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EXPERIENCES GAINED IN THE IMPLEMENTATION OF THE
PANAMA CANAL WATERSHED MANAGEMENT PROJECT WITH
COMMENTS ON IMPROVED PROJECT DESIGN.

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PANAMA WATERSHED MANAGEMENT PROJECT

USAID/Panama is now more than three years into the implementation of the Panama Canal Watershed Management Project with over half of the funds disbursed. At this point, I feel that there has been enough accumulated experience to draw some preliminary conclusions. These conclusions may prove to be useful in the implementation of the remaining portion of the Watershed Project as well as in the development and implementation of similar projects elsewhere in Latin America and throughout the world.

THE PANAMA WATERSHED MANAGEMENT PROJECT

I. BACKGROUND

The Project Loan Agreement, which made available \$10,000,000 to the GOP to conduct a series of activities in watershed management and related technical areas was signed in April of 1979, with implementation beginning soon thereafter. The three major purposes, as originally defined, have been basically followed throughout the life of the project. These are:

1. To strengthen the technical, managerial, and administrative capabilities of the Panamanian National Directorate of Renewable Natural Resources (RENARE).
2. To increase public awareness of the importance of natural resource conservation,
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.

Before beginning a discussion of the specifics of the Watershed Management Project, I would state that the overall effort has been very worthwhile and personally rewarding. Despite some frustrating problems, a number of major achievements have resulted. The most important of these being that a major natural resources management and protection agency is now in place, which is no longer totally dependent on international funding sources for salary support or operational expenses. This point is very important. At the beginning of the project RENARE was an understaffed, unimportant minor unit of the Ministry of Agricultural Development. It is now widely considered

one of the most important departments of this ministry. RENARE's staff and budget levels reflect the importance which the GOP now attaches to natural resources. The organization is staffed with a large group of locally and regionally trained professionals, although it is still lacking in personnel trained at the M.S. and Ph.D level, and practically all personnel are young and have only limited professional experience. It is important to note that the development of RENARE into the organization it is today probably would not have occurred without the Watershed Management Loan.

The project purposes as outlined above are being met consistently with the expenditure of funds at a reasonable rate overall. Achievements have been made in personnel training, reforestation, soil conservation and related agro-forestry activities, natural resources protection and in the areas of education, information and communications. The project was designed to attack a variety of natural resources problems simultaneously. Over a short time period this approach has provided both RENARE and AID with valuable field and program experience useful to the implementation of the balance of the present project and essential to planning future initiatives.

II. PRELIMINARY CONCLUSIONS

A. Training

In the opinion of AID and RENARE professionals closely associated with training activities, this component of the Watershed Management project was underfunded. The \$230,000 originally allotted did not provide enough funding to mount the major training effort needed to produce a better trained staff at RENARE. However, a reasonably successful effort has been made in conducting a balanced training program in spite of limited funds. Basically, the money spent on training has been "money well spent", but considering the size of the project and the fact that the focus is basically on institutional strengthening, a higher level of funding for training would have been warranted. RENARE agreed to increase funding for the training component by about 50% and has developed a proportionately larger program. Even this increased amount is relatively small given the need and must be made at the expense of other established project components.

The training provided has contributed to the overall upgrading of personnel at RENARE. With the exception of four people presently in degree programs, training has been limited to short term (1 mo. - 9 mos.) efforts. Short term external training for a reasonably high percentage of the institution's staff has had a positive impact. Individuals benefitting from training activities have improved their technical skills, gained experience and confidence in dealing with international specialists in their respective areas of expertise, are more highly motivated and in general, have become better professionals as their performance indicates. In addition, training has proven to be a great morale booster for RENARE staff.

B. Public Education and Information

Although one of the project's purposes is to increase public awareness of the importance of natural resources conservation, the project was not adequately designed to make a major contribution in this area. As in the case of training, funds for information, education and communications (I.E.&C) are relatively limited. Possibly a better way of expressing this is to say that funds for physical activities are disproportionately large and consequently occupy a major portion of RENARE's technical and scarce management resources, to the detriment of IE&C programs. RENARE has considered increasing funding for IE&C activities but to date, have been reluctant to do so at the expense of other project areas.

As in the case of training, funds spent for IE&C generally provide a very good payoff. I am of the opinion that an informed populace, sensitive to the wise use of natural resources and to the necessity of protecting the environment, is the best and possibly only hope for stemming the tide of natural resources destruction. Unfortunately, achieving results in this area is not easy. Traditionally, Latin American natural resources agencies including RENARE have been oriented more toward physical activities, primarily forestry. Until recently, little thought has been devoted to dealing with people -- the most important element in the natural resources destruction/conservation picture. Much to RENARE's credit they have, with limited funds, developed a credible, albeit small, public information and education department. The staff of this department is particularly dedicated and inspired by a real sense of urgency to inform the public of the plight of Panama's natural resources.

In addition to assisting RENARE to conduct a more intensive IE&C effort, funds should have been specifically designated to strengthen non-governmental conservation activities. Strong, vigilant, well-informed private groups are essential to any successful conservation effort. I have been pleased with the way RENARE has cooperated with and on occasions funded private groups to conduct special activities, but it is too much to expect RENARE to mount the major program needed with the existing level of funds. Support of private environmental groups should be made a component of any future AID natural resources project.

It should be pointed out that most environmental initiatives in the United States originate with private groups and the government responds to these initiatives. I can envision a similar situation developing in Latin America. The best place to generate creative, uninhibited, positive solutions to environmental problems in Latin America is through private and academic groups. Once a few such groups are organized, public natural resources and environmental agencies would ultimately have to be responsive to the positive initiatives that these groups promote. Likewise, RENARE would probably be supported politically by these groups on many issues of mutual interest. This

latter point could be extremely important. RENARE is constantly stymied in its efforts to carry out positive conservation and protection efforts when these efforts run counter to those of special interest groups i.e., lumber concessionaries, etc.. Many times these private economic interests benefit only a few influential individuals. Because of the lack of an organized independent voice(s) in favor of protecting vital natural resources for the benefit of many, they are often tragically lost to all of us forever.

C. REFORESTATION, SOIL CONSERVATION AND PASTURE IMPROVEMENT

The major thrust of the Watershed Project centers around various agronomic activities - tree nursery development, reforestation, soil conservation, pasture improvement and the construction of related facilities in the three priority watersheds. These activities provide the focal point for the project and represent activities that RENARE can implement with existing and new personnel. Success has been achieved in carrying out these activities on both public and private lands. Basically, a diversified approach has been used. Extensive efforts have been conducted involving direct government managed reforestation on public lands along with programs designed to involve small land holders. In addition, attempts have been made to conduct reforestation and other natural resources and protection activities through schools, local governmental units, churches, etc. As a result of these efforts it is estimated that 50% of the population of the Panama Canal Watershed involved in agriculture has in one way or another participated in the project. In addition, a smaller percentage has been positively affected by regulatory functions carried out by RENARE.

Despite the fact that the various agronomic activities have had a positive effect on the watersheds, some new ideas have been introduced that are resulting in modifications in project implementation procedures. The cost to government agencies of conducting reforestation programs on public lands is substantial. A recent study has determined the average direct cost for reforesting land in the Panama Canal Watershed to be in excess of \$800 per hectare. Although we consider this cost to be high it appears to be roughly comparable to costs incurred in other AID forestry projects. The fact is, reforestation programs conducted by any governmental agency will probably always be high. Relatively high costs may be warranted on public land in special cases such as the Panama Canal Watershed. It is important to keep in mind that the economic and political importance of the Panama Canal Watershed is substantially greater than most other important watersheds in Panama. Consequently reforestation costs that are warranted in this watershed may not be justified in other places. Despite the heavy emphasis on reforestation in the Panama Canal Watershed, to date, the project is shifting both human and financial resources toward greater support for reforestation and other natural resources conservation activities on private lands. In many ways this reorientation may be more appropriate for a young, inexperienced institution such as RENARE. RENARE appears to be more successful in producing a good selection of trees in nurseries, in motivating farmers to plant trees and in

providing the appropriate technical assistance, than in managing major reforestation operations. Indications are that promoting reforestation and agroforestry activities may best be done by using traditional agricultural extension techniques directed toward the private land holder. In any event, we intend to promote expanded private forestry and agroforestry activities to the extent that farmers are willing and able to participate.

Under the project we expect to continue reforestation activities on public lands and, even though we consider that such activities are warranted in the Panama Canal Watershed, we now feel that the role of these activities in the overall natural resources protection and management effort is less important than previously believed.

D. TECHNICAL ASSISTANCE IN FORESTRY AND RELATED AREAS

Securing high quality technical assistance of the type and variety needed for the project has not been easy. Since no grant funds were provided for technical assistance there was early resistance by RENARE to the use of loan funds for this purpose. As a result of RENARE's initial resistance and inexperience in dealing with foreign technicians, their contribution to the project was limited during the early months of their two-year consultancy. Only recently have they become more fully integrated into RENARE's operations.

Securing high quality technical assistance, at the right time, for a project of this type may always be difficult, but the resistance on the part of the host country agency would be lessened by grant funding a portion of the international technical assistance. Considering that with the advent of this project, AID embarked on a new venture in the area of watershed management, designing a strictly loan funded project was probably not the most appropriate approach. Future natural resource projects should provide grant funding for part or all of the technical assistance. In general, natural resources management is still principally a U.S. priority whereas most LDCs remain interested in economic development. This being so, AID should provide grants for significant portions of such projects, especially technical assistance, in an attempt to stimulate host government interest and support.

E. NATURAL RESOURCES PROTECTION

This component of the project was basically an "add on" in the project design process, but it is turning out to be one of, if not the most important sub-activity. It is generally felt that we are getting better results in the park and reserve component, which includes the park ranger corps, than in any other part of the project. It now appears that protection activities coupled with a strong participant training and public information program should be the center of most major natural resources projects. This is particularly true in a country such as Panama which has a variety of biologically rich forests and related resources that are basically intact but increasingly threatened, not to mention extensive pristine marine resources.

F. PROJECT ADMINISTRATION AND FINANCIAL MANAGEMENT

Although the project has been implemented at a fairly rapid rate (\$6,000,000 have been disbursed in three and half years), problems have arisen due to RENARE's poorly developed financial management capabilities. Limitations in accounting, budgeting and general financial management have also affected the overall performance of the project and, at times, have disrupted the implementation of carefully developed technical plans.

To a degree, RENARE's administrative and financial limitations were anticipated by the project designers, and limited funding for technical assistance in this area was provided. What was not anticipated, was RENARE's reluctance to accept needed T.A. and to give the financial problems the attention they deserve. Hindsight now indicates that the project design could have focused even more attention to developing a strong administrative and financial capability in RENARE at the beginning of the project. Likewise, securing technical assistance in this area should have been made a condition precedent to disbursing funds for the rest of the project.

Rapid expansion in the technical areas of the project simply outgrew the financial management capabilities of RENARE. Despite AID's constant urging of senior RENARE officials to deal with the problem, responses always seemed to fall behind the needs of the project. An analysis of the situation indicates that RENARE paid inadequate attention, early in the project, to overall administration and financial management; a situation that the present leadership (which took office in mid August 1982) appears to be correcting. My personal feeling is that attempting to implement a project of this size in a four and half year timeframe was overly ambitious, considering that the implementing agency had to be established and developed from the ground up.

III. OTHER CONCLUSIONS

After three and half years -- a relatively short time period which only permits preliminary impressions -- I feel that some tentative general conclusions can be drawn.

A. Probably the most important conclusion to be drawn at this time is that natural resource protection and management is best achieved through a diversified approach. Activities based strictly on protection will not get very far unless coupled with economic considerations. A balanced approach offers the opportunity to incorporate the broadest spectrum of society into the total effort. The idea that all actions must be based on economic considerations is no more valid or workable than attempting to conduct activities designed to protect natural resources for strictly esoteric reasons. People respond to positive natural resources initiatives for a variety of reasons and a person will be motivated for different reasons depending on timing and circumstances. AID's natural resources programs on a

worldwide basis tend to over emphasize reforestation, sometimes to the exclusion of protection and regulatory activities. In this regard, we should be aware of the fact that once depleted, a natural forest can never be fully restored. Furthermore, most reforestation efforts produce a totally new biological system which no longer resembles the natural forest that once stood on a particular piece of land. The value of natural forests and the value of well managed reforested areas are both very positive to society but each make a rather different contribution. A discussion of this point would necessitate considerable space and is beyond the scope of this paper. The important point is that protecting natural forests and other resources must be done now, it cannot be done after the forests are gone. Reforestation on the other hand, can be carried out at a future date.

B. Natural resources protection and management programs, no matter how well intentioned, will be limited in effectiveness without the necessary institutional base and capable administration. Since determining the value of natural resources protection and management to society is a very subjective process, and varies greatly with the prevailing political mood, the overall effort may always be subject to fluctuating monetary support. The fact that natural resources projects are extremely difficult to evaluate in economic terms and are not easily or well understood by the average citizen or even many public officials further complicates efforts to establish a strong institutional and monetary support base for such projects.

C. Any endeavour to develop a sound institutionalized program in natural resources requires a substantially longer commitment than normally allotted for carrying out AID projects. To have an impact natural resources programs require a long-term commitment.

A FINAL COMMENT

We should fund natural resources projects based on criteria that differ from those normally used to fund the standard AID economic development project. Most AID economic development projects are justified on the basis of the direct benefit to the host country. The benefit to the U.S. of such projects is generally only considered to be indirect. The value of the protection phase of natural resource projects may very well be of equal or more direct benefit to the U.S. and to the other developed nations than to the countries receiving project assistance. This is particularly true of natural resources protection programs in tropical areas. Only a handful of developed countries have more than a very small area of tropical land within their territorial boundaries. Most of the tropical areas of the world are controlled by developing countries. Most of the world's biologic diversity, much of it yet to be studied scientifically, is found in the tropical areas. By supporting natural resources efforts of interest to LDCs, we are furthering our own direct interests as well. The extreme importance of the tropical areas to the

developed nations and mankind as a whole is to be found in the rich biologic diversity which characterizes these areas and the essential role they play in controlling weather patterns, water supply and the general balance of nature. Many biological scientific advances are based on natural renewable resources. Consequently, future biological, medical, agricultural, and environmental achievements will depend to a great extent on the availability of diversified biological material. The destruction of the tropical forests will greatly reduce the range of biological diversity available to the scientific world for such purposes and the ultimate destruction of the tropical forests is unthinkable.