as necessary, particularly in the second two watersheds. They will culminate in a formal annual loan review by MIDA and AID.

Because of the key importance of participation by watershed residents in project implementation, special attention will be given to the adequacy of participation incentives in both the process and impact evaluations."