

AN EVALUATION OF THE POTENTIAL FOR PEACE CORPS/AID/HOST COUNTRY

COOPERATION IN

SOCIAL FORESTRY PROJECTS

E C U A D O R

(January 10 - 19, 1981)

PREPARED BY

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EXECUTIVE SUMMARY

E C U A D O R P A S A R E P O R T

I. HOST COUNTRY GOVERNMENT AGENCIES

The government of Ecuador has declared forestry and resource conservation a priority concern. The Department of Forest Development (DDF) in the Ministry of Agriculture is primarily responsible for forestry although four regional development organizations are also involved.

DDF's resources, both staff and materials, and its programs are insufficient to deal with the rate of environmental degradation. The lack of forestry extension is DDF's most pressing problem. PCVs currently work in DDF nurseries and must use their own energy and creativity to expand into extension work. The DDF provides a counterpart for each PCV.

Fundacion Natura, a private, non-profit Ecuadorian organization, focuses on both increasing public awareness of natural resource management and supporting national governmental institutions that promote conservation of flora and fauna. This organization has received AID funds to undertake a number of environmentally related projects, including an environmental profile of Ecuador. Currently, Fundacion Natura does not work with PC in any capacity.

EMDEFOR is a mixed (public/private) enterprise for forestry development dedicated to reforestation and wood products utilization. It was created in 1980 by the National Development Bank to establish an economically viable forest products industry

in Ecuador. It will offer economic incentives to small land owners to plant trees, manage plantations and assist harvesting operations. EMDEFOR has requested two PCVs and has already taken some very positive steps toward achieving its goals.

II. PEACE CORPS INTEREST/EXPERIENCE

PC/Ecuador currently has 12 PCVs in forestry and wants to expand its efforts. Staff reductions could seriously affect PC's ability to expand its forestry efforts and to stress its relationship with the ministry.

Material resources, both from PC and DDF, are minimal. The geographic focus of PC forestry projects is commensurate with DDF's.

III. USAID

Since 1977, AID has been expanding its operations and is currently planning a \$5 million forestry project that will be developed in conjunction with integrated rural development projects. PCV participation is anticipated although specific roles have not been identified. AID has provided financial assistance to several local organizations that are involved in environmental projects. The geographic emphasis of AID's projects is similar to that of the Peace Corps and the DDF.

IV. TRAINING

PC/Ecuador is satisfied with skill-trained volunteers and will continue to use them if Ecuador can do the training in-country. DDF has been satisfied with the training PCVs have received. In particular, DDF would like to see PCVs receive more training in extension. Training that involves counterparts should take place in-country in any of the numerous training facilities in Ecuador.

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LIST OF ACRONYMS

AID	U.S. Agency for International Development
AID/E	AID/Ecuador
BNF	Banco Nacional de Fomento (National Development Bank)
CONADE	National Development Council
CREA	Center for Economic Development
CRM	Regional Development Center for Manabi Province
DDF	Department of Forestry Development
EMDEFOR	Empresa Mista de Desarrollo Forestal (Mixed[Public/Private]Enterprise for Forestry Development)
FAO	Food & Agricultural Organization of the United Nations
FN	Fundacion Natural (Nature Foundation)
FODERUMA	Development Extension Service of the Central National Bank
GOE	Government of Ecuador
HCN	Host Country National
INERHI	National Institute for Hydroelectric Energy
INIAP	National Institute for Agricultural Research
IRDP	Integrated Rural Development Project
MAG	Ministry of Agriculture
NGO	Non-Governmental Organization
OPEC	Organization of Petroleum Exporting countries
PASA	Participating Agency Service Agreement
PC	Peace Corps
PCD	Peace Corps/Ecuador Director
PC/E	Peace Corps/Ecuador
PCV	Peace Corps Volunteer
PID	Project Identification Document
PREDESUR	Southern Ecuador Development Authority
PTO	Programming & Training Officer

ITINERARY

Monday, January 12

Dave Joslyn, PCD
Michale Hirsh, PTO
Richard Huber, PC/E Forestry Program Manager
John Neeling, PCV/Forestry
Pepe Torres, FODERUMA
Ing. Juan Salinas, Deputy Director, DDF
Fernando Escobar, Forester, DDF
Pronade Staff

Tuesday, January 13

Michael Hirsh, *
Fundacion Natura Staff
Dave Joslyn, *
Enrique Laso, EMDEFOR
Dave Songer, AID/E
John Sanbrailo, Mission Director, AID/E
Paul Fritz, AID/E
Fausto Maldonado, AID/E
Dave Fritz, AID/E

Wednesday, January 14

Dave Joslyn, *
Fernando Escobar, *
Robert Dixon, Forester, FAO
Milton Silva, INERHI
Alfredo Diaz, INERHI
Dave Songer, *
Fausto Maldonado, *
Gary Vaughn, AID/E
Dr. Conraad Terkvile, Director, FAO

Thursday, January 15

Travel to Chimborazo Pine Plantation, Salcedo and Ambato

Friday, January 16

Ing. Francisco Gallegas, MAG Office, Ambato
Mike Braskich, PCV/Forestry, Ambato
Hospital Gatazo Cooperative Members
Richard Huber, *

Saturday, January 17

John Jickling, PCV/Forestry, Chunchi
Richard Huber, *

Saturday, January 17 (Continued)

Site visits to Emdefor Nursery and Colegio, Chunchi

Sunday, January 18

Marco Idrovo, Head of Town Council, Chunchi

John Mitcheli, PCV/Forestry, Guanote

Richard Huber, *

Site visit to potential plantation sites, Chunchi

Monday, January 19

Mike Hirsh, *

John Sanbrailo, *

Paul Fritz, *

Dave Songer, *

Richard Huber, *

Ing. Juan Salinas, DDF

Tuesday, January 20

Michael Hirsh, *

INTRODUCTION

This report has been prepared for the Forestry Sector in the Office of Programming and Training Coordination of Peace Corps in conjunction with the PC/AID Forestry PASA (#936-5519). The report presents a brief overview of the institutions and activities concerned with forestry and natural resource projects in Ecuador. The information will assist the Peace Corps and AID Washington staff in designing and implementing future forestry PASA activities through a better understanding of field operation and needs. Also, it is hoped that this report will provide in-country donor agency staff and government officials with an objective perception of current environmental projects, institutional capabilities and relationships, and possible areas for expansion.

The issues presented correspond to an outline (Appendix A) that Peace Corps/ Washington provided each assessment team. We suggest that the reader review this outline of issues prior to reading the report to facilitate understanding the format and content. The issues were chosen because they will influence future Peace Corps, AID, and host country agency collaborative forestry efforts.

During the 10-day assessment visit to Ecuador, interviews were conducted with key personnel from Peace Corps, AID, and host country ministry institutions involved in forestry and natural resource activities. Site visits were also made to representative project areas and institutional facilities within the country.

The content of the report represents the authors' viewpoint resulting from the interviews, site visits, and review of available documents. The authors wish to express their appreciation to all who contributed time and energy to making the visit complete. It is hoped that the results represent a balanced and objective analysis of a complex series of activities.

HIGHLIGHTS

- o In general, serious environmental needs exist, e.g., fuelwood, arresting soil erosion.
- o A strong positive relationship exists between PC and Ecuador Forestry Department.
- o The recently elected Ecuadorian government has placed natural resource conservation as a priority concern.
- c Several NGOs and donor agencies with environmental focus have a strong presence in the country. Some overtures for collaboration with PC have been explored.
- o Twelve Peace Corps volunteers are working in forestry.
- o AID is implementing an integrated rural development project and PCVs will participate. Their specific role is undetermined although discussions between PC and AID have occurred.
- o PC staff is in a period of transition. The PCD and forestry staff person will depart during the first half of 1981.
- o AID activities are strongly focused on institution-building.
- o The Ecuadorian forestry department is not effectively addressing local problems in forestry, e.g., poor extension work.
- o AID is strongly supporting a local forestry development organization, EMDEFOR.

SUMMARY

The rapid deterioration of the soil, water and forest resources in Ecuador gives high priority to the development of a Peace Corps forestry/natural resources program. The major stumbling block at present is the low level of extension techniques used by the Division of Forestry Development at the Ministry of Agriculture.

The Direction of PC/Ecuador is clearly defined. PC will continue to match PCVs with DDF personnel because PC staff feels that DDF has the mandate and the human resources to do the job. The institutional relationship between PC and DDF has had some very positive notes which are expected to continue in the future. However, frustrations with DDF personnel have caused some PCVs to undertake activities with other agencies or on their own.

It is also encouraging that organizations such as FAO, FODERUMA and AID would like to improve the forest extension service activities in Ecuador. In the province of Chimborazo, AID will implement an integrated rural development project which should present interesting possibilities for collaboration among Peace Corps, DDF and AID/Ecuador. If successful, it could set an example for the rest of the country. It is important, however, that AID work with Peace Corps in the development of the Forestry, Soils, and Natural Resources Management Project paper during the early stages of conceptual design to ensure material and technical support for field activities.

On a broader scale, the inputs of FAO and AID at the central level of DDF would seem to complement PC efforts in the Field. It is important however, that AID carefully consider the degree to

which it supports DDF and the specific areas targeted for assistance. A strong commitment to extension work on both the central and field levels would enhance PC efforts.

Outside the context of the AID Natural Resources Project, a PASA agreement could use the technical and material resources of FAO, Fundacion Natura and FODERUMA to strengthen PCV activities in the field. AID support to FODERUMA, spurred by PC/Ecuador, through the establishment of a fund for financial assistance to PC and DDF foresters, is an indication of AID's willingness to collaborate. This should not be construed as meaning that PC and AID programming is directly in line. But it does establish a climate for increased coordination between the two.

Both pre- and in-service training could be done completely in Ecuador. With technical assistance from the U.S. Forest Service and host country agencies, the skill training of B.S. foresters, forestry technicians, and natural sciences college graduates could be first-rate.

In order to develop properly a PC/AID/DDF Forestry program in Ecuador, there is an immediate need to resolve the staffing problem at PC/Ecuador. The time is right for an active PC program in forestry, and for this to occur, a staff position is needed.

Resolving the major staff problem at PC and planning between PC and AID would complement the already favorable conditions for implementation of the PASA agreement in Ecuador. By addressing the DDF's current extension weaknesses, PC and AID would be making concrete contributions to the conservation of natural resources in Ecuador and the provision of basic human needs in rural communities.

PREFACE

Ecuador is divided into three major geographic areas, the west coast, the Sierra and the Oriente, each with a unique biotic character. This report will discuss only the organizations working in the high upland region, the Sierra. The reasons for this focus are that: (1) The majority of the population is found there; (2) the urgency of forestry problems is more severe; and (3) the attention of the Ecuadorian government is clearly focused there. This is not to ignore the great potential for significant forest management assistance in the other two parts of the country, but in the scope of this report the complex forces working on and in the west coast and Oriente jungle cannot be justly addressed.

The current environmental situation in Ecuador is directly linked to the social situation. Severe environmental degradation is occurring in areas with high concentrations of poor families, living an agricultural subsistence on farms that are too small, or land that is too steep and too poor. Water, agricultural production, and fuelwood are everyday problems affecting the basic human needs of these families. Forests, once there and now gone, were an integral link in the chain of environmental health and stability which is now missing. Environmental gains and long-range improvement of the forestry situation will have to take into account a myriad of additional social, economic, political and cultural problems.

I. HOST COUNTRY GOVERNMENT EFFORTS IN FORESTRY

The government of Ecuador (GOE) recently identified its priorities for growth and development in an ambitious five-year national development plan (Plan Nacional de Desarrollo, 1980 - 1984, del Gobierno Democratico). This plan proposes sweeping internal reforms in the structure of the executive branch, as well as long-range approaches for improving agricultural and industrial production. Major efforts will include the centralization of splintered regional government agencies, support of increased scientific and technological development, integration of planning organizations, comprehensive rural development, the organization and control of urban growth and expansion of tourism. The rural development sector includes a broad range of objectives and strategies, with eight major action programs specified: integrated rural development, agrarian reform, colonization, agricultural crop development, animal production, forest development, agricultural marketing, and watershed and irrigation management.

The actual support that forest development will receive in this broad scheme is difficult to determine, but its identification as a major development program signifies an awareness of its importance. The forest development budget projected for the next five years is 1,777 million sucres, or roughly \$65 million. To put this figure in perspective, the amount is slightly more than is planned for rural health or rural education, but less than half of the investment projected for public highways. The current economic emphasis on forestry is greater than the support received in the past.

The forestry sector is administered by the Department of

Forestry Development (LDF) in the Ministry of Agriculture (MAG). Although four regional development authorities (CEDEGE, CFEA, CRM, and PREDUSUR, still function apart from the MAG and administer separate natural resource programs, the major responsibility for forestry management is under the jurisdiction of the DDF. The DDF maintains a central office in the capital and administers 10 district offices.

The technical resources and staffing levels of the DDF are inadequate for the scope of the task at hand. The staff does not have the expertise required for planning and maintaining a coherent program. Established research facilities do not exist, although various groups, both national and international, have unrelated research projects scattered throughout the country. National training institutions and universities do not provide a sufficient background for DDF personnel to manage the nation's forest resources properly.

Institutionally, there are various forestry schools in Ecuador. The DDF maintains a 30-person forestry training institution, Central Forestal Conocoto, located within a half hour drive from Quito. This institution provides many of the two-year degree forestry technicians employed by the DDF. The DDF maintains a small technical library in its central office in Quito, which also contains a few teaching aids.

The bureaucracy of the DDF unfortunately does not communicate well with other public and private agencies doing similar work in natural resources management. Throughout the GOE, there are autonomous and semi-autonomous agencies doing virtually the same type of planning and programming. For example, the DDF does the same type of ecological mapping as INERHI, PRONERAG and

Fundacion Natura. The government is trying to centralize all these efforts with an umbrella planning office, CONADE, run from the Vice President's office. Dissolving the already established bureaucracies will be a substantial task.

The approach to forest management by the DDF is essentially single faceted. Most efforts are placed in the development of nurseries and the production of Monterrey pine (*Pinus radiata*) and Eucalyptus (*Eucalyptus globus*) seedlings. Other important aspects of forestry - research, silviculture, mensuration, marketing, economics, fire protection, and multiple use - are not addressed to a significant degree. Since most of Ecuador's Sierra region has been almost completely deforested, this narrow approach displays a logistical reaction to a specific problem. There is no question that reforestation is necessary. However, other areas in forestry will have to be addressed in the future.

Nurseries have been established in each of the 10 administrative districts, with a total of 41 DDF nurseries nationwide. The highest concentration is found in the central Sierra region, in the provinces of Chimborazo, Bolivar and Tungurahua. This area has been identified by the DDF as its highest priority for work. Each nursery is administered by a university-trained forester, with a small staff of 1 to 3 technicians. Between 5 and 15 unskilled laborers do most of the physical work. Nursery seedlings are sold below their cost of production to individuals or groups. Seedlings are delivered without charge to two types of locally organized land collectives, "cooperativas" and "comunas." The DDF makes a contract with these groups, requiring 10% of the gross receipts from the harvest to be paid to the DDF for the cost of the trees and whatever technical

assistance may have been provided. If the "cooperativa" does not own the land on which it plants the trees, another 25% of the gross goes to the landowner, with the remaining 65% going to the "cooperativa."

It is questionable whether many of the members of the land collectives understand the terms of these contracts or will agree to the administered harvest of the crop.

In most cases, the trees produced by the DDF nurseries do not go to the most economically deprived individuals, the "minifundistas." The main reason for this is that the "minifundistas," who make up the majority of the families in the Sierra, do not have enough land to spare from agricultural crops to devote to tree planting. There are some instances, however, of "minifundistas" forming "cooperativas" to plant on third party land or pooling small bits of their own land for tree plantations. Another smaller portion of the population finds more opportunity to make use of the DDF contracts for trees. These people, still poor landowners, make up the bulk of people receiving the DDF seedlings.

The lack of forestry extension looms as the DDF's most pressing problem. There are many reasons for the lack of extension work and most of them will take a great deal of time to address. Most DDF personnel do not like to work in remote parts of the country, and presently some of them commute long distances to get to work. The individuals with whom DDF personnel have to work in the "campo" offer them no hope of widespread recognition or monetary reward. There are few common denominators of experience and interest between DDF personnel and the rural inhabitants. That many of the people who most need forestry

education through extension are Indians, compounding the problem even more because old prejudices still affect the ability of DDF personnel to treat these individuals fairly. The problem of ethnic distrust is a two-way street, of course, as Indians often see the arrival of a government employee as a threat to the scarce resources they presently control. Sometimes, Indians will offer gifts and favors to government employees in hopes of appeasing them. It is not an atmosphere conducive to organization, cooperation, and investment in a long-term crop like trees.

Considering the gravity of the environmental problem however, there is no choice but to try to improve the extension system. Without commitment by local communities to promote and protect forest plantations, there is little hope of successful forest development. Obviously, "campesinos" are quite aware of the scarcity of fuelwood, and would like to have the problem alleviated. Yet there is nothing in their traditional background which offers them direction in making decisions on how to grow and maintain an artificially introduced forest. Since a certain amount of forest cover is necessary for the survival of rural communities, the message, if properly delivered, would produce some effect.

A new approach to land management that fits the existing social system will be required, and models of pure forest management will have to be altered. A new type of DDF employee, not just a forester but a social worker will be needed to do the proper promotion work. These employees will need a deep commitment to long-term goals and a close association to the community with which they work.

DDF administrators are partially aware of the extension

problems, and want to address them. Juan Salinas, Deputy Director of the DDF, told the forestry assessment team of a strong desire in the agency to develop a larger, more relevant extension training program. Dr. Salinas expressed hope that the PASA agreement between PC and AID would better enable the DDF to make headway in this area. He felt that a joint forestry training program, involving PCVs and their Ecuadorian counterparts, as described by the PASA, would help immensely in beginning to build an extension philosophy among the DDF employees. The PCVs' extension work, their techniques, successes and failures could also serve as examples for the DDF counterparts. In-service training for PCVs and their counterparts was viewed as being particularly favorable in combatting the problem.

At present, the DDF is quite satisfied with the PCVs working in the agency. PCVs are seen as valuable additions to DDF's programs because of the volunteers' fresh ideas about forest management. Almost all forestry PCVs work in district nurseries. DDF supervisors focus the PCVs' task on seedling production. PCVs have to use their own energy and creativity to expand into extension work and other untouched areas of forest management. Some PCVs have taken it upon themselves to run small experiments, do mapping, and test different irrigation and planting techniques to add variety to otherwise overly simplistic nursery work.

The attitude of the PCVs toward the DDF ranges from begrudging tolerance to scorn. Most of the volunteers find their DDF bosses ineffective, undermotivated, and poorly informed. The material and technical support DDF offers the volunteers is at best minimal and often nonexistent. The inertia of the agency bothers the volunteers, who feel their desires for progress and

action are ignored. One volunteer took it upon himself to build non-DDF community tree nurseries after local "campesinos" expressed an interest, and he paid for the development of the nurseries out of his own pocket.

The PCV counterparts provided by the DDF are generally the two-year trained technicians. Generally, these individuals are satisfied with a limited scope of work duties around the nurseries. The DDF attitude toward counterparts is that 2 years of forestry training should be a minimum prerequisite. This requirement often excludes other DDF workers who, if provided additional training, could be effective technicians and extensionists.

The DDF has recently received additional assistance from other agencies. FAO has contracted an experienced forest planner, Robert Dixon, to work directly for a year with the DDF on developing a five-year plan. Mr. Dixon is also attempting to train a counterpart in data base compilation and forest planning.

The DDF has also recently entered into an agreement with the extension arm of the Central National Bank, FODERUMA, to receive funding for forestry projects throughout the country. Peace Corps personnel helped catalyze the agreement by convincing AID to contribute \$20,000 from the small projects fund to serve the basis for FODERUMA's matching funds. FODERUMA's philosophy is to try to promote social and economic programs from the money the central bank accumulates from oil profits. The DDF, as a recipient, can administer the money to the districts which have requested financial help to implement forestry projects.

II. PEACE CORPS/ECUADOR

Peace Corps/Ecuador has a sound administrative base and maintains a good rapport with the host government. There are roughly 200 PCVs working in country at this time in 17 different projects.

The forestry assessment team had several interviews with PC/Ecuador staff during the course of the visit. Participants in the meetings included Dave Joslyn, PCD; Mike Hirsh, PTO; and Richard Huber, temporary forestry program manager. Dave Joslyn is a PhD forester, and will finish his term of service in June, 1981. Mike Hirsh was recently hired by PC after working several years for AID in Paraguay, Chile, and Ecuador. He expects to be in Ecuador for two more years. Richard Huber was formerly a PCV in Ecuador working in the Ministry of Agriculture. Until March 31, 1981, he will be under a non-renewable personal services contract to function as the program manager for forestry and to develop a PCV forestry training program. The discussions with the assessment team were open and frank, with agreement that all parties involved could benefit from the process. Dave Joslyn was aware of the PASA from previous involvement during the conceptual stage of the agreement. PC/Ecuador's attitude toward working in forestry is quite clear. They want to participate. They view forestry projects as an important factor in the sound growth and development of Ecuador. They are committed to work with the DDF and they see the contribution of PCVs in Ecuadorian forestry development as significant and timely. Since Dave Joslyn has an impressive forestry background, the impetus and leadership for forestry programs is quite strong. PC staff also believes the social and political environment for expanded forestry programs

is very good at this time.

Currently, there are twelve PCVs working in forestry projects in Ecuador. Four have spent 1½ years in-country; eight others entered Ecuador in late 1980. The volunteers work with the DDF of MAG, and their major duties center around the existing DDF nurseries and local extension work. The programs are progressing roughly as planned, with volunteers working through DDF district offices. Each volunteer works with a counterpart. A list of forestry PCVs is provided in Appendix C.

The material resources available from PC to support the volunteers are nominal. A limited number of technical supplies and books are available in the PC office. Very little pertinent information about forest management in Ecuador exists. Audio-visual equipment can be borrowed from the PC office, but there are no natural resources presentations available. There is a PC pick-up truck that can be utilized by volunteers for important program work.

Similar to the DDF, the geographic focus of forestry PCVs work is in the Sierra region.

A non-Peace Corps agro-forestry project is worth mentioning. Dr. John Bishop, who works with the Summer Institute of Linguistics in the Oriente, has been working on different techniques to utilize and manage disturbed sites in the tropical rain forest. His work specifically deals with some of the problems that the Forestry PASA wishes to address. Because the main thrust of the DDF program is in the Sierra and because of limited time, the forestry assessment team did not visit Dr. Bishop. Richard Huber visited Dr. Bishop in April 1980 to explore the possibility of collaborating with him.

The DDF has requested 20 more volunteers to enter Ecuador in late August, 1981 to further support a reforestation program. However, PC/Ecuador faces a staffing problem to provide a program manager for these volunteers. A personnel slot can be made available for this position but no finances are available for the salary. PC/Ecuador feels frustrated in its programming efforts in forestry, because of the lack of financial support for the program's key person. With the climate ripe for expanding forestry efforts on all fronts in Ecuador, the lack of financial resources threatens to scuttle the PC/Ecuador forestry program altogether. The need for a staff person is immediate, because the temporary program manager, Richard Huber, will complete his contract in March, 1981. When Huber leaves, the PCVs now working in forestry will be administered by other program managers as a stop-gap measure to provide the necessary staff support. There is no potential for the new forestry volunteers arriving in August, to be supported by the already taxed program managers in other fields.

The staffing problem could conceivably be solved, in the opinion of PC/Ecuador, by the immediate implementation of the PASA in Ecuador. PASA funds could be used in several ways to provide volunteer support and future program development in the forestry area. For instance, a forestry programmer could act in a dual role as programmer for the PASA and also a forestry program manager. Or PASA funds could pay the salary of the forestry program manager directly, as well as for a separate programmer.

PC/Ecuador above all feels the implementation of the PASA should be flexible to meet the unique, specific needs of the expanding forestry effort in Ecuador. PC/Ecuador believes that

the current timetable of PASA activities would not provide programming or staff support for forestry in Ecuador early enough to be appropriate. Since Ecuador is at the take-off point for forestry programs at this time, the proposed PASA timetable would create such a delay that could jeopardize the good relationship that PC/Ecuador now maintains with the DDF. A sudden change in direction from a growing to a postponed forestry program would not necessarily destroy this working relationship. Yet PC/Ecuador believes the strain would make the PASA initiative less credible than it should be.

PC/Ecuador also mentioned two other criteria for their participation in the Forestry PASA. First, forestry projects would have to put volunteers in places in concert with the priorities and requests of the DDF, not according to the priorities of AID. Second, training of host country counterparts should be carried out in Ecuador to apply techniques more specific to that environment and to keep uncommitted DDF employees from jumping into counterpart roles just to get a trip to a training center out of the country.

III. AID/ECUADOR INTEREST/EXPERIENCE

During the last 3 years, AID/Ecuador has been rebuilding. Due to the tuna wars of the early 70's and Ecuador's entrance into OPEC, AID operations were minimal up until 1977. Since that time, the mission has been gradually expanding. As of January 1981, there are 8 direct hires, 20 local staff and several contract managers. These numbers, of course, do not include personnel working as consultants under various AID contracts.

Forestry project development has been administered by a number of different staff members. At present, there are no trained foresters on staff, nor are there plans to hire such a person in the near future.

John Sanbrailo, the Mission Director, was a Peace Corps volunteer in Columbia. He has been directing the mission for the last 18 months. The rural development officer, Fausto Maldonado, is Ecuadorian and has a PhD in soil science. He has helped AID develop projects in agriculture and soil conservation. He is also the current president of the Soil Conservation Society of Ecuador. Dave Songer is the principal organizer of the project identification documents in forestry, soils and natural resources management. Dave is a generalist who has been in Ecuador for about one year. Paul Fritz is the program development officer and he has been in country only a few months. In the area of energy, Gary Vaughn is the main author of an Energy Project Paper slated for completion March, 1981.

AID/Ecuador is currently planning a \$5 million forestry project to be implemented over a 5-year period. The Project Identification Document (PID), principally written by Dave Songer, Dr. Fausto Maldonado, and Mission Director John Sanbrailo,

underwent numerous revisions which continually changed its focus. The PID was strongly influenced by the visit and subsequent report by Dan Deely and George Guess of the AID Development Support Bureau in Washington, D.C. The final step in planning this project, preparing the project paper, will be completed in 1981. It should be stressed that given the continually changing institutional mandates in Ecuador, it is possible that the final forestry project could be quite different from what is described in the final PID approved in Washington, D.C.

For this reason, we feel that our observations and the input of Peace Corps/Ecuador staff could significantly affect the way in which field work is planned and where the focus of institutional strengthening should be. PCV input has not been maximized in the development of the current PID, and PCVs' future roles in forestry activities within the project are as yet unclear. However, PC Director Dave Joslyn, has reviewed the PID. Peace Corps is concerned about the heavy concentration of human and material resources in the integrated rural development project (IRDP) areas. In conversations with the assessment team, John Sanbrailo and other AID staff readily accepted that this could be a problem. These problems were illustrated during the assessment team's visit to the Salcedo area. Forestry agents expressed their frustrations with the continual flow of "gringos" into Salcedo asking for explanations of forestry activities.

The project will focus on Chimborazo Province as a whole. Areas of further concentration are Quimiag-Penipe in Chimborazo Province and Salcedo. Both Quimiag-Penipe and Salcedo are current sites of AID-financed IRDPs.

Because the project focuses on the entire province of Chimborazo, it presents numerous opportunities for PCVs in the field and it could also offer possibilities for future programming in forestry. Limitations exist however. DDF's operations in this province are limited and if Peace Corps continues with its policy of pairing PCVs with DDF functionaries, the extent of PCV involvement could be very limited. Incidentally, USAID/Ecuador has been focusing its plans with DDF in this project more on the central level in Quito than in the field. Depending on the relationship established with EMDEFOR in the field, USAID may need to reconsider field-level operations with DDF.

Under further analysis, the extension input from PCVs might prove valuable to the AID program. Coupled with this would be a review of the material support plans within Chimborazo Province for the forestry sector.

The AID/Forestry Natural Resource Management project will also attempt to strengthen institutions at the central/national level. FAO currently has one forestry expert, Bob Dixon, working at the central office at DDF. The two foreign agencies could mesh their efforts if more collaborative planning took place. This could prove invaluable to the DDF and subsequently to PCVs in the field. Tentative areas for support for AID and FAO are as follows:

- Extension/training-FAO & AID
- Research & Development-FAO & AID
- Enlarging Statistical Base (on soils, etc.) - FAO & AID
- Agro-Forestry experimentation - AID
- Data Bank and Information System - AID

- Policy-related studies - AID

Despite many similarities in direction, the interaction between FAO and AID/Ecuador is very limited. Nevertheless, there is ample time to coordinate and maximize AID and FAO inputs into DDF.

It is significant that of all the areas that AID has specified for assistance to the DDF, little emphasis has been put on extension and/or training. This has been in part due to the expected inclusion of EMDEFOR in this project. AID/Ecuador has been impressed with the development skills with which EMDEFOR field personnel have been working.

AID/Ecuador is not convinced that DDF can substantially affect the quality of extension work being done, given its weak performance in the field. AID is hesitant to direct financial resources into extension operations at DDF. In the interest of institution building, it has placed its hopes on a top-down approach focusing on the central headquarters in Quito. Coupled with this is the integrated rural development project in Chimborazo which devotes substantial resources to extension at the provincial level.

Other AID Activities in Natural Resource Projects Related to Forestry

AID/Ecuador has been funding a number of activities with Fundacion Nautura, a private Ecuadorian organization. These are described in section IV of this report.

An AID energy project paper is now in the final editing stages. A major component of the alternative energy resources project is the promotion of more efficient use of forest

resources. Work with Lorena stoves is contemplated. Gary Vaughn of AID/Ecuador sees PCVs as effective promoters of this technology. If and when the project begins, this could present an opportunity for coordination between the Peace Corps and AID.

Key Points For Collaboration with AID/Ecuador

John Sanbrailo, Mission Director, would like to see increased AID and Peace Corps collaboration in the future. PCVs in the IRDP area will, of course, be involved in collaborative projects.

Outside of the IRDP areas and the Forestry Natural Resource Management Project, opportunities for collaboration diminish. AID/Ecuador is receptive and would be able to assist in the development of a project under the Forestry PASA. The target for AID activities in Ecuador and the forest sector is the same central region where most PCVs are located. This is also the area of major focus for DDF activities, so that coordination between all 3 agencies is possible.

It should be recognized that the focus of this PASA agreement is on community-level activities. AID's mandate not to have field-level activities would therefore fall on Peace Corps and DDF.

Finally, AID's objective in any project is that it fulfills long-term institution-building goals. Through the PASA, AID could do some institution building on the local level through the efforts of PCVs and DDF extensionists.

AID RESOURCES

AID/Ecuador has a number of resources which could be of assistance to PCVs. There is a library at the headquarters with a limited selection of books and periodicals in the natural sciences

and in appropriate technology. Furthermore, area specific information is available through INIAP, which is an agricultural research institute based in Quito. AID is also attempting to develop resources at the Escuela Polytecnica de Chimborazo.

Financial resources currently available include the small projects fund, which can help facilitate Ecuadorian groups wishing to carry out community projects. Each project may obtain up to \$50,000.

Through FODERUMA, AID has provided a matching grant which will help PCVs specifically in forestry extension efforts.

Of continuing assistance are the number of short- and long-term consultants who work on AID contracts. Many different technical areas are represented. As a working relationship develops between PC and AID, a healthy interchange of methods and information will benefit both parties.

John Bishop's agro-silvo-pastoral program in the Oriente is the type of project which the Forestry PASA would encourage AID to support.

IV. FONDACION NATURA (NATURE FOUNDATION)

Fundacion Natura (FN) is a private, non-profit Ecuadorian organization. It is the major non-profit group in Ecuador that is working in environmental education. As a local chapter of the World Wildlife Fund, FN's work has focused on obtaining financial support for a number of projects in both the urban and rural sectors. Major aims of the organization are to raise the public consciousness regarding natural resources management and the support of national governmental institutions that are active in the conservation of flora and fauna.

The Agency for International Development has worked through the foundation on a number of projects. Due to the unsatisfactory performance of a U.S. consulting firm, USAID has given Fundacion Natura a contract for \$250,000 to perform an in-depth environmental profile of the country. Gary Hartshorn, a private consultant, has helped organize and edit the report and the work appears to be on schedule. FN's performance on this task will be closely monitored. If done well, this would certainly increase its prestige both at home and abroad.

FN has one other major contract with AID. They have received \$100,000 to investigate the major ecological problems in Ecuador and to develop a series of audio-visual presentations in an effort to raise environmental consciousness within the country.

In five small communities, FN has helped indigenous populations fight erosion and create jobs through the use of the AID Small Program Grant fund. The funds have been used to build fences, plant trees, buy materials and otherwise support projects based on local initiative. FN has served as facilitating organization in this case to assure proper technical and financial

management.

FN continues to work with the Ministry of Agriculture on the management of 4 national parks in the country. This is a manifestation of FN's belief that it has to support government programs in natural resource management. In effect, FN considers itself the major lobbyist for the environment in Ecuador.

The organization has many plans for the future. In the near future they will be sponsoring a conference on tropical deforestation that will have speakers from all over the Western Hemisphere. They would also like to coordinate the writing of an ecology textbook specific to Ecuador. In conjunction with this work is their continuing effort to inject environmental concerns into educational curricula, television and radio programming and government.

FN is an active organization. It is presently well-supported and it has had the good fortune of having staff who are resourceful, respected and well-placed. If the current level of productivity continues, it will attract even more support very soon. We would encourage FN to continue its efforts in rural areas and especially its wise use of the AID/Ecuador Small Programs Grants fund. Peace Corps/Ecuador should review the community development strategies used by FN.

V. EMDEFOR (Mixed Enterprise for Forestry Development)

The mixed (private/public) Enterprise for Forestry Development (EMDEFOR) is dedicated to reforestation and wood products utilization. It was started in June, 1980 and represents the National Development Bank's (BNF) effort to create an economically viable wood industry with long-term ecological benefits.

Basically the idea behind EMDEFOR is to offer economic incentives to relatively poor populations so that they will plant trees, manage plantations and then assist in the sustained harvest of fast-growing trees such as Eucalyptus globulus and Pinus radiata. The project is financed through the BNF, initially at \$40 million. Already built is a modern nursery with a capacity of 3 million plants per year.

The actual methodology which they are using is described in depth in the Guist/Deely report prepared in October, 1980. Of importance to the PASA is that:

- 1) They have asked for two volunteers to work in community development/extension;
- 2) their methodology, nurseries and plantations are well thought out and excellent examples for training;
- 3) their creation affects DDF and the future of public forestry in Ecuador.

VI. FORESTRY TRAINING

The training of PCVs in forestry/natural resources for Ecuador is a particularly challenging one. The attitude of PC/Ecuador towards this type of training has been shaped by the recent experience with stateside training. This was done last summer at SUNY College of Environmental Science and Forestry, Syracuse, New York. Almost without exception, reactions were negative from both volunteers and staff.

There are a number of reasons why the reactions were so negative. The comments could be divided into three areas: 1) Content, 2) staff training, 3) geographic location of training center.

Despite a week spent in Ecuador receiving orientation about the necessary skills trainees should acquire, the training director focused on surveying and mapping. Limited training was performed in nursery management, plantation management, extension, soil conservation or agro-forestry (as ill-defined as the latter may be). The one positive note about the training staff was the input of a former PCV from Ecuador. However, his input was not in many technical areas which might have maximized the value of his experience. The message here, especially from the PCVs, is that the training staff should not rely solely on their strongest skills but should bring in people with experience in the skills needed for a forestry assignment in Ecuador.

The training of forestry volunteers going to work in tropical countries will be undermined if that training takes place in a temperate upland forest. This is doubly important when many of the trainees are environmental science majors with little forestry background. PC/Ecuador's frustration with the last

training location are manifest in its decision to do the training for 20 trainees next summer in Ecuador. Though still in the initial stages of planning, both staff and the PCVs clearly feel it will be a large improvement over Syracuse.

PC/Ecuador feels that a mix of foresters and environmental science majors would adequately fulfill Ecuador's demand for PCVs. The mix is preferred because of the ability of the trainees during training to learn from each other. Forestry technicians would be acceptable for assignment. There is, however, a consistent need for B.S. foresters in each training group, both for their technical abilities and the expectations of the host country ministry.

Skill-trained volunteers can perform all of the tasks required in Ecuador. In every case, however, there will be skill areas that are stronger than others. For this reason, briefings on technical resources within the country are necessary and every effort should be made to match PCVs with counterparts.

PC/Ecuador has been generally satisfied with skill-trained volunteers. However, for skill training to be successful, it has to be of consistently high quality. Unfortunately, as in the case of Syracuse, this has not always occurred.

DDF, the host country forestry agency, feels quite satisfied with the quality of volunteers. They are particularly interested in seeing extension emphasized for their volunteers. This is a particularly weak part of DDF's program and one in which they feel the volunteers can be helpful. It should be said also that PCVs are highly frustrated by the poor extension commitment of many DDF foresters.

Nursery management should also be a part of every PCV

training. However, in Ecuador, the major problem is not getting trees to grow in nurseries. What is lacking is the ability to get trees planted in the field. Thus the need for extension skills.

As erosion is a serious problem throughout Ecuador, tree planting for soil protection is needed. PCVs should be able to assess land capability and then match species to the site conditions. If these planting are to then be successful, the PCVs and their counterpart will have to be able to motivate villagers to protect and manage the areas planted.

Overall, the role of the PCV (and the PC program) at this juncture is seen as a catalyst for aggressive reforestation at the community level. Considering current PCV frustrations with DDF's commitment to extension, the comprehensive training of PCVs and their counterparts in community development could signal real changes in community forestry. Undoubtely, it will also be very challenging. If training of counterparts is to occur, (and all feel it would be beneficial) it should occur in-country. This opinion is shared by PC, AID, and DDF. Out-of-country training can be used as a means of doling out political favors and more important is seen as a primary cause of "brain drain." From a technical standpoint, out-of-country- training is often inappropriate. In-country technical upgrading is also see as "institution building," a goal that AID is very interested in.

The timing of counterpart training is still unclear. If the training is to occur with the PCV, and this is favorable, then due to language limitations it should be scheduled towards the end of PCV training and also as an in-service offering. This is a fairly new area, however, and most people were unsure how to manage it. Some degree of orientation to all HCN counterparts should be given

while the PCVs are in training. Areas singled out as subjects were extension, nursery & plantation management, agro-forestry, ornamental and fruit trees, beekeeping and soil conservation (planting of grasses and species information).

The use of counterparts was preferred by all parties concerned. A number of PCVs are frustrated by strict definitions of "counterpart" but they understand the reason for the definitions. The process of selecting counterparts for training should emphasize the willingness of the HCNS to get out and do field work. For these reasons, most PCVs felt that counterpart training should not always include qualified foresters in their office but rather should technically upgrade those people willing to get out and do extension, e.g., the nursery managers.

AID and FAO both have resources available to assist in the training of counterparts. These resources fluctuate however, and planning at the earliest possible stage is necessary if any funds are to be obtained. DDF and PC both have very limited resources and it is clear that they would be dependent on AID, FAO or PASA funds. FAO, AID, DDF and Peace Corps all have personnel that could be called upon for different technical questions. Fundacion Natura would also be willing to assist in skill training in environmental education and ecology.

Training facilities are numerous in the country. There is the DDF facility at Conocoto which has lodging, nurseries, research areas and plantations. There are also a number of universities which could serve as centers for regional in-service training workshops. ASDELA is a private Ecuadorian firm that currently gives PCVs language and cross-cultural training. AID/Ecuador is planning to work with the Escuela Politecnica de

Chimborazo as a training center in the future.

APPENDIX A

ASSESSMENT TEAM BRIEFING ISSUES
TO BE DISCUSSED
WITH
PEACE CORPS, AID AND HOST COUNTRY MINISTRY STAFF

The following topics should be discussed with Peace Corps staff and volunteers, AID mission staff and Host Country Ministry staff. The discussion on the topics should follow the outlines as closely as possible in order to obtain comparable data from each country. All information obtained should be cross referenced as much as possible from other sources for an objective viewpoint.

1. HOST COUNTRY MINISTRY COMMITMENT/EXPERIENCE

A. Host Country Government's priorities in development programs

1. What have been Host Country Government's development priorities in the past 3 - 5 years: Forestry/Natural Resources, Education, Health, etc?
2. What types of programs (Education, Health, Water, etc.) has Host Country Government most actively pursued from donor agencies in the last 3 -5 years?
3. What are the current developmental priorities of the Host country Government? Give examples.
4. What are projected needs as perceived by Host Country Ministry?
5. What are the projected developmental priorities for the Host Country Government in the near future (1 - 3 years)? Give examples. To what extent are donor agencies involved in accomplishing those priorities?
6. If answer to 5 is different than 1 or 2, why?

B. Forestry Department or other Government supported forestry efforts

1. What is the institutional structure of the Department of Forestry? (Include an organizational chart.)
2. What type of support does the Forestry Department receive from the parent ministry and the Host Country Government in general?
3. What are the staff/material resources of the current Forestry Department?
 - o budget
 - o education of employees
 - o training of employees
 - o forestry schools in the country
 - o research capabilities/current research activities (involving whom, what is major thrust of research)?
 - o staff stability
 - o audio-visual, technical files/library, forestry equipment
4. What types of forestry programs and projects has the Department of Forestry focused on in the past 3 years? Currently involved in? (Anticipate next 3- 5 years.) Where are these located? List examples, e.g., village woodlots, watershed management.
5. How is the Forestry Department perceived by the general public? e.g., tax collector, enforcement officer, public servant?
6. Future plans.

- C. Host Country Department of Forestry past/current experience in forestry projects with PC or AID (Separate response for each agency)
1. What type of forestry programs/projects has this arrangement usually entailed? Examples.
 2. Is there a geographical focus/distribution of these projects?
 3. What segment of society (ethnic, social, sex) have these programs/projects benefited the most? Is this going to change to any degree?
 4. What type of support has the HCM provided PCVs in these projects?
 - o material
 - o labor
 - o office space/support
 - o technical support (use of labs, etc.)
 - o dollars
 - o transportation
 - o training
 5. What are Host Country Department of Forestry's attitude and actual resource capability toward providing counterparts for PCVs?
 6. Have PCV counterparts been used? Seldom, usually, almost always?
 7. What is the institutional level of the PCVs' counterparts?
 8. What type of qualifications does the Department of Forestry require of its PCV counterpart?
- D. Host Country Department of Forestry past/current experience with private voluntary organizations and other international donor agencies
1. What are the organizations and key personnel that have been involved (past 3 years)?
 2. What type of programs/projects have taken place/are taking place?
 3. What are future expectations for programs/projects (within 5 years)?

II. PEACE CORPS INTEREST/EXPERIENCE

A. Personnel Resources

1. Are there currently staff members involved in forestry and/or related projects?
2. If so, what are their backgrounds and terms of service?
3. What plans exist for replacing them?
4. If there currently are no such staff members, what, if any, plans exist for responsibility for a forestry project?

5. What are the names and numbers of volunteers, by project, and their completion of service dates and replacement plans?

B. Material Resources

1. What type of project material support is available to volunteers from Peace Corps?
2. What type of audio-visual, technical files, library, support is easily accessible to PCVs from the Peace Corps office?

C. Peace Corps experience in forestry/natural resources projects

1. What types of forestry projects has Peace Corps been involved in in the last 3 years? Examples.
2. What are the current projects Peace Corps is involved in?
 - o are they progressing as planned? If not, what changes have been necessary?
 - o how many volunteers are involved in these projects?
 - o what degree of counterpart participation exists?
 - o what level of technical support do the PCVs/counterparts receive from PC/HCM?
3. Is there a geographical focus to PC forestry projects? If so, why?
4. To what degree does PC in-country see itself capable of programming/support for new project development or expansion of old projects?
5. What constraints do they see? What PC/Washington support will they need?

D. Peace Corps experience in collaborative projects, of any kind, with AID

1. Within the last 3 years, what type of programs/projects have been developed jointly by PC and AID?
2. Who initiated this activity and at what level (central, regional, local)?
3. What degree of involvement (money, labor, material) has existed from both parties?
4. What is Peace Corps' general perception of this type of activity?

E. Peace Corps' relationship with Host Country Ministry and AID

1. What has been Peace Corps' relationship with Host Country Ministry and AID in general?
2. Are there foreseeable changes in this relationship due to changes in budget, staff, or program priorities by any entity?

3. Are there specific issues in common/different?

- F. Peace Corps' relationship with PVOs, NGOs, and other donor agencies.
 1. What is Peace Corps' current relationship and past experience with PVOs, NGOs, and other donor agencies (including key personnel)?
 2. Has Peace Corps been able to effectively utilize PVOs, NGOs, and other donor agency personnel/material resources?
 3. What is future potential for material/technical support from these agencies?

III. AID INTEREST/EXPERIENCE

A. Staff Resources

1. Does AID currently have staff dealing with forestry?
2. If so, what is their background and terms of service?
3. What, if any, plans for replacing or adding forestry related staff exist?

B. Technical Resources

1. What technical resources (e.g., libraries, connections with research organizations, private consultant resources) does AID have that could assist PASA related activities?
2. Who has or does not have access to these technical resources?

C. AID experience in forestry/natural resources projects

1. What types for forestry/natural resources related programs/projects has AID been involved in in the last 3 years?
 - o degree of involvement
 - money
 - labor
 - material
 - o principle beneficiaries in society
 - o most important outcome

2. What type of forestry/natural resources related programs/projects is AID currently involved in?
 - o degree of involvement
 - money
 - labor
 - material
 - o principle beneficiaries in society
 - o anticipated outcomes

3. Is there a general philosophical orientation of these programs/projects?
 4. Is there a common development strategy to these programs/projects (e.g., institution building)? Give examples.
 5. Who is primarily undertaking program/project activities? Give examples.
 6. What is AID's philosophical orientation toward the use of counterparts?
 7. Is the orientation reflected in the actual projects?
 8. With what priority does AID view future/expanded efforts in the forestry area? How is that commitment evidenced?
 9. Is there a geographical focus to AID activities?
- D. AID experience in collaborative projects, of any kind, with PC, PVOs, and NGOs
1. What types of programs/projects have taken place?
 2. What organization initiated this collaborative effort and at what level (i.e., central, regional, mission)?
 3. What was the degree of involvement by each participating organization (i.e., money, labor, material)?
 4. What were/are the outcomes of these activities (e.g., primary beneficiaries in society)?
 5. What is AID general perception of this type of activity?
- E. AID's relationship with HCM and Peace Corps
1. What has been AID's relationship with PC and HCM in general (e.g., assess AID's attitude and understanding of 3 goals of Peace Corps)?
 2. Are there foreseeable changes in this relationship due to change in budget, staff, or program priorities by any entity?
 3. Are there specific issues in common/disagreement?
- F. AID's relationship with PVOs
1. What is AID's current relationship and past experience with PVOs, NGOs and other donor agencies?
 2. What type of contributions have existed in these efforts (e.g., key personnel, material, dollars, technical resources)?

IV. TRAINING

A. Peace Corps Volunteer Training

1. What is the attitude of PC, HCM, and AID staff toward skill trained volunteers in Forestry/Natural Resources programs/projects?

2. Have PC, HCM, and AID worked with trained volunteers? If yes, what type of project, if no, why not?
3. If Peace Corps has used skill-trained volunteers in any sector, where has the skill-training taken place (i.e., SST or in-country)?
4. What suggestions do PC staff and volunteers, HCM and AID have for pre-service and in-service PCV training (especially skill training) for forestry programs/projects (e.g., skill areas)?
5. What type of in-service forestry training could be provided for PCVs currently working in other programs?

B. Peace Corps volunteer counterpart training

1. What degree of involvement do counterparts have in current or projected PC, AID, or other PVO or donor agency forestry projects?
2. What is the attitude of PC, HCM, and AID toward PCV counterpart involvement in PCV pre-service and in-service training?
3. What are each entity's principal concerns about this issue, such as financial, support, technical material presented, language, travel, time away from work, etc.?
4. Are there appropriate training facilities, either Peace Corps, AID, HCM, or private, in-country or within the geographical region?

V. FORESTRY PROJECT PROGRAMMING

1. What are the tentative forestry programming issues that PC, HCM, and AID perceive as needing to be addressed before an actual new or expanded project could be implemented?
2. Which entities need to address which of these issues?
3. What further information does each of these entities feel it needs from Peace Corps/Washington, in order to determine the feasibility of further participation in the PASA?

APPENDIX B

FORESTRY PEACE CORPS VOLUNTEERS IN ECUADOR

<u>NAME</u>	<u>LOCATION</u>	<u>COS</u>
Michael Braskich	Ambato, Tungurahua	12/82
Clark Christianson	Banos, Asuay	10/81
Mark Flippo	Macara, Loja	12/82
Michele Fortin	Guaranda, Bolivar	12/82
David Hornberger	Querto, Tungurahua	10/81
Martha Christianson	Banos Asuay	10/81
John Jickling	Biblian, Canar	12/82
John Mitchell	Guamote, Chimborazo	12/82
Sean O'Brien	Bolivar, Carchi	10/81
Kathy Rood	Bolivar, Carchi	12/82
Wendy Weckeser	Saraguro, Loja	12/82

APPENDIS C

REPORT ON JOHN BISHOP'S AGRO-SILVA PASTORAL PROGRAM COORDINATION POSSIBILITIES FOR PC TRAINING PROGRAM

INTRODUCTION

On Friday April 25th, 1980, Richard Huber flew to Limon Cocha, 30 kilometers downriver from Coca on the Rio Napo to interview Dr. John Bishop. Limon Cocha (Lemon Lake) is an ancient oxbow of the Rio Napo, and is one of the most scenic areas in the Ecuadorian Amazon. On a knoll next to the lake is located the headquarters of the (SIL) Summer Institute of Linguistics (Wykoff Bible Translators-U.S. Title). Flights from Quito to Limon Cocha are made Tuesdays and Fridays of each week with exceptions. The DC-3, recently remodelled in Miami, can seat roughly 24 people. The flight of one hour is breathtaking as it passes the northern side of Cayambe. The headquarters of the Limon Cocha is quite plush, 30 cabins or so used for administration, housing of personnel, guest quarters, dining hall, etc. The Institute has many projects to educate the Indian tribes of the area. Workshops in Carpentry, Machinery, etc., are offered. The primary goal of the institute is to teach the Indian tribes (Wolegrani, Secoyas, Sconias, Quechuas, Shuaras, etc.) to read in their own language, and in Spanish. Of course, it is hoped that when they dedicate themselves to read, they will read the Holy Bible. I left with a very positive feeling about SIL; they are very dedicated people who while doing the Lord's work, are offering the Indians a chance of survival under modern day pressures (oil, colonization, modernization).

Much has been written recently on the unfortunate demise of the Tropical Rainforest. Scientists give conservative estimates that by the year 2000, the humid tropical lowlands will be "edging toward extinction"; meaning that future generation swill not have the luxury of walking thorough virgin tropical forest. They will go on the way of the dinasaurio. Predictions estimate that the Amazon basin, the source of up to 25% of the world's breathing oxygen, will be reduced to desert if protection measures against deforestation are not taken immediately. To agitate an already grave situation, the Ecuadorian Sierra is loosing its soi; fertility through erosion, and the population is doubling every 20 years with an annual growth rate of 3.4%. These factors are causing the largest human migration in the history of mankind from the drought ridden Ecuadorian Sierra to the "Luxurious unlimited paradise of fertility", the Ecuadorian

Amazon. Quickly the mountain farmer learns that this is not true. He watches his crop production drop the second year to a yield of 50% and the third year to 25% of the original production. The farmer is reduced to poverty and depression not realizing that the lowland soils are totally different from the fertile volcanic soils of the Andes, and that the ecological system must be dealt with in a different fashion. The tropical rainforest has evolved over time to utilize to the maximum whatever nutrients are available in the system. The leached clayish soils retain very little nutrients, and when the forest is felled, the rains leach whatever nutrients remain. The hot tropical sun heats down on the soils making them hard as rock. The tropical rain forest is a closed system, which recycles nutrients immediately. Any leaf fall is immediately utilized by the superficial rootsystems. Therefore, there is a contradiction between the richness of the vegetation, and the impoverished soils.

The Agro Forestry System

Limon Cocha is the site chosen by Dr. John Bishop to realize a long term study on Agro-Forestry systems for the humid tropics east of the Andes. The study began in 1976. The studies objective is to demonstrate how a poor rural farmer with the allotted parcel of land, 50 Hec. (110 acres), which is given today by IERAC (Colonization Agency which awards land titles, division of Ministry of Agriculture), can live and support his family.

Goals of the Project:

- 1.- Produce an improved and secure diet for the family.
- 2.- Improve forage and feed for animals.
- 3.- Improve or at least maintain soil fertility and general ecological balance.
- 4.- Increase yield per unit of land and capital
- 5.- Increase market options to insure, store, feed, or sell.
- 6.- Increase production of firewood.

- 7.- Improve cash flow by producing a surplus for sale at various times of the year.
- 8.- Improve distribution of demand on family labor during the year.
- 9.- Be acceptable to small farmers in terms of the amount of risk, capital and labor required (Bishop 1979)

The Agro-Silvo-Pastoral Project is geared to the ecologicistics of the tropical rainforest and to the lessons learned from the Amazonian Indians. Diversity is the key, with as few introduced species as possible. The tropical rainforest in a given area has about 300 species of trees. Bishops system uses roughly 60 species, less, but a great deal more than the existing agricultural systems used by the Amazon farmer. They plant corn, or naranjilla, and when the soils are depleted seed the area to pasture with no program of reforestation. The pasture rapidly turns to unpalatable weeds, and the farmer finds himself going farther from the house each year to collect firewood. Diversity in species also means less problem with peste, disease and nutrient shortage. In order for the farmer not to run a high risk of crop failure from year to year, diversification of crops and varieties is the classic technique for increasing reliability (KASS, 1978). This reliability will result in higher yield, and the sustainability of the systems (Fearnside, 1979).

Bishops system, simply expressed, is as follows: A farmer divides his 50 ha up into parcels, 8-1 ha parcels for integrated foodcrop, swine, chicken and firewood production, 2 ha are parceled for garden crops, farrowing pens, the house, fruit trees, chicken pens, etc. The remaining 40 hec is used for integrated cattle and timber production. (See attached booklet) The beauty of the system is that it copies in certain ways the natural forest systems. A forest has many layers. The grass layer with ferns, lichens, mosses, etc. then the bush layer, then the middle layer of small trees, and then the crown cover. Different animals take advantage of these layers, monkeys, sloths, boas, and toucans in the middle upper layers, larger mammals, tapir, deer, tinamou, cats in the middle and ground layers. Their wastes help to stimulate production by supplying organic nutrients. Bishops system adapts these concepts. A farmer cuts down the forest and plants corn, harvesting in the dry season when he also burns the felled trees. He then broadcasts seeds to begin a multi-story diverse food crop-animal forage system. Legumes have

root modules which fix nitrogen in the soil. A legume is the grass layer, which has a high nutrient content. A characteristic of a leguminosa is the bean pod. The next layer, just above the herb layers, is Achira, also used in forage for animals. The bush layer can be numerous species such as yuca, platano, orito, papa china etc. These produce foodstuffs for family consumption. The fourth layer or canopy is the guaba tree, (Inga edulis) which is a fast growing legume which improves soil fertility and structure(it has a high leaf fall) and is used for firewood. Firewood needs for a family each year are considerable, 150 trees a year, and if the trees are grown close to home, -much energy is saved. This "multi-strata production system" is repeated on each of the eight plots, giving each plot an 8 year follow period to regain soil structure, composition and nutrient level. Above and beyond this intensive production, hair sheep, chickens, and pigs are foraging around the legume grasses eating and depositing organic waste. Only the chickens receive outside nutrients as they are fed corn in their chicken pens. The hair sheep appears like a small deer. It was imported in the 18th century to South America from Asia. It is a light breed, and causes less compaction and soil erosion than conventional sheep or cattle. They are semi-wild in Texas and hunted for their delicious meat.

The 40 ha. used for cattle-firewood production is comprised of an imported legume grass, an imported forage grass which Bishop himself brought into Ecuador, and a valuable wood used for furniture and house construction; laurel (Cordia albobora). This system is also started by felling the trees and planting a corn crop. The corn growing period of 4 to 5 months gives the felled trees a chance to dry so they will be burnable. This slash and burn technique has been used by the native Amazonian Indians since the introduction of agriculture, allowing them to establish themselves for up to 7 years in one place, and not roam continually as gatherers.

The economic gains of the systems are given by Bishop in the adjacent paper. It is estimated that a 50 hec. farm could produce:

Swine income	\$4,500 per year
Timber income	\$3,000 per hectare over 20 years
Cattle income	\$3,000 per hec. over twenty years.

Plus the family is feeding itself. This income would give a family of 6 considerable economic benefit, allowing them proper education; clothing, artefacts of the modern day world, etc. The present day farmers working today without knowledge of this system are only being driven into the hole of poverty.

There are a number of givens in any systems, and they should be briefly mentioned. Limon Cocha is a pleistocene refugio meaning it did not suffer inundation during the time when the Amazon basin was an inland lake (personal estimation). The soils are better, well drained, & not as leached as others in the Napo Province because Limon Cocha receives less rain, and is at a slightly higher elevation. Bishop is an expert, he has money to hire laborers when needed and numerous other facilities which a poor peasant farmer will not have. The experiment is only four years old, and Bishop is unsure if the high yield, sustainability of the system, and reliability of the yields will be stable. He does though predict problems, and is already working on their solutions.

The Training Program

Goal- To improve the economic productivity, ecological stability and sociological viability of small family farms in HTL (Humid Tropical of Lowlands) east of the Andes through increased implementation of appropriate technology.

Purpose

To improve small farm technology transfer through enhanced mass training programs relevant to the impact area.

- 1.- A consolidated information and reference base on all aspects of appropriate technology for small farms in the HTL.
- 2.- A corps of small farm product specialists in each of the participating institutions.
- 3.- A network for the preparation and exchange of small farmer training materials for use in village adult education centers, radio education courses and practical classes in rural schools - to provide practical auxiliary reading.
- 4.- The training materials will also motivate rural population toward agricultural vocation and thus reduce rural/urban migration.
- 5.- A communication network to facilitate information exchange among farmers in the area.
- 6.- To identify technology lacking for future use.
- 7.- To spread the model to Bolivia, Perú, Ecuador.
(Bishop 1979).

John Bishop works for the Government Agency of INIAP (Instituto Nacional de Investigaciones Agropecuarias) which is under the umbrella, like JFRAC, of the Ministry of Agriculture and Livestock. The money for the project comes from a World Bank Loan which must be paid back with 8% interest. Apparently as is so often the case in similar situations with World Bank, AID, BID loans, the loan is not being paid back. In addition, the status of INIAP is uncertain, and thereby the status of Bishop's contract. His contract runs out in December 1980, ~~and he is waiting for an answer from Dr. Vince Cusumano, Rural Development Officer, U.S. AID Ecuador.~~ He is waiting for an answer from Dr. Vince Cusumano, Rural Development Officer, U.S. AID Ecuador.

I am quite in favor of a 1 month long training program in Ecuador to prepare a group or groups of foresters to work in AGRO-Silvo Pastoral programs in the Ecuadorean Amazon. The program might run in the following order:

- 1 week in the Sierra visiting the Nurseries of MAG/CREA-Conocoto-Tumbaco-Aychapicho-San Antonio de Pichincha-Maesicche.
- 1 Week in the coast visiting nurseries such as Daule, Loma Alta, Quevedo, Pinchilingue, in the Province of Guayas and San Lorenzo in Esmeraldas.
- 2 weeks in the Ecuadorian Amazon, one week with John Bishop at Limon Cocha, one week traveling with Bishop throughout the Napo Province.

It is important that the Foresters get training in all parts of the country to become familiarized with diseases, pestes, social problems, ecology, etc. Most of the Colonos in the Amazon have come from the Sierra and therefore it is important that the PCV's understand all 3 environments. Bishop suggested that the PCV's spend a little time on their site before the training program to familiarize themselves and become aware of the problems. Bishop might be the person to plan and organize the program. He has worked in PC training before in Rancho Ronald and Pichilingue. He suggest that the program be followed up by weekend seminars in Limon Cocha every 6 months. Although Bishop is quite busy, he is quite excited about the possibilities. He is dedicated to the idea of mass technical transfer programs. The rural farmer must be reached with widespread education programs.

5.

Bishop feels that his program is relatively zone specific, and therefore would like to see the first group of volunteers, I mentioned 10 as a good starter group, to be located in Napo Province. An area such as Macas (Upano Valley) has considerable climatic differences and would require different techniques. Also, with the vast areas of the Napo recently opened up due to oil exploratory roads, the greatest influx of Colonos, and thereby the greatest need is in this area.

The quality of the Volunteer is also of great importance. We discussed this at length and we both agreed that if the PCV is to offer relatively sophisticated agro-forestry techniques at a local level, the PCV should be a forester or agronomist. The program has great potential to improve the natural and human resources and diminish environmental deterioration. Three criteria should be used to choose the PCV trainees:

- 1.- Background in Ecological Sciences with degree in Forestry or Agriculture, or considerable farm experience. Knowledge of tropical ecology preferred.
- 2.- At least partial ability with the Spanish language.
- 3.- The desire to be a PCV.

While the concept of bringing down a generalist and training him or her has merit in some cases, these positions should be filled by mid-level, semi-experienced environmentalists.

If a training program were to be offered in the States, the tropical institute at the University of Florida, Gainesville might be appropriate.

Logistics

As mentioned, John Bishop is an employee of INIAP. He would prefer that any PC training program be done in conjunction with his host country agency. INIAP has a very comfortable station in Limon Cocha with beds for at least 10 people, full kitchen, and conference room. With INIAP's approval of the training program, PC could use these facilities for minimal costs, and the services of John Bishop for the two weeks would be either donated, or PC could offer to reimburse INIAP for his salary. The Volunteers should bring their food for the week to Limon Cocha, and hire a cook there. SIL has a dining room, but the Volunteers might interfere with the modest ways of these humble people. It is also quite expensive, about \$15 a day for meals. If INIAP agreed to the proposal, they might

suggest that they send along counterparts to assist the training program. Volunteers should immediately be briefed that they are representatives of MAG. The host country agency should supply office supplies, and vehicles when needed. As INIAP is a brother organization of MAG, an inter-institutional MAG-INIAP-PC agreeance should be encouraged.

In the event that INIAP would not agree to coordinate with PC in the training program, Bishop volunteered to go on vacation in order to realize the training program.

Conclusion

I have great respect for John Bishop, and have great aspiration about the success of his Agro-Silvo-Pastoral model. The poor farming peasants have been poor for generations, and it is safe to say that poverty is their culture. Great energy and happiness was expressed by the Brazilian farming peasants who migrated to the Pan-Amazonian highway region from the parched desert of Northwest Brazil. The first year, they thought they were going to be rich. The third year was met with great depression when they realized that their dream was washed away in the infertility of the soils. The same is happening now in Ecuador. Bishops model presents a valid alternative to poverty and environmental deterioration in the Humid tropical lowlands east of the Andes. Once the peasants view of his social and economic universe is one of expanding opportunity in an open system where initiative is rewarded and not met by negative sanction, he acquires initiative fast. One must convince the poor farmers that with new technology they will alter the pattern of their daily lives in order to be able to live a more abundant life, spiritually as well as materially. Only then will the tropical rainforest, its giant buttressed trees festooned with lianes and laden with epiphytes, have a chance of survival.

I strongly urge Messrs. Joslyn and Cusumano to visit Limon Cocha as soon as possible. John Bishop will be on home leave in the U.S. from May 18-July 7, therefore the trip should be planned accordingly. Limon Cocha is a tropical paradise, so a weekend Friday-Tuesday would well be with it. Almost 500 species of quality birds can be seen from a dugout canoe, paddling around the Lemon Lake. If time is not available, Bishop mentioned that DC-3 could bring the mentioned people out, and return them the same day, after they have revised the Bishop model. Reservations should be made through Ms Johnson at SIL, Phone 246246 - 246197, address of Dr. John P. Bishop; INIAP/UFLA, Casilla 5080, Quito.

Richard Huber

